

**ETHNOLINGUISTIC DIVERSITY
AS A POTENTIAL ECONOMIC BENEFIT FOR COUNTRIES:
IMPLICATIONS FOR INTERNATIONAL POLITICAL ECONOMY**

by
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requirements for the degree of Doctor of Philosophy**

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Abstract

There is a prevailing opinion, in the field of International Political Economy, that ethnolinguistic diversity has a negative impact on the economic performance of countries. Some of the scholars, however, have argued against it and stated that, under certain circumstances, the negative impact of diversity is mitigated or even reversed. According to them diversity can have a positive impact on the economy.

The dissertation took upon the endeavor to examine this proposition within the context of the OECD countries, and to see to what extent this argument is supported by the data. The dissertation began from identifying the conditions under which ethnic diversity can bring positive economic outcomes. It based its quest of the moderating variables on the organizational science, where the scholars have conducted extensive research concerning the impact of diversity on the performance of firms. Then, the dissertation transposed the research to the level of countries and designed a statistical model to assess the impact of ethnolinguistic diversity on economic outcomes, which were defined in terms of innovation. The dissertation stated the hypothesis that, in the presence of the right context, ethnolinguistic diversity leads to higher levels of innovativeness and thus, constitutes an economic benefit for countries.

The statistical analysis, which included factor analyses and simple cross-country regressions, provided support for the hypothesis. The results of the regressions have shown that, for the OECD countries, ethnolinguistic diversity, when accompanied by the right context, indeed leads to higher levels of creativity, openness and innovativeness. The Innovation Focused Strategy and Democratic Pluralism emerged as the main moderators of

the positive relationship between diversity and innovativeness. The results have also somewhat supported the Growth Focused Strategy as one of the moderators.

The dissertation results have direct relevance for the discussions in the field of International Political Economy concerning the matter of state unity. They indicate that there is a value in heterogenous societies, which is related to higher innovativeness. Therefore, the international community should encourage the functioning of multiethnic states and discourage secessions, at least in relation to advanced economies.

First Reader: Prof. Charles Doran

Second Reader: Prof. Gordon Bodnar

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PART ONE: INTRODUCTION

1. Underlying Idea

There is a prevailing opinion, in the field of International Political Economy, that ethnolinguistic diversity has a negative impact on the economic performance of countries. Some of the scholars, however, have argued against it and stated that, under certain circumstances the negative impact of diversity is mitigated or even reversed. According to them, ethnic diversity can have a positive impact on the economy. The dissertation took upon the endeavor to examine this proposition within the context of the OECD countries, and to see to what extent this argument can be supported by the data.

The problem that the dissertation is going to tackle is part of a broader discussion concerning the impact of ethnolinguistic diversity on economic outcomes.¹ There has been a vivid discussion in the field of Political Economy concerning the effects of ethnolinguistic diversity on the economic performance of countries. Most of the studies in the field of Political Economy have pointed to the negative effects of diversity and have shown that ethnic diversity reduces the rate of economic growth.² The negative effects were mainly explained in terms of the hypothesized effects of diversity upon political choices. Other studies, however, have shown that ethnic diversity is not “guilty as charged”³ and that the argument of ethnic diversity being dysfunctional is not well-founded. The scholars have noticed that there are certain circumstances, such as the existence of democratic institutions

¹ The literature of the topic uses interchangeably the terms ethnolinguistic diversity, ethnic diversity, ethnocultural diversity, racial diversity and cultural diversity when it refers to the diversity associated with different sub-national identities based on the kin group, linguistic group, ethnic group, racial group or religious group. The dissertation will also use those terms interchangeably.

² Easterly and Levine (1997), La Porta, Lopez de Silanes, Shleifer & Vishny (1999), Alesina & Spolaore (2003), Alesina, Spolaore & Wacziarg (January 2003)

³ Collier (2001)

and higher income levels, under which the negative impact of diversity is mitigated or even reversed.⁴ Moreover, some studies, which were conducted on the level of cities, have proven that ethnic diversity might have productivity enhancing effects.⁵

Therefore, some of the studies conducted in the field of Political Economy imply that there are certain moderating variables that influence the relationship between diversity and economic performance. Those variables determine whether ethnic diversity would have a positive or negative impact on economic performance. The dissertation has departed from that point and decided to conduct a thorough search for the moderators of the positive relationship between ethnolinguistic diversity and economic outcomes.

However, the dissertation defined the economic outcomes not in terms of economic growth, as it has been done in the previous studies, but in terms of the level of innovation. The dissertation has pointed to innovation as a channel through which ethnolinguistic diversity might lead to higher economic performance. The dissertation argued that ethnolinguistic diversity might increase the levels of creativity, openness to change and entrepreneurship and thus, it might increase the overall innovative potential for countries.⁶

Theoretically, the increases in creativity associated with ethnolinguistic diversity come from the interaction between diverse individuals, which stimulates the generation of novel ideas. The increases in the openness to change come from the exposure to different cultures, which broadens the horizons of the people and makes the people more accustomed to difference and thus, more open to new trends and to change. Finally, the increases in entrepreneurship are associated with two phenomena. First, diverse societies tend to be

⁴ Collier (2001), Easterly (2001), Alesina & La Ferrara (2004)

⁵ Ottaviano and Peri (2004), Florida (2002) have conducted studies on the effects of ethnic diversity on productivity in American cities and found out empirically that ethnic diversity has a positive impact on productivity.

⁶ The dissertation has based its understanding of Innovation on the theory of Joseph Schumpeter (1934, 1939)

more open to change, and therefore, they provide more individuals with entrepreneurial potential, as well as a more receptive audience for entrepreneurial actions. Second, diverse societies have a higher percentage of minorities and immigrants, and those groups have a higher propensity to be entrepreneurial.

Since it is the creativity, openness to change, entrepreneurship and innovation, which could be the channels through which ethnolinguistic diversity impacts economic performance, it is sensible to analyze the direct impact of diversity on the innovativeness of countries. It is especially sensible because, until now, none of the studies in the field of the Political Economy has done that. Therefore, the dissertation would like to make a first preliminary assessment of the impact of diversity on the innovativeness of countries, with a special focus on the conditioning variables of the right context. The dissertation would like to identify the variables of the right context and assess whether ethnolinguistic diversity, when accompanied by the right context, indeed can lead to higher creativity, openness to change, entrepreneurship and innovativeness of countries.

2. Importance of Research

The research that will be conducted by the dissertation is important for three reasons. First, it is important because it tries to assess whether the ethnolinguistic diversity can actually constitute an economic benefit for countries, rather than a detriment. Currently, the perception of ethnolinguistic diversity in the field of Political Economy is rather negative and ethnolinguistic diversity is mainly perceived as dysfunctional for the economic performance of countries. The dissertation would like to assess to what extent the data supports the alternative view which perceives diversity in a positive light.

The second reason why the research is important is because it underlines the significance of the right context, and it tries to identify the conditions which are necessary for ethnolinguistic diversity to bring positive results. The underlying assumption of the dissertation is that the positive relationship between ethnolinguistic diversity and innovativeness could be conditioned by the existence of the right context variables. If the right context is not present, ethnolinguistic diversity would actually lead to negative results. Therefore, it is essential to identify what the right context for ethnolinguistic diversity is, and that is one of the main goals of the dissertation.

The third reason why the research conducted by the dissertation is important is because it tries to tackle the issue concerning the channels through which ethnolinguistic diversity might impact the economic performance of countries. The dissertation argues that innovation is the channel. The assertion itself is not original because the innovative potential of diversity has been already acknowledged by many other scholars. However, what constitutes an original contribution to the research is the attempt made by the dissertation to quantitatively assess the impact of ethnolinguistic diversity on the level of innovativeness of countries. By assessing the impact of diversity on innovativeness, the dissertation would like to test whether, indeed, innovation is the channel through which ethnolinguistic diversity impacts the economic performance of countries.

3. Research Approach

The dissertation will base its quest for the right context variables on the research conducted within the organizational sciences. The scholars of organizational science have conducted a very extensive theoretical and empirical research concerning the impact of

ethnolinguistic diversity on the performance of firms, groups and organizations. The dissertation will draw on the theoretical foundations of that research and will try to apply the research from the level of firms to the level of countries. It will use the research to identify the context which is necessary for the ethnolinguistic diversity to fulfill its positive potential and to increase the levels of innovativeness of countries.

Having identified the elements of the right context, the dissertation will conduct an empirical, quantitative analysis of the relationship between diversity and innovativeness, moderated by the existence of the right context. The dissertation will pose the hypothesis that the countries which are ethnolinguistically more heterogenous will have higher levels of innovativeness than the countries which are less heterogenous, however, only if they have the right context in place. The dissertation will test the hypothesis by using a single cross-country Regression Analysis. The regressions will evaluate the influence of ethnolinguistic diversity on innovativeness, and, most importantly, the regressions will assess the impact of the right context on the relationship between diversity and innovativeness. Before running the regressions, however, the dissertation will conduct a Factor Analysis to identify the Independent, Dependent and the Intervening variables that will be used in the regressions.

The dissertation will design a two-step regression model to test the hypothesis, and it will apply the model to each of the Dependent, Independent, and Intervening variables. The first regression will test the significance of the relationship between diversity and innovativeness without the right context in place. It will establish whether there is a relationship between diversity and innovativeness. The second regression will be the actual test of the hypothesis posed by the dissertation. It will test the significance of the relationship between diversity and innovativeness, but as a function of the right context.

The first regression is just a preliminary step to test the grounds for further analysis. It is the second regression that is vital for testing the hypothesis posed by the dissertation. The results of the second regression are crucial for checking the plausibility of the hypothesis posed by the dissertation, which states that the relationship between ethnolinguistic diversity and innovativeness is a positive function of the right context variable.

The dissertation will choose 30 OECD countries as a sample for the analysis. The choice of the OECD countries was purposeful and it was dictated the theoretical assumptions of the research and by the availability of data. The author is aware of the fact that such a small sample size for a cross-country regression weakens the validity of the results and constitutes a main limitation of the research. However, the goal of the dissertation is not to provide a robust proof for the hypothesis, but to make a preliminary check whether the hypothesis is plausible, and for that goal the limited sample is acceptable. Since there has not been an attempt made in the literature before to test such a hypothesis, the dissertation would like to make a first attempt in that direction. It has to be left to future research to assess whether the hypothesis holds also when the sample size is enlarged and more countries are included.

4. Structure of Dissertation

The dissertation consists of five parts followed by the conclusions. The first part introduces the problem that will be tackled by the dissertation. It describes the underlying idea of the dissertation, the importance of research, the research approach and the structure of the dissertation. The second part includes the literature review of the topic. The third part

contains the theoretical foundations of the research. The first subsection of the third part describes the idea of Innovation. The second subsection of the third part is based on the research developed in the organizational sciences, and it describes the links between diversity and the different elements of innovation which are creativity, openness to change, and entrepreneurship. The third subsection of the third part describes the conditioning nature and the importance of the right context, and then it identifies the various elements of the right context. The elements of the right context are first identified on the level of firms, and then transposed to the level of countries. This subsection presents a final list of the elements of the right context which have been identified by the theoretical part of the dissertation.

The last, fourth, subsection of the third part describes the operationalization of the empirical analysis. The fourth subsection includes the description of the hypothesis, the description of the Dependent, Independent and Intervening variables, as well as the description of the empirical model that has been developed by the dissertation to test the hypothesis.

The fourth part of the dissertation includes the empirical analysis conducted by the dissertation. First, it explains the measurement of the variables. Second, it describes the conduct of the Factor Analysis, and it presents the results of the analysis and subsequent creation of the single scales for the variables. Finally, it describes the conduct and the results of the Regression Analysis which test the hypothesis posed by the dissertation. In the fifth part of the dissertation, the author discusses the results of the Factor Analysis and the Regression Analysis, and it describes the general implications of the research. The fifth part is followed by the conclusions which consist of a short summary of the topic, with a special focus on the results obtained; the description of the contribution made by the results and the suggestions for further research.

PART TWO: LITERATURE REVIEW

4. Significant Prior Research

4.1. Differing Perceptions of Ethnic Diversity

Recently, there has been an increased discussion in the field of political economy concerning the impact of ethnic diversity on the economic performance of a country. There is disagreement among the scholars concerning the perception of ethnic diversity and its impact on economic performance. Some of them perceive ethnic diversity as a cost to the economy, while others perceive it as a benefit. The discussion between the two sides can be well depicted by presenting the views of Alberto Alesina and Charles F. Doran, since they are the ones who have been writing about the issue most recently. A thorough review of the literature on the issue can be found in Alesina and La Ferrara (2004), and Collier (2001).

Many political economy writers⁷ perceive ethnic diversity as a cost to the society. The most recent work about the issue is the book written by Alberto Alesina and Enrico Spolaore (2003) *The Size of Nations*. Alesina and Spolaore argue that ethnic diversity brings about both political and economic costs to the country because it increases the heterogeneity in preferences for public goods. According to the authors, ethnic diversity leads to the increase in diverse preferences, cultures, and languages within a population. That, in turn,

⁷ Alesina & Spolaore (2003), Alesina, Spolaore & Wacziarg (January 2003), Easterly & Levine (1997), La Porta, Lopez de Silanes, Shleifer & Vishny (1999)

leads to disagreements over the basic characteristics of a government such as redistributive schemes, public goods, or foreign trade.

The disagreement over public goods and policies in heterogeneous societies leads to higher costs associated with the functioning of the society. Since belonging to a country implies agreeing to a set of policies, ethnic heterogeneity implies that very diverse individuals have to come to an agreement on those matters. The costs associated with that process are called by the Alesina and Spolaore “the costs of heterogeneity”:

[...] if a great many diverse individuals share the same public goods and policies, they face increasing costs of heterogeneity of preferences, since they have to agree with each other and share common policies.⁸

Alesina and Spolaore argue that due to the costs associated with heterogeneity it is more beneficial for countries to be homogenous. The members of more homogeneous countries find it easier to reach agreement over the policies of a jurisdiction and thus, the costs associated with heterogeneity of preferences over the policies of a jurisdiction are minimized. In general, contend the authors, “homogeneous polities function more harmoniously”⁹.

Furthermore, argue the authors, people prefer to live surrounded by people similar to them. It has been observed that if people are given a choice, they choose to live in neighborhoods inhabited by members from their ethnic, religious or social group. The psychologists refer to that phenomenon as a ‘homophily bias’. The authors posit that because of that, people, if given a choice, would choose to live in more homogenous countries inhabited by the members from their affinity group.

⁸ Alesina & Spolaore (2003) p. 17

⁹ Alesina & Spolaore (2003) p. 6

According to the Alesina and Spolaore, the reason why the societies have not always formed small and homogenous states lies in the fact that there are certain benefits associated with a bigger population size.¹⁰ The authors argue that “the sizes of national states (or countries) are due to trade-offs between the benefits of size and the costs of heterogeneity of preferences”¹¹. The reason why historically we have seen a tendency to form big countries is that the benefits of size in the previous times were outweighing the costs of heterogeneity.

The authors posit however, that, in the current times the situation has changed and we have been observing a trend towards a formation of smaller and more homogenous countries. The first reason behind the change is the alternation of the trade-offs between the benefits of size and the costs of heterogeneity. The liberalization of trade and the reduction of warfare diminish the benefits coming from a bigger size. The second reason behind the trend towards the formation of smaller and more homogenous states is the increase in democratization. The authors argue that the democratization made it possible for people to voice their opinion and make demands to create separate states for their ethnic group. The authors explain the reasons behind the trend towards the formation of smaller and more homogenous states in the following way:

Whatever the size is, it will be smaller as world markets become larger. This is precisely why so many very small countries can prosper in world of relatively free trade compared with other periods in history. To see this, imagine the difficulties a country the size of Singapore would face in the protectionist interwar period? In today’s world of free trade relatively small ethnic regions can “afford” to stay small and homogeneous, whereas this would be too costly for them in a protectionist world.¹²

¹⁰ For a detailed description of the benefits of large population size see: Alesina & Spolaore (2003) pp. 3-6

¹¹ Alesina & Spolaore (2003) p. 3

¹² Alesina & Spolaore (2003) p. 14

The authors argue that the trend towards the formation of smaller and more homogenous states will continue in the future. They say that the increases in democratization will lead to the break-up of large political jurisdictions into smaller ones. The authors argue that decentralization can substitute for the secessions but only up to a point. They utter that, especially in developing countries, the fiscal decentralization has not been successful, and it created more problems that it solved. Therefore, they contend, next to decentralization, we will see an increased trend towards separatism and secessions:

In a more democratic world borders need to satisfy citizens' aspirations. Democratic governments can respond to demands of local autonomy by decentralizing, but there is a limit as to how much a central government can delegate to regions. To the extent that democratization will continue to expand, so will separatist movements.

The breaking up of the multiethnic states into smaller and more homogenous units is not perceived by Alesina and Spolaore as something negative. On the contrary, they say that "a more peaceful world can be organized in smaller and more numerous states".¹³ The authors present a vision of the future where the world would be composed of small countries that would coexist peacefully in an economically integrated world. The small countries would depend on the supranational institutions to enforce free trade and the functioning of the markets. The authors contend that the insistence on keeping heterogeneous states together, in an increasingly integrated world, is misplaced and unnecessary.

¹³ Alesina & Spolaore (2003) p. 218

Excessive insistence on keeping heterogeneous countries together implied sizable costs in religious, ethnic, racial, and cultural animosities among peoples as recent events in the Balkan states amply testify.¹⁴

Thus, the perception of ethnic diversity as a cost has led the scholars who share this view to perceive the secessionist movements and the breaking-up of large multiethnic into smaller and more homogeneous units as something desirable. That belief is not shared by the scholars who, on the contrary, perceive ethnic diversity as a benefit to the society.

The argument that ethnic diversity is overall beneficial to the society has been most recently presented by Charles F. Doran (2001) in his book *Why Canadian Unity Matters and Why Americans Care*. He argues that ethnic diversity can constitute a political and economic benefit for a country and for that reason, as well as for the reasons of the benefits associated with a bigger size, it is advantageous for the multiethnic countries to remain united and heterogeneous.

According to Doran, ethnic diversity lies at the heart of stability, productivity and economic dynamism of a society. He argues that interaction between people of different cultural origins breeds creativity, broadens knowledge and perspectives. That, in turn, increases the openness to new ideas, to change, and to dialogue. Doran argues:

[...] cultural and political benefits flow from contact and intercommunication with individuals of different communal orientation as well. Cultural interaction among children and young adults broadens knowledge and perspective. Creativity flourishes. Self-awareness grows. The total output of

¹⁴ Alesina & Spolaore (2003) p. 223

productivity in many fields of endeavor is likely to be greater than in a more homogenous community.¹⁵

Cultural diversity, according to Doran, translates both into political and economic benefits. The political benefits include the strengthened capacity for honest government. The economic benefits, according to Doran, include a greater opportunity for specialization, more innovation and higher productivity:

Greater opportunity for specialization occurs in the larger community possessing a wider variety of culturally specific skills and aptitudes. Politically, the openness to new ideas, to change, and to dialogue strengthens the capacity for honest government. Local monopolies that quell innovation and change are less likely in a society composed of multiple ethnic and cultural communities than in those dominated by a few families of similar cultural outlook such as in some countries in the third world.¹⁶

Doran adheres to the writings of James Madison in the *Federalist Papers no. 10*¹⁷ to explain the logic behind the argument that diverse societies have a higher internal competition and a less likelihood of big monopolies. Madison wrote that a large size is advantageous for the country because a bigger territory is most likely to be more diverse and thus, less prone to factionalism. Madison argued that the larger the territory, the larger the variety of parties and interests in the society, and thus, the smaller the chance of any one party being able to outnumber and oppress the rest. Doran argues that the Madison's

¹⁵ Doran (2001) p. 246

¹⁶ Doran (2001) p. 247

¹⁷ Madison (1788)

argument put in the language of economics means that “the probability of local monopolies is less and balanced competition is greater in the larger polity”.¹⁸

Doran recognizes, however, that the virtues of ethnic heterogeneity can be only realized if the cultural diversity is managed in the right way. He argues that the heterogeneous societies need to be governed by a system that is able to harmonize and integrate the diverse people under a single polity. According to Doran, the social system which allows the management of ethnic diversity in a single polity is *democratic pluralism*.

Democratic pluralism is defined by Doran as “a condition of society in which diverse ethnic, racial, religious, or social groupings ‘maintain their autonomous participation in their traditional culture within the confines of a single civilization’ or state”.¹⁹ He describes democratic pluralism in the following way:

Democratic pluralism seeks to harmonize and to integrate politically. Although assimilation may be a goal in some states at some time (whereas other polities may reject it as counter to the ethos of the society) democratic pluralism is a political and legal guarantee that assimilation is not required. In democratic pluralism, regionally specific cultural-linguistic communities retain their ‘traditional culture’ while participating fully in the processes and institutions of the state. Above all, democratic pluralism ensures cohesiveness and political accord within the state. In a mature democracy, democratic pluralism is completely liberal.²⁰

Doran argues that the principles of democratic pluralism ensure that the diverse communities can live in harmony with each other inside of a single state. More than that, says Doran, democratic pluralism allows the members of diverse groups not only to live next

¹⁸ Doran (2001) p. 278

¹⁹ Doran (2001) p. 5

²⁰ Doran (2001) p. 5

to each other in peace, but also to thrive spiritually, economically, linguistically, and intellectually.

Doran argues that the merits of democratic pluralism can be assessed only in a specific, propitious context. He states that judging the validity of democratic pluralism as a norm can be done, for the most part, only in advanced countries because only those countries create a context, which allows for the observation of the principles of democratic pluralism. Doran argues that the problems of development may overshadow what can be expected of pluralism. Furthermore, the lack of experience with democracy and thus, the lack of democratic culture, can also outshine the qualities of democratic pluralism. Finally, a pervasive and intense violence can also create a situation in which the merits of democratic pluralism cannot be assessed because the observance of pluralistic principles in such a situation is highly unlikely. Doran concludes the point in the following way:

Hence the argument on behalf of the superior status of democratic pluralism should only be made in the propitious context of (1) the wealth, education, and technological sophistication of advanced industrialism, (2) the long-standing democratic tradition of a polity, and (3) the absence of massive violence that would seriously distort concentration on pluralist norms.²¹

According to Doran what puts democratic pluralism at the greatest risk is the notion of divisive nationalism expressed as secessionist movements. Doran argues after E.J. Hobsbawm²² that, unlike the earlier nationalism, which was essentially unifying in nature, the nationalist movements of the late twentieth century are negative and rather divisive.

²¹ Doran (2001) p. 227

²² Hobsbawm (1990)

Doran states that the philosophy of separation negates the principles of democratic pluralism because it professes the ‘incompatibility’ of diverse cultural values and preferences. He argues that in liberal democracy, where the human rights of individuals and groups are guaranteed, separatist movements occur for the single purpose of refusing to associate politically and communicate intensely in a single democracy with citizens of differing ethno-linguistic affiliation. Doran states that such refusal to live next to someone culturally or ethnically different is equivalent to the desire to discriminate²³ and stands against the principles of democratic pluralism and toleration. Doran argues:

The deeper issue and one of far greater consequence is that the desire (and legitimate right) to protect and promote one’s own culture, language and ethnicity has become an effort to create a homogeneous state by breaking away from a larger, more diverse cultural entity. The deeper issue is a population’s rejection of the capacity or willingness to communicate and cooperate politically within a single democracy, that is, within a single federal state, vis-à-vis another population of differing culture, language and ethnicity.²⁴

Doran disagrees with the argument put forward by Alesina and Spolaore which regards secessions and the creation of smaller homogeneous countries as desirable. Doran argues that, while the preference for homogeneity might be regarded by some as ‘natural’ and ‘inevitable’, at the same time it may be regarded as quite unnatural in the context of increasing multiculturalism in the twenty first century. He argues that in mature liberal democracies, the tensions created by existence of diverse cultures under single polity should

²³ Doran (2001) p. 246

²⁴ Doran (2001) p. 5

not be resolved by secessions but should be managed and eliminated through the democratic institutions and processes. Doran argues:

Cultural-linguistic fractionalization must be recognized as an effort to homogenize or 'purify' along lines of language and culture. Such fractionalization cannot be considered in step with the effort to promote greater openness, toleration, and diversity. In fact, preference for a more homogeneous, closed society is *out* of step with the direction of change in most other multicultural communities.²⁵

Doran argues that the adherence to democratic pluralism instead of secessions is very important especially in the current times when the populations within states become increasingly mixed. The increased immigration, emigration and differential growth rates across populations of differing cultural background contribute to the mixing of populations, a trend which is especially vivid within the advanced countries. Doran states that with the increased mixing of societies, democratic pluralism becomes an essential attribute of future world politics because it provides countries with the effective instruments to manage the tensions arising in culturally and ethnically diverse societies.

Doran also draws the attention to the impact of secessions, especially those occurring in the advanced democratic states, on the international community. He states that secessionist movements and the creation of smaller and more homogenous states are most likely to bring a great stress to the international community because they put in doubt the principles of liberal democracy as well as the possibility of cooperation between diverse cultures. He states that the inability to resolve problems associated with diversity within stable democracies puts in doubt the ideals of liberal democracy.

²⁵ Doran (2001) p. 20

Moreover, the secessionist movements, especially inside of mature democracies, and the creation of homogeneous states puts in doubt the ability to cooperate with people of different cultural backgrounds not only within a state but also on the international arena. Doran says that if diverse people cannot cooperate inside a mature democratic state, it is doubtful that they will be able to cooperate as independent actors.

[...] in politically stable advanced industrial states, with long-standing democratic government, which have so long nourished democratic pluralism, secession would seem to proclaim failure of the best hope of mature liberal democracy. Ultimately, cooperation itself comes into doubt. If diverse peoples cannot cooperate inside the state, what likelihood is there that they will cooperate as independent actors? If different cultural communities cannot solve their problems inside the democratic polity, how can they be expected to cooperate as independent actors within a larger region?²⁶

Doran concludes with the message that “in the twenty-first century, breakup of the nation-state is not the answer to society’s shortcomings”²⁷. The tensions arising from the ethnic and cultural diversity of society should not be managed by secessions but should be managed by the institutions developed within democratic pluralism. According to Doran, democratic pluralism creates an environment in which the *net communal deficit*²⁸, that might be associated with living in a larger and more heterogeneous state, can be offset by the benefits of size, as well as the benefits of diversity such as the increased creativity, productivity and openness coming from the interaction between culturally and ethnically diverse people.

²⁶ Doran (2001) p. xv

²⁷ Doran (2001) p. 249

²⁸ Doran defines a *net communal benefit* as the difference between accepting optimal benefit (within a state of more than two communal groups) rather than the maximal benefit (in a state with only one communal group); Doran (2001) p. 247

The idea that cultural diversity can confer some real economic advantages is also shared by Francis Fukuyama. He argues that homogeneous societies are more likely to be closed to outside influences and unable to adapt to changing conditions. According to him, “cultural diversity can function like genetic diversity in a population, in which different cultural approaches compete and the more adaptive survive”.²⁹ Thus, the societies that are more heterogeneous are likely to be more flexible and adaptive, and therefore, are likely to be more successful.

4.1a. Empirical Studies on the State Level

Several cross-country studies that analyze the direct relationship between ethnic diversity and economic performance have been conducted in the field of political economy.

Initially, the discussion has focused mainly on the costs of ethnic diversity. The work of Easterly and Levine (1997), which became a benchmark, argued that ethnic diversity reduces the rate of growth. The cross-country regression analysis conducted by Easterly and Levine indicated that going from complete homogeneity to complete heterogeneity is associated with a 2.3% fall in economic growth.

According to Easterly and Levine, the negative impact of ethnic diversity can be explained by the fact that ethnically fragmented economies may find it difficult to agree on public goods and good policies.³⁰ The authors argue that the results of their analysis lend support to the theories in political economy which suggest that interest group polarization leads to competitive rent-seeking by the different groups and reduces the consensus on

²⁹ Fukuyama (2004) p. 13

³⁰ Easterly & Levine (1997) p. 21

public goods such as infrastructure, education, and good policies, which in a long-run creates growth tragedies.³¹

Easterly and Levine depict Africa as a primary example of the negative impact of ethnic diversity on economic growth. The authors contend that Africa's high ethnic fragmentation explains a significant part of Africa's poor policies and slow growth. They state that while the evidence from their study regarding the direct link between ethnic diversity and growth is more ambiguous, the evidence regarding the indirect link between ethnic diversity and growth, through the choice of poor public policies, is strong and significant. They state that the data from their study indicates that high levels of ethnic diversity in Africa are strongly linked to poor policies, low provision of infrastructure, and low levels of education, which in turn are strongly linked with slow long-run growth. The authors conclude that while the results of their study are hardly supporting a mono-causal view of Africa's difficulties, they do suggest that ethnic divisions have played a significant role in Africa's growth tragedy.³²

The study of Easterly and Levine has become a benchmark in the field. However, there were several studies that criticized and questioned the findings of Easterly and Levine. Arcand et al. (2000) called Easterly and Levine's results into question, due to the problems of data missingness. They argued that there is a potential problem of selection bias for the African countries because the data does not include the countries in Africa, which have experienced the slowest growth rates. The authors notice that the African countries constitute 27 out of 172 observations; the problem is that the data is missing precisely for those countries in Africa that have been experiencing the slowest growth. According to the

³¹ Easterly & Levine (1997) p. 25

³² Easterly & Levine (1997) p. 25

authors that is an important omission that can lead to a selection bias and thus, puts in question the results obtained by Easterly and Levine.

The conclusions of Easterly and Levine have been also put into question by the study of Paul Collier (2001). He has conducted an empirical analysis, which showed that ethnic diversity is not 'guilty as charged'. The research conducted by Collier depicted that "ethnic diversity neither increases the risk of civil war, nor reduces economic growth"³³. Collier, based on his analysis, contended that usually, multi-ethnic societies can be socially and economically fully viable.

Collier designed his study based on a question of whether the effects of ethnic diversity are moderated by the type of diversity, by the type of the political regime, or by the sector of the economy. He distinguished between two types of ethnic diversity: *dominance*, in which one group constitutes a majority, and *fractionalisation*, in which there are many small groups. Furthermore, he distinguished between two types of political regimes: *democracy* and *dictatorship*. Finally, his analysis differentiated between two sectors of the economy: *public* and *private*. Collier has laid out a theoretical argument which purported that ethnic diversity, while in general not associated with lower economic growth or the risk of civil conflict, might be damaging when it takes the form of dominance; when the country is a dictatorship; and when the sector under consideration is a public sector.

The results of the empirical analysis provided support for the theoretical argument proposed by the author. The study showed that fractionalization is normally unproblematic in democratic regimes; however, it can be destructive in dictatorial regimes. The regression analysis showed that ethnic diversity has no adverse effects on growth in fully democratic societies, but it reduces growth up to 3% in dictatorships. According to Collier, the reason

³³ Collier (2001) p. 2

why ethnic diversity has negative impacts on growth in dictatorships is because, in such regimes, it is more likely that even a remarkably small ethnic group can seize and maintain power to their own advantage. In such situations the group chooses the redistribution to itself at the expense of the growth of the whole economy.³⁴ In democracies, he argues, such a situation is not possible, except in circumstances of ethnic dominance, when the size of the group is around 50%, which gives the group enough majority to control the national policy of the country.

In case of ethnic dominance, Collier argues, regardless of the political system, ethnic diversity will have a negative impact on the growth of the economy. The results of Collier's study showed that countries characterized by dominance in principle are likely to have worse economic performance, although empirically the effect is weak. Collier provides the following explanation for that observation:

In societies characterized by ethnic dominance the government has both the power and the incentive to trade off redistribution at the expense of growth. Whether the system is democratic or dictatorial will make no difference if the same group is in power, but the dictatorship will be radically worse if it permits a minority to maintain power. In democracy, the problem diminishes the larger is the ethnic majority, and if there is single-issue politics.³⁵

According to Collier, the reason why ethnic fractionalization has no adverse impact on economic growth in democracies is because the negative effects that ethnic diversity has on a public sector are offset by the positive effects on the private sector. Collier argues that, possibly, the reason why ethnic diversity has differential effects on the public and the private

³⁴ Collier (2001) p. 17

³⁵ Collier (2001) p. 18

sector is because in the public sector the benefit for the group is to capture rents, whereas in the private sector it is to enhance productivity.³⁶ Therefore, ethnic diversity is likely to decrease the productivity of public capital and increase the productivity of private capital.

The results of Collier's study show that ethnic diversity has a significant impact on the productivity of capital, and indeed ethnically diverse countries have a higher productivity of private capital than homogenous countries, but a lower productivity of public capital. The analysis revealed that the productivity of public capital is 10% lower in the ethnically diverse society than in the ethnically homogenous society. At the same time the productivity of private capital is 5% higher in the ethnically diverse society than in the more homogenous society.³⁷ Collier argues that the two effects offset each other because the private capital stock is usually larger than the public capital stock, so that at the end ethnic diversity has no adverse effects on growth:

[...] since the private capital stock is usually larger than the public capital stock, differential effects of this magnitude would in aggregate approximately offset each other, hence being consistent with the previous result that in democratic societies diversity does not have an adverse effect on aggregate economic performance.³⁸

As far as the risk of conflict, Collier's study showed that fractionalization actually makes societies safer, while dominance increases the risk of a violent conflict. He bases his explanation on the assumption that the causes of civil wars are rather economic in nature, than based on identity preferences. The assumption is derived from an earlier study

³⁶ Collier (2001) p. 20

³⁷ Collier (2001) p. 21

³⁸ Collier (2001) p. 21

conducted by Collier and Hoeffler (1998, 2000) which provides empirical evidence that the risk of civil conflict is greatly influenced by the dependence on primary commodities. According to the study when two societies are compared, with otherwise mean characteristics, the risk of conflict in the society with no primary commodity export is less than one percent, while it is 23% in a society where such exports constitute $\frac{1}{4}$ of the GDP.³⁹

Collier presents Ethiopia as an example of how economic interests, rather than ethnic identities, shape the behavior of different ethnic groups. In Ethiopia, he says, the Eritrean secession gathered together nine different ethno-linguistic groups into a common political community, at the same time splitting the Tigrini ethno-linguistic group between Eritrea and Ethiopia. He argues the following:

[...] what appears to be a demand for ethnic liberation based on a primordial sense of identity, may more reasonably be interpreted as at root an attempt to control lucrative primary commodities which has created the ethnic identity as a by-product.⁴⁰

Collier argues that ethnic fractionalization reduces the possibility of violent civil conflict because it makes it harder for the rebel groups, which want to seize control over certain primary commodities, to recruit its members. The rebel groups need cohesion to be effective, and therefore, they need to recruit within their ethno-linguistic group and they must avoid recruiting across boundaries of identity. In a fractionalized society the rebel organizations have a harder time recruiting a cohesive group of members and thus, it is harder for the rebel groups to build a strong organization of a significant scale. Collier argues

³⁹ Cited in Collier (2001) p. 25

⁴⁰ Collier (2001) p. 24

that the effect of ethnic dominance and cross-cutting fractionalization produce a broadly non-monotonic relationship between the number of ethnic groups and the risk of conflict:

Moving from one to two groups almost inevitably switches the society into ethnic dominance. Usually, this is not fully offset by the benign effect of the increased fractionalization, so the society overall becomes more at risk. Moving from two to many groups almost inevitably switches the society back out of ethnic dominance and gradually increases fragmentation, making the society safer than were it homogenous.⁴¹

Collier argues that the results of his study point to specific policy implications. He states, that “contrary to the apparent implication of Easterly and Levine and Alesina et al., ethnic diversity is not, in general, problematic for economic policy”⁴² and therefore, the international community has a stronger interest than it is currently recognized, in preserving large, multi-ethnic states like Russia, Indonesia and Nigeria. Currently, he argues, the fallacious popular orthodoxy has encouraged “radical social and political engineering, involving population movements and intricate border redesign and secession”⁴³ in order to create ethnically more homogeneous, and thus, allegedly more viable, states. Collier argues that the results of his study entail contrary policy implications. According to Collier, the policy implication from his study is that fractionalized societies are viable and secession should be discouraged.

Collier provides several reasons for why secessions should be discouraged. First, he states that the secessionist states would probably be more, rather than less, prone to international conflict. Collier states that the reason for such is self-evident and comes from

⁴¹ Collier (2001) p. 29

⁴² Collier (2001) p. 19

⁴³ Collier (2001) p. 31

the fact that the increase in the number of countries augments the risk of international war. Collier argues, that what is even more important, the secessionist states are more prone to civil conflict. He provides the following three reasons for why the secessionist states are more likely to experience civil conflict:

First, if endowments of primary commodities tend to be the basis for secession, the resulting states would be more dependent upon primary commodities than if they were part of larger political entities. As an approximation, each extra percentage point of dependence upon primary commodities raises the risk of conflict by one percentage point. Secondly, secessionist states would have less ethnic heterogeneity. Recall that contrary to popular perception, this would increase the risk of conflict. Thirdly, as secessions occur from ethnically fragmented states, the residual state is liable to switch from ethnic fragmentation to ethnic dominance. The secessionist state is also more likely to be characterized by ethnic dominance than by ethnic homogeneity. On average, this doubles the risk of conflict.⁴⁴

The other policy implications suggested by Collier include the following: (1) the desirability of export diversification in the developing regions; (2) ethnic employment patronage in the public sector; (3) acceptance that the public sector may be less effective in diverse societies and thus, drawing different boundaries between public and private activity; (4) need for democratization in ethnically diverse societies so to avoid dictatorships; (5) need for better protection of minority rights in societies with ethnic dominance – incorporating the rights of equal treatment, individual or group, into the popular conception of democracy in the developing countries; (6) need for the the coordination of the policies of the OECD

⁴⁴ Collier (2001) p. 31

countries towards diasporas in order to prevent them from supporting and financing the breaking-up of countries.⁴⁵

The study of Collier shed a new light on the discussion of ethnic diversity and its economic impact. It has been acknowledged that under certain circumstances the negative impact of ethnic diversity is eliminated and what more, ethnic diversity may have a positive impact on the economic outcomes. Even though, the prevailing orthodoxy still perceives ethnic diversity as an overall cost to the society, there has been more attention given to the potential benefits of ethnic diversity.

In a recent study, Alesina and La Ferrara (2004) present a model in which ethnic diversity constitutes both the costs and the benefits to the economy. It is a different approach from the initial one presented by Alesina and Spolaore (2003) where ethnic diversity was equated only with costs to the society because of the differences in preferences for public goods and policies. Currently, the authors present a different position which recognizes that ethnic diversity, under certain circumstances, can also have positive impact on the economy through gains in productivity:

[...] heterogeneity has evident potential costs, but an ethnic mix also brings about variety in abilities, experiences and cultures, which may be productive and may lead to innovation and creativity.⁴⁶

Alesina and La Ferrara (2004) present two recent studies conducted on the level of cities as a part of the support for the argument that diversity has productivity enhancing effects. In the study conducted by Florida (2002 a, b) the amenities and diversity of US cities

⁴⁵ Collier (2001) pp. 32-33

⁴⁶ Alesina & La Ferrara (2004) p. 11

is presumed to attract higher human capital. Florida constructs imaginative measures of diversity which are not directly related to ethnicity but include the share of gay households, diversity of night life, arts etc. The findings of his study show that indeed places which are high on diversity attract higher human capital.

Another study referred to by Alesina and La Ferrara which provides support for the positive relationship between diversity and productivity is the recent study by Ottaviano and Peri (2004). The study examined the effect of ethnic diversity on economic productivity in American cities and found that ethnic diversity has productivity enhancing effects and positive ‘amenity effects’, both on production and consumption. The results showed that the individuals living in more “culturally diverse” cities earn higher wages and pay higher rents than those living in more homogenous cities.

Alesina and La Ferrara (2004) note that the important aspect of the study by Ottaviano and Peri is that the findings are robust to instrumenting.⁴⁷ In order to tackle the endogeneity problem between diversity, and wages and rents, Ottaviano and Peri use the overall distance of a city from the main ‘ports of entry’ to instrument its share of foreign-born or its diversity index.⁴⁸ In order to prove that there is no endogeneity problem between diversity and economic outcomes, the instrument should be correlated with the change in diversity of cities in a given period but not otherwise correlated with changes in wages and rents. The authors also use the instruments that control for the growth rates of the cities and the differences in productivity between the inland and the coast.

⁴⁷ In the studies concerning diversity and its economic outcomes there is always an issue of endogeneity, which creates problems especially for the research on the state level. The scholars find it hard or impossible to find adequate instruments that would ensure that diversity is an exogenous variable not correlated with economic outcomes. For that reason, the study of Ottaviano and Peri (2004) is important, because the authors manage to solve the endogeneity problem between diversity and economic outcomes, at least on the city level.

⁴⁸ Ottaviano & Peri (2004) p. 22

Ottaviano and Peri (2004) report that the first stage regressions confirm that the instruments are excellent and explain about 50% of the variation of diversity across cities.⁴⁹ The further from the ports of entry, the significantly lower diversity is. The results of the primary regressions are confirmed when the instruments are added, and the effect of the share of foreign-born on wages and rents across cities remains positive and significant.

Enriched by a new insight about the productivity gains associated with diversity, Alesina and La Ferrara (2004) present a simple model which analyzes the economic effects of diversity. The model highlights the trade off between the benefits of “variety” and the costs of heterogeneity of preferences in a multi-ethnic society. The authors argue that the potential benefits of heterogeneity come from the variety of individual skills used in the production process which increases the overall productivity. The costs, on the other hand, come from the inability to agree on common public goods and public policies.

Alesina and La Ferrara (2004) refer to the work of Lazear (1999 a, b) who also discusses the trade off between the productive benefits of diversity and the costs of diversity arising from the problems of communication between people. Lazear argues that there is an optimal point of this trade off, which indicates the optimal degree of heterogeneity. According to Lazear, the optimal point of the trade off between the benefits and costs of diversity for the production depends on the nature of the production unit and its technology.

In the model proposed by Alesina and La Ferrara (2004) the trade off between the benefits and costs of diversity depends on the level of per capita output. The authors argue that the benefits from more ethnic fragmentation are increasing with the level of per capita

⁴⁹ Ottaviano & Peri (2004) p. 23

output. Therefore, they say that the benefits in production from variety in skills are more likely to be relevant in more advanced and complex societies.⁵⁰

The authors argue that there is one more important factor, which is left out from the model, but which might significantly influence the relationship between ethnic diversity and economic outcomes. The missing factor is the ‘type of institutions’. The authors argue after Collier (2001) that certain type of institutions may be more conducive to ethnic harmony than others, and thus, should be taken into account when evaluating the impact of ethnic diversity.

Alesina and La Ferrara (2004) conduct an empirical cross country analysis to examine the impact of the level of income and institutions on the relationship between ethnic diversity and economic performance. The results of their empirical examination show that, overall, the observed impact of ethnic diversity on growth across countries is negative. However, the analysis demonstrates that the level of income and the existence of democratic institutions mitigate the negative impact of ethnic diversity. The punch line is, argue the authors, that rich democracies are more capable of “handling” productively ethnic diversity”. The authors conclude the following:

[...] it seems important to take into account that, whatever the mechanisms relating ethnic diversity to economic growth, channeling diversity towards productive uses may require a particular set of “rules of the game”⁵¹

The authors present some results of their studies on ethnic diversity and population growth⁵² in the US counties, which are in line with their cross country results. In their

⁵⁰ Alesina & La Ferrara (2004) p. 6

⁵¹ Alesina & La Ferrara (2004) p. 11

analysis of the US counties, they found that fractionalization has a negative effect of population growth in initially poor counties and a less negative (or even positive) effect for initially richer counties. The authors argue that the results from the counties are very important in corroborating the cross country evidence because they are obtained from a setting where institutional and political differences are smaller than in case of cross country analysis.

It is significant that despite the change in the approach and the recognition of potential benefits associated with ethnic diversity by Alesina and La Ferrara (2004), the authors did not offer much different policy implications than the ones suggested by the previous study of Alesina and Spolaore (2003). One would expect that, in the wake of acknowledging the potential benefits of diversity, the authors would support the existence of multi-ethnic states. Counter intuitively, the authors still support the creation of smaller and more homogenous states. They argue that with free trade, countries can be small and homogenous, which allows them to enjoy the benefits of homogeneity as far as public goods provision is concerned, and the benefits of diversity in production coming from international trade. Even though, the authors say that promoting racial homogeneity is “unappealing and probably incorrect”, still they argue that secessions should not be perceived as threatening:

⁵² Alesina & La Ferrara (2004) follow the suggestion of Glaeser, Scheinkman and Shleifer (1995) to use ‘population growth’ as a dependent variable instead of ‘economic growth’ when analyzing the effects of ethnic diversity in American localities. Glaeser, Scheinkman and Shleifer (1995) note that income growth is a natural measure for cross country growth regressions because labor is relatively immobile across countries. Instead within the US the high mobility of individuals suggests that population growth is the correct measure to use to capture areas and cities that are becoming increasingly more attractive economically and as a place to live in.

To the extent that small countries can prosper in a world of free trade, then peaceful separatism of certain minorities should not be viewed as threatening, at least from an economic point of view.⁵³

The authors bring up the study of Glaeser, Scheinkman and Shleifer (1995) conducted on American localities, as a support for their proposition that small and more homogenous units are more viable in a situation of diverse environment. The study of Glaeser, Scheinkman and Shleifer (1995) found that in the cities with large nonwhite communities, segregation is positively correlated with population growth. According to Alesina and La Ferrara (2004) that suggests that growth is higher when racial interaction is lower. They provide the following explanation of why it is the case based on their model: segregation allows the group to avoid the costs of diversity and take advantage of the benefits of diversity at the same time. They argue:

A suggestive interpretation of this results that goes back to our model may be that racial fractionalization with segregation may allow for diversity in production and lower interaction in public good consumption and social activity.⁵⁴

As far as domestic policies are concerned, Alesina and La Ferrara (2004) argue that the issue at stake is to what extent should the policies promote racial integration. They argue that the type of democracy that is most likely to promote harmony among diverse people is the “consociational democracy” based on power sharing among different segments of the society, a concept developed by Lijphart (1977). The consociational democracy is characterized by a proportionality system (PR), a mutual veto, and a federalist structure. In

⁵³ Alesina & La Ferrara (2004) p. 29

⁵⁴ Alesina & La Ferrara (2004) p. 11

that type of democracy a coalition government represents all significant parties of the plural society. Alesina and La Ferrara (2004) argue however, that, due to certain requirements which are necessary for the system to work well, the consociational democracy is difficult to implement and ultimately unstable in some developing countries.⁵⁵ Furthermore, the authors put into question the effectiveness of power sharing as means of *generating* inter-ethnic cooperation because they argue that the power-sharing might actually be a *result* of pre-existing, deeply rooted tradition of power sharing in the society, as it has been the case of Somaliland. The authors conclude that the question of how different people can peacefully interact with each other still remains open.

⁵⁵ Alesina & La Ferrara (2004) p. 29

PART THREE: THEORETICAL FOUNDATIONS OF RESEARCH

I. Innovation

I.1. Schumpeter's Theory of Innovation

The dissertation derives its understanding of innovation from Joseph A. Schumpeter, who has placed innovation at the core of his theory of economic development. According to Schumpeter, innovation is a central feature of the economic evolution of the capitalist system. Carrying out of innovations defines the economic development. It is the innovation, he says, that creates the basis of the dynamics of the capitalist system and brings about the changes in the economic process.

... [N]othing can be more plain or even more trite common sense than the proposition that innovation, as conceived by us, is at the center of practically all the phenomena, difficulties, and problems of economic life in capitalist society.⁵⁶

Schumpeter argues that even though, there are other internal factors of economic evolution, such as tastes and changes in growth, it is the innovation that has the most profound impact on the economic development. The impact of innovation is so immense in relation to the other factors that we can satisfy ourselves logically, he says, by visualizing societies in which internal change is merely caused by innovation. The capital investment

⁵⁶ Schumpeter (1939) Vol. I, p. 87

and the expansion of wealth in the capitalist society derive mainly from the plowback of profits associated with innovation.

...[W]e immediately realize that innovation is the outstanding fact in the economic history of capitalist society or in what is purely economic in that history, and also that it is largely responsible for most of what we would at first sight attribute to other factors.⁵⁷

In *Business Cycles*, written in 1939, Schumpeter defines innovation as the setting up of a new production function. Since in the economic sense, he says, the production is nothing more but combining productive services, innovation can be understood as combining factors in new ways, which he also refers to as carrying out ‘new combinations: “in short, any “doing things differently” in the realm of economic life – all these are instances of what we shall refer to by the term of innovation.”⁵⁸

The idea of the ‘new combination’ has been already developed in Schumpeter’s earlier work, *The Theory of Economic Development*, written in 1934, where he defines new combination as a different method of producing the same things, or new things. He says that the carrying out of new combinations covers the following five cases: (1) the introduction of a new good, (2) the introduction of a new method of production, (3) the opening of a new market, (4) the conquest of a new source of supply of raw materials, and (5) the carrying out of the new organization of any industry.⁵⁹

In order to better understand the mechanism of innovation, says Schumpeter, it is useful to look at it in perspective of money cost. In the absence of innovation and with the

⁵⁷ Schumpeter (1939) Vol. I, p. 86

⁵⁸ Schumpeter (1939) Vol. I, p. 84

⁵⁹ Schumpeter (1934) p. 66

prices of factors being constant, the total cost of production of individual firms monotonically increases in relation to their output. However, whenever, with the prices of factors being constant, the total cost of production of individual firms decreases or remains the same, we may be sure that there has been innovation somewhere. In other words, each time the old total or marginal cost curve is destroyed and a new one put in its place, there is an innovation.

Schumpeter makes a distinction between innovation and invention. The distinction is important for the modeling of his analysis, where the invention is considered an external factor and the innovation is considered an internal factor of the economic evolution. While invention is often a part of innovation, he argues, they are two separate phenomena and invention is not synonymous innovation. Invention is related to the discovery of new ideas, which add to the existing store of knowledge, but do not necessarily affect the current of life. They bring up the possibilities, but not the acts of realization. They acquire relevance to the economic development only when they are turned into commercial and industrial reality. Thus, invention becomes innovation only when it is turned into commercial and industrial usage.

In Schumpeter's theory, the agents who carry out innovations are referred to as the Entrepreneurs. The function of the entrepreneur is to introduce innovations into the firm. Schumpeter stresses however, that the term should not be understood explicitly. He says that "nobody ever is an entrepreneur all the time, and nobody can ever be only an entrepreneur". An entrepreneur is a person who, at a given time, performs the entrepreneurial function of introducing the 'new combination'.

Schumpeter underlines that what makes a person an entrepreneur is his leadership in introducing an innovation. He recognizes that most of the time it is the owners who perform

the entrepreneurial function in the firm. However, he emphasizes that, at the end, “it is the leadership rather than ownership that matters”.⁶⁰ Therefore, entrepreneurs can be found not only amongst owners, but also amongst the heads of firms, the managers or some other salaried employees.

The entrepreneur is motivated by profit. According to Schumpeter, the entrepreneurial profit (as opposed to ‘wages of management’ in the static circular flow system) is the excess of total receipts over total costs. The entrepreneurial profit is induced by innovation and is defined as a “premium put upon successful innovation in capitalist society”. The entrepreneur is able to seize the profit thanks to the introduction of the innovation which brings a reduction in the cost of production.

Schumpeter draws attention to the point that the entrepreneurial profit is “temporary by nature: it will vanish in the subsequent process of competition and adaptation”.⁶¹ The entrepreneurs will be able to profit from the introduction of a “new combination” only as long as the new method is not adopted by the system. When the new method becomes familiar to the system and when the system adapts to it, the new method is no longer new, and thus it is no longer an innovation. Since it is no longer an innovation, the entrepreneurial profit fades away.

The mechanism of the vanishing entrepreneurial profit is inevitable in the capitalist system because of competition. Whenever the introduction of a new method reveals possibilities for profit, those who introduced it will be followed by others, with diminishing creative talent and spirit, who want to exploit the new possibility. In the competitive system of the capitalist economy, the appearance of a few successful entrepreneurs who profit from the introduction of an innovation will induce a progressively widening circle of

⁶⁰ Schumpeter (1939) Vol. I, p. 103

⁶¹ Schumpeter (1939) Vol. I, p. 105

entrepreneurs who will adopt the new method. However, as soon as the method is adopted by the system, the entrepreneurial profit ceases to exist.

Therefore, the consequences of introducing an innovation have a double-impact on the entrepreneurial profit. On the one side, the introduction of innovation creates profit for everybody who adapts the new method. On the other side, the diffusion of innovation and its adaptation by more and more entrepreneurs leads to the vanishing of the entrepreneurial profit.

I.2. Three-Fold Understanding of Innovation

The dissertation develops its understanding of innovation based on the Schumpeterian theory of innovation and the entrepreneurial profit. From the analysis of the Schumpeter's theory it stems out that carrying out the innovation requires the following elements: creativity, entrepreneurship and openness to change. Therefore, the dissertation adapts a three-fold idea of innovation, which includes all the three elements. Whenever the dissertation refers to innovation, in the theoretical part, it refers to the three-fold understanding of it, which consists of creativity, entrepreneurship and openness to change.

The first element of the three-fold innovation, creativity, is required throughout the whole process of carrying out an innovation. Innovation refers to “any “doing things differently” in the realm of economic life”⁶², and doing things differently requires creativity on the part of the people who engage in the process. Therefore, in the process of carrying out an innovation, creativity is required: (1) to create an idea of how to use the invention for commercial or industrial purposes, (2) to create an idea of a new production function in terms of: creating a new product; creating new methods of production; opening of a new

⁶² Schumpeter (1939) Vol. I, p. 84

market, the conquest of a new supply of raw materials, carrying out of the new organization of the industry.

Creativity is also required for the act of invention, which very often is a prerequisite for the innovation. Schumpeter has not included invention into his concept of innovation for the purposes of his analytical model of economic evolution, which required making a distinction and separating the external and the internal factors. However, for the purpose of our analysis, such separation is not necessary and therefore, we will include invention in the concept of innovation since it is very often an important prerequisite of innovation. We keep in mind that the two are not synonymous, as discussed by Schumpeter, but we recognize that invention is very often a part of innovation, the fact that has been recognized by Schumpeter as well, and therefore, it should be included in our concept of innovation. Thus, creativity is required throughout the whole process of innovation, starting from the invention, if that is the case, and going through the process of carrying out an innovation.

The second element of the three-fold innovation, the entrepreneurship, is required for the sole act of carrying out the innovation. It is required for taking the action and turning the existing possibilities into economic reality. It is the “doing the thing”⁶³ that lies at the heart of the entrepreneurial function. New possibilities are continuously being offered by the surrounding world, but if there is no action to turn them into commercial usage, they become dead. Many people might see and contemplate the possibilities but they do not have the entrepreneurial spirit to act upon them. It takes a person who has the initiative, the vision, the openness to change, the leadership and the drive to take the action and turn ideas into reality. Thus, the carrying out of the innovation is not possible without an entrepreneur who does the new thing that others are just thinking about.

⁶³ Schumpeter (1934) p. 88

The third element of the three-fold innovation, the openness to change, is required to allow for the change, which is innovation, to take place and to be successful. In order for the innovation to be successful it has to fall on a receptive ground. The societies, which are open to change are more receptive to the new things that come with the innovation. The openness of the society to change increases the possibility of entrepreneurial profit from innovation and encourages the entrepreneur to take the initiative of carrying out an innovation. If the society is not open to change, then the initiative of the entrepreneur is resisted to and therefore, discouraged or wasted. In economic matters, the resistance may manifest itself, first of all, through opposition in the groups threatened by the innovation, then in the difficulty in finding the necessary cooperation, and finally in the difficulty in winning over the customers.⁶⁴ Therefore, in order for the innovation to take place and to be successful, the society has to be open to change.

II. Diversity–Innovation Link

The innovation is considered to be a crucial factor in economic development and thus, a crucial factor in building the competitive advantage for countries. Based on Schumpeter’s theory of innovation and entrepreneurial profit, the dissertation has developed a definition of innovation, which constitutes of the three elements: creativity, entrepreneurship and openness to change. If the competitive advantage for countries is determined by the conduct of innovation, then societies, which have a higher aptitude of the three elements of innovation, have a competitive advantage to those societies in which the aptitude is lower.

⁶⁴ Schumpeter (1934) p. 87

The dissertation argues that an important factor that might influence the aptitude of creativity, entrepreneurship and openness to change in a society is its ethnic diversity. More specifically the aptitudes depend on how diverse the society is, and how the society manages its diversity. The argument of the dissertation is that ethnically diverse societies could be more innovative than homogenous societies because ethnic diversity, if put in the right context, induces greater creativity, entrepreneurship and openness to change.

The dissertation refers to the research conducted in the organizational science in order to provide evidence for the links between ethnic diversity and innovation. The following chapters explain in detail the relationship between ethnic diversity and each of the elements of innovation: creativity, entrepreneurship and openness to change. Thus, the following chapters of the dissertation refer to:

- diversity-creativity link
- diversity-entrepreneurship link
- diversity-openness to change link

5. Diversity-Creativity Link

The dissertation argues that ethnolinguistic diversity in a country could increase the creative spirit of the society. Theoretically, the increases in creativity come from a higher number of different ideas present in a more diverse society. Most of all, however, the increases in creativity come from the interaction between diverse individuals and the generation of new quality ideas which result from such interactions. The ideas created in the process of group interactions are the result of ongoing sharing of ideas, and twisting the ideas over and over again to develop a completely new idea. In that case, the interaction

between diverse individuals stimulates creativity and the production of a new value in the shape of novel ideas.

The dissertation intends to utilize the *value-in-diversity* hypothesis, developed in the organizational science, as the theoretical basis for the explanation of why ethnic diversity could be a source of increased creativity. It will also adhere to other concepts developed within the management science and psychology, which support the *value-in-diversity* hypothesis. The concepts include the concept of *creative synergy* developed within the psychology of creativity, and the concept of *minority dissent* as well as the notion of *kaleidoscope thinking*, developed in the organizational theory.

The *value-in-diversity* hypothesis rests upon the assumption that the variety of perspectives and experiences represented in diverse teams contribute to higher creativity and the production of high-quality ideas.⁶⁵ The proponents of this hypothesis argue that a well-managed diversity increases the creative productivity of groups and organizations in areas of problem-solving and decision-making. The cognitive act of creative thinking, which stems from the interaction between diverse individuals has been explained by the notion of *kaleidoscope thinking*, which refers to “twisting reality into new patterns and rearranging the pieces to create a new reality”.⁶⁶ The increased creativity coming from interactions between diverse individuals is also in the center of the concept of *creative synergy*, which puts strong emphasis on the role of interpersonal interactions for the evolution of high-quality ideas in the group. The isolated effect of the exposition to the variety of perspectives on idea generation is well captured by the research of *minority dissent*. The theorists of *minority dissent*

⁶⁵ McLeod, Lobel and Cox (1996)

⁶⁶ Kanter (1968) p. 11

have proved empirically that consideration of an issue from multiple perspectives stimulates greater creativity.⁶⁷

5.1. Diversity-Creativity Research in Organizational Science

Since the publication of the managerial report *Workforce 2000*⁶⁸ in 1987, stressing the increasing diversity of the labor force in the United States, the topic of diversity has received a prominent attention in the field of organizational theory.⁶⁹ The report has argued that the U.S. workforce is becoming increasingly diverse and that the trend is going to continue in the future. It predicted that traditional minority groups, such as women and people of color, will become increasingly present in the workforce in the coming decades and will form a bigger part of the labor force than the existing majority of white men. The publication has triggered a discussion among the scholars in the field of organizational science, mostly in the United States, concerning the impact of increasing workforce diversity on organizational outcomes. A new line of research, focusing on analyzing the effects of diversity, has been developed as a result of the debate.

The study of diversity has referred to different categories of diversity,⁷⁰ one of them being ethnic diversity (also referred to as racial or cultural diversity). Two major approaches have emerged concerning the effects of ethnic diversity on the organizational outcomes, one focusing on the negative, and the other on the positive outcomes of ethnic diversity. The explanation of the negative impact of ethnic diversity has been related mainly to the *affective*

⁶⁷ Moscovici (1985), Nemeth (1992)

⁶⁸ Johnston & Parker (1987)

⁶⁹ Janssens & Steyaert (2003)

⁷⁰ An exhaustive list of 14 different categories of diversity has been provided by Milliken & Martins (1996): ethnic background, nationality, gender, age, personality, cultural values, socioeconomic background, educational background, functional background, occupational background, industrial experience, organizational membership, organizational tenure, and team tenure.

effects⁷¹, which refer to involvement, satisfaction, identification, role conflict, role ambiguity, perception of discrimination and social integration. The theoretical basis for the argument has been provided by the *social identity theory*⁷². The theory suggests that greater diversity causes workgroup members to employ divisive social categorizations based on their differences and that reduces the cohesiveness and increases the possibility of the dysfunctional conflict within the group impeding the organizational performance.

The explanation of the positive impact of ethnic diversity has been related to the *cognitive* effects, which refer to creative thinking, flexibility, novelty, synthesis, analysis, reorganization, redefinition and complexity. The proponents of the positive effects of diversity argue that greater diversity among the group members leads to greater variety of ideas and perspectives and therefore, leads to greater creativity and flexibility of thinking. The dissertation draws on the theoretical basis, and the empirical findings, provided by the research related to the positive effects of ethnic diversity to explain the Diversity-Creativity link.

5.1a. Value-in-Diversity Hypothesis and Supportive Theories

The approach in the organization science stressing the positive impact of ethnic diversity uses the *value-in-diversity* hypothesis to explain the positive effects of ethnic diversity on the group performance. The hypothesis states that “ethnic diversity, at least if properly managed, produces tangible, positive effects on organizational outcomes”.⁷³ The positive effects of ethnic diversity are derived from *cognitive* effects of greater creativity and

⁷¹ Milliken & Martins (1996) make a classification into four types of effects of diversity on group performance: affective, cognitive, symbolic and communicative.

⁷² Tajfel (1982)

⁷³ McLeod, Lobel & Cox (1996) p. 249

flexibility⁷⁴. Based on the examination of the origins of creativity in ethnically diverse groups, as presented by the *value-in-diversity* hypothesis, the author of the dissertation distinguishes between two channels of creativity coming from diversity.⁷⁵ The first channel is attributed simply to the production of a broader range of ideas by diverse, but separate individuals which provide a wider spectrum of alternatives to choose from when trying to solve a problem. The second channel is attributed to the process of interaction between diverse individuals and the generation of new quality ideas resulting from the exposure to the ideas and experiences of other people.

The first channel of creativity, based on the idea that ethnic diversity can aid the creative process of problem solving and decision making by presenting a wider heterogeneous set of ideas for consideration, has the following logic. The diverse ethnic background endows members of the group with a richer base of perspectives, knowledge, experiences and skills. Therefore, when the diverse group is faced with a problem, it will come up with a bigger variety of ideas and solutions to the problem than a group which is more homogenous. The more diverse the group, the higher the possibility that the ideas of the individual group members will be different from each other and therefore, there is a better chance that among those ideas there will be an idea which might provide the right and the least costly solution to the problem. In more homogenous groups there is a bigger possibility that the ideas of the members will be more similar to each other, if not the same, and thus the possibility of arriving with a novel solution to the problem is lower.

The wider spectrum of perspectives present in a diverse group gives the members an opportunity to see the problem in a new light. The psychologists of creativity argue that

⁷⁴ Jackson (1992), Cox & Blake (1991)

⁷⁵ The distinction is made by the author of the dissertation, based on the analysis of the work concerning the *value-in-diversity* hypothesis and related theories

seeing a problem in a new way is important for finding creative solutions. Shifting perspective on a problem allows to redefine the problem and that facilitates creative insights and permits novel solutions that were not thinkable with the old definition of the problem. The importance of redefining the problem for finding creative solutions is very well explained by the following example provided by Lipshitz and Waingortin (1995):

A hotel manager was receiving frequent complaints about the hotel's lifts being too slow. Before replacing the elevators with a faster model (a very expensive option) he decided to get a psychologist's point of view on the problem. The psychologist saw the problem not originating in the speed of the lifts, but rather in the boredom caused by the wait. He then suggested installing large mirrors in front of the lifts, so that people could pass the time and entertain themselves looking in the mirrors. The manager opted for this (much cheaper) solution, and had no more complaints about lifts being too slow. Thus, taking a different perspective on the problem led to an innovative, low-cost solution.⁷⁶

The first channel of creativity has an important insight into the origins of creativity in diverse groups, however, it appears to the author of the dissertation, that it is the second channel that provides the most essential explanation of why diverse groups are more creative because it captures the whole dynamics of cognitive processes of idea generation in a group. The second channel puts emphasis on the interaction between diverse individuals and the ways in which the exposure to different perspectives, approaches and experiences changes the individual's creative thought and creates a new quality. Furthermore, it puts emphasis on the collective creativity and the evolution of ideas in a group process, and the novelty that arises as the idea progresses from one mind to another and is shaped into new forms.

⁷⁶ Cited in Georgsdottir & Getz (2004) p. 167

The scholars writing about the second channel of creativity in diverse groups stress the point that diversity does not only provide the benefits coming simply from a bigger sum of diverse ideas, but more importantly, it provides the benefits coming from “the potential changes in the generation of creative ideas that can occur when the inputs and interactions of other people are introduced”.⁷⁷ The interaction between the group members and the exposition to the variety of perspectives and ideas stimulates further idea generation by the group members which results in higher-quality ideas. It changes the individual’s creative thought also by increasing the probability of more associations.

The ability to produce more associations has been defined by the cognitive psychologist as being in the heart of creative thinking. Guilford (1950), the founder of the creativity research in psychology, argued that the associations from one topic to another allow for the generation of divergent thoughts. The scholars of creativity research observed that the human mind is inclined to think consistently along predictable lines and tends to be influenced by the surface features of problems.⁷⁸ What distinguishes the creative mind is the ability of associative thinking, in which thoughts can leap from category to category rather than simply following preexisting paths of cognition. The crucial skill in associative thinking is the ability to notice similar features in seemingly unrelated elements.⁷⁹ The cognitive psychologists who focus on the team-level creativity⁸⁰ argue that a direct interaction among diverse individuals highly contributes to associative thinking and thus, to creativity.

The sole cognitive act of idea generation resulting from the interaction between people in a group has been tagged by R. M. Kanter (1968) as *kaleidoscope thinking*.⁸¹ The

⁷⁷ Kurtzberg & Amabile (2000-2001) p. 285

⁷⁸ Gick & Holyoak (1987), Novick (1988)

⁷⁹ Mednick (1962), Sternberg & Lubart (1993)

⁸⁰ Kurtzberg & Amabile (2000-2001)

⁸¹ Kanter (1968)

generation of ideas under the notion of *kaleidoscope thinking* is based on “twisting reality into new patterns and rearranging the pieces to create a new reality”.⁸² In another study, Kanter (1983) has also observed that the most innovative companies deliberately established heterogeneous teams to “create a ‘marketplace of ideas’, recognizing that a multiplicity of points of view need to be brought to bear on a problem”⁸³. Furthermore, she stated that: “It is not the ‘caution of committees’ that is sought – reducing risk by spreading responsibility – but the better idea that comes from a clash and an integration of perspectives”⁸⁴.

The whole process of interaction between the group members, which gives rise to the creation of new ideas, has been referred to, by the scholars of the psychology of creativity, as *creative synergy*.⁸⁵ It is a process in which ideas are formed, shared, adapted, and inspired simultaneously by more than one person. The advocates of *creative synergy* argue that “the input of other people’s ideas, knowledge structures, and perspectives at particular stages of the thought process might have important effects on how creative ideas are formed, perhaps by increasing the probability of lateral associations.”⁸⁶

The proponents of *creative synergy* underline that the group creativity “has something to offer over and above the simple combination of individually generated ideas.”⁸⁷ They argue that “synergy is the behavior of whole systems that cannot be predicted by the behavior of any parts taken separately”⁸⁸. The ideas created in the process of group interaction are the result of ongoing sharing of ideas, and twisting the ideas over and over again to develop a completely new idea, which is different from the ones initially developed

⁸² Kanter (1968) p. 11

⁸³ Kanter (1983) p. 167

⁸⁴ Kanter (1983) p. 167

⁸⁵ Kurtzberg & Amabile (2000-2001)

⁸⁶ Kurtzberg & Amabile (2000-2001) p. 286

⁸⁷ Kurtzberg & Amabile (2000-2001) p. 289

⁸⁸ Fuller (1981)

by the individual minds. In that case the interaction adds an extra value and generates a new product.

The isolated effect of the exposition to the variety of perspectives on idea generation in a group is well captured by the research of *minority dissent*. It focuses on the impact of minority views on the majority's process of thinking. The studies conducted within that realm of research have provided evidence that the minority dissent is beneficial and productive for the organization because it enhances creativity and divergent thought in majority members.⁸⁹ The minority dissent occurs when a minority publicly opposes and challenges the beliefs, attitudes, ideas, procedures and policies assumed by the majority of the group.⁹⁰ The enhancement of creativity under minority dissent stems from the consideration of the issue from multiple perspectives which is forced on the majority by the minority dissent.

The mechanism that leads to enhanced creativity and divergent thought under minority dissent is explained by the scholars along the following lines. When the minority dissent occurs, the majority starts wondering why the minority thinks the way it does.⁹¹ However, the reason why the majority tries to understand the minority position is not to justify, or to verify it, but to reject it.⁹² The rejection of the minority idea is perceived as essential for the majority to maintain its position. However, at the same time, the majority tries to resolve the tension produced by minority dissent in a way that preserves harmony and intergroup relations.⁹³ The tension produced by the minority dissent, and the desire of the majority to resolve the tension in an accommodative way lead to the increased creativity

⁸⁹ Nemeth & Staw (1989), Van Dyne & Saavedra (1996), De Dreu & Beersma (2001),

⁹⁰ McLeod, Baron, Marti & Yoon (1997)

⁹¹ Nemeth (1986)

⁹² Moscovici (1980)

⁹³ Crano & Chen (1998)

and the production of divergent thinking on the side of the majority. The majority members have to look at the problem from different perspectives, one of which has been suggested by the minority.⁹⁴

5.2. Empirical Support for Diversity-Creativity Link in Organizational Science

There were several⁹⁵ studies conducted within organizational theory that provided empirical support for the *value-in-diversity* hypothesis. Cox, Lobel and McLeod (1991) found that ethnically diverse groups made more cooperative choices in the two-party prisoner's dilemma game, than all-Anglo groups did. Later, McLeod and Lobel (1992) found that ethnically heterogeneous groups produced higher quality ideas in a brainstorming session than more homogenous groups did.

In another study, Watson, Kumar and Michaelsen (1993) found that, with time, nationally/ethnically heterogeneous groups scored higher on the range of perspectives and alternatives generated, than the homogenous groups did. They analyzed the interaction and performance of the heterogeneous and homogeneous groups for 17 weeks. They observed that initially the homogenous groups scored higher on both process and performance effectiveness. Over time, however, both types of groups showed improvement on process and performance, and differences between groups have decreased. At the end of the study period, there were no differences between the two groups as far as process and overall performance, but the heterogeneous groups scored higher on two task measures: range of

⁹⁴ Nemeth (1986)

⁹⁵ The scholars studying ethnic diversity in organizations mention that there has been relatively little research conducted on ethnic/race diversity and its impact on organization; greater emphasis has been placed on diversity with respect to age, gender, and tenure.

perspectives and alternatives generated. Overall, it was noticed that the heterogeneous groups made much more rapid process improvements than the homogeneous groups did.

Another study by McLeod, Lobel and Cox (1996), conducted as a controlled experimental brainstorming, reported that the ethnically diverse groups generated ideas which were of a higher quality and more feasible than the ideas generated by ethnically homogeneous groups. The study has focused on the performance of groups on a creativity task, requiring knowledge of different cultures. The ideas produced by the heterogeneous groups were judged as “significantly more feasible, and more effective”⁹⁶ than the ideas produced by the homogeneous groups. Thus, the results of the study were consistent with the previous research, suggesting that ethnically diverse work teams have potential performance advantages over homogenous teams, at least with respect to creativity.

Other than the laboratory studies described above there were also field studies conducted by Richard et al., which also supported the *value-in-diversity* hypothesis. Richard (2000) found that the business strategy of the firm moderates the relationship between racial diversity and firm performance. The results of his study showed that cultural/racial diversity has a positive impact on a firm’s performance if the firm pursues a growth strategy. His study demonstrated that “in association with growth, cultural/racial diversity enhances productivity, and this relationship intensifies as strategic growth increases”.⁹⁷ At the same time, the results showed that cultural/racial diversity has a negative effect on firm’s performance if the firm has no growth strategy or a downsizing strategy. In sum, the study showed that the same resource, which is cultural/racial diversity, can offer competitive advantage to some firms, and can be a performance detriment to other firms, depending on the context.

⁹⁶ McLeod, Lobel & Cox (1996) p. 257

⁹⁷ Richard (2000) p. 171

The contextual factors, and their mediating effects on the relationship between cultural/racial diversity, have been further analyzed in a subsequent study by Richard, McMillan, Chadwick and Dwyer (2003). This time the researchers designed a study to explore the moderating role of firm innovation on the relationship between racial diversity and the firm's performance. The study, founded on the *contingency/resource-based* theory, proved again the importance of the context in which racial diversity is placed. It proved that racial diversity, as a knowledge-based resource, needs to be set in an appropriate context to fully realize its potential benefits. The study has identified an *innovation strategy* as one such contextual variable. Specifically, the researchers found that racial diversity enhanced performance for banks pursuing an innovation strategy, whereas for banks low in innovation, racial diversity decreases the performance. According to their study "simply put, racial diversity is beneficial to innovators."⁹⁸

The research conducted within *minority dissent* realm supports the theory that minority dissent might be beneficial and productive for team functioning due to the increases in creativity and divergent thought that it generates. The phenomenon has been shown in many laboratory studies. For example, Nemeth and Kwan (1985) found that individuals confronted with a discrepant minority generated a larger number of original, unique associations than participants confronted with a discrepant majority. Nemeth (1986) found that minority views can stimulate consideration of non-obvious alternatives in task groups. She further concluded that persistent exposure to minority viewpoints stimulates creative thought processes.

Also, De Dreu and De Vries (1993) observed that individuals generated more original word associations when they were confronted with a minority perspective on the

⁹⁸ Richard, McMillan, Chadwick and Dwyer (2003) p. 114

subject matter. Moreover, Van Dyne and Saavedra (1996) showed that groups with a minority influence agent produced more creative ideas and had more divergent perspectives on the task than groups lacking a minority influence agent. Another study by De Dreu and West (2001) showed that there were more innovations under high rather than low levels of minority dissent, but only when there was a high degree of participation in team decision making. They concluded that minority dissent stimulates creativity and divergent thought, which, through participation, manifest as innovation.

As far as minority dissent and its influence on decision-making, Peterson (1997) proved that the quality of team processes and outcomes was higher when the leader was open to dissent. Likewise, Peterson et al. (1998) found that the top management teams which were successful were actually encouraging dissent in private meetings. Dooley and Fryxell (1999) observed that, provided loyalty and competence within teams, dissent was associated with higher decision quality in strategic decision-making teams within the observed sample (U.S. hospitals). The positive effect of minority dissent on team decision-making has been also proven by Gruenfeld, Thomas-Hunt and Kim (1998). The results of their research showed that members of the majority scored higher on integrative complexity⁹⁹ when they were confronted with minority dissent. Since the minority dissent has been proven beneficial for decision-making, creativity and divergent thinking, the scholars of *minority dissent* argue that it is important that the organizations are open and allow for the expression of minority dissent.

⁹⁹ Integrative complexity defined as “the individual’s tendencies to exhibit (1) conceptual differentiation such as the recognition of multiple alternatives, and (2) conceptual integration such as the recognition of possible trade-offs among alternatives.

6. Diversity-Openness to Change Link

The dissertation argues that ethnic diversity could lead to a higher openness to change in a society because the interaction with people of different cultural origins and thus, the exposure to different cultures can increase the openness to change.¹⁰⁰ The argument is based on the idea that people who are immersed in a diverse environment, which values diversity, become more accustomed to differences and to new ideas, and that broadens their horizons and makes them less afraid of differences and thus, more open to new things and more open to change. Moreover, ethnically diverse societies include a bigger number of bilingual or bicultural individuals, who, as argued by the scholars¹⁰¹, tend to have a higher tolerance for ambiguity and a higher level of divergent thinking, which is associated with higher openness to change.

The openness to change of the society is important to the economy in the following three ways: First, a society, which is characterized by a higher openness to change would provide a higher pool of open-to-change individuals to carry out the innovations. As argued by Schumpeter, openness to change is one of the essential characteristics of the entrepreneur.¹⁰² Doing something new implies not only objective difficulties coming from the fact of entering an unknown ground, which is always more difficult than walking on an old, well known path. Doing something new implies also difficulties coming from the psyche of the human being, from the insight of the human mind, which, by nature, feels reluctance towards new things. It prefers to stay attached to the old habits of thinking which are familiar and tested by experience. The entrepreneur has to be particularly open to change to

¹⁰⁰ Doran (2001) p. 246

¹⁰¹ Lambert (1977)

¹⁰² Schumpeter (1934) p. 85-86

be able to successfully combat the objective difficulties as well as the psychological difficulties associated with change.

Second, an open-to-change society would provide an audience which is more receptive to new ideas and thus, more receptive to innovation. Other than providing a bigger pool of potential entrepreneurs, a diverse society also provides an audience which is more receptive to change. Such an audience is very important for the successful carrying out of the innovations. If the audience is open to new things then it is easier for the entrepreneur to find necessary cooperation and to win over customers for his endeavors. If a society is not open to change, then an endeavor of the entrepreneur to do something new will be met with opposition or even condemnation. The resistance to the innovation will put in wane the entrepreneurial effort and discourage other entrepreneurs from introducing new things to the society. Therefore, a society which is open to change is essential for the innovation to take place.

Third, ethnic diversity could be beneficial for a country, in terms of increasing its adaptability to global markets. The diverse workforce of a country better reflects the environment of the companies acting internationally than the homogenous workforce does, and therefore, it allows for those companies to be more adaptive to the changing international environment, and to be more competitive on the global market. The process of globalization entails that the countries, in order to remain competitive on the global scale, have to address not only the consumer needs of their own societies but they have to also address the needs of the consumers on the global market. To understand consumer markets throughout the world and to compete in them, the countries need to possess the insight into the characteristics of consumers in many cultures. Countries with a more ethnically diverse workforce have a better chance of addressing the needs of those customers because their

workforce better mirrors the cultural diversity of the global markets. Thus, ethnic diversity can be very beneficial in terms of global competitiveness, and increases the chances of carrying out innovations that would be well received on the global markets.

The support for the existence of the link between diversity and openness to change can be found in the research conducted within the organizational science and within the cognitive and behavioral psychology. The following paragraphs present in depth the theoretical and empirical support for the diversity-openness to change link.

6.1. Diversity-Openness to Change Research in Organizational Science

Within the organizational science, the support for the diversity-openness to change argument is provided by the *value-in-diversity* hypothesis, introduced earlier in the dissertation while discussing the diversity-creativity link. There are also several studies conducted in the field of cognitive and behavioral psychology which provide strong support for the argument. The studies relate to the concept of divergent thinking, *minority dissent* and the *groupthink*.

In the organizational science, the support for the argument of increased flexibility stemming from ethnic diversity has been derived mainly from the same line of research that provided the support for the creativity-diversity link. The proponents of the *value-in-diversity* hypothesis argue that ethnic diversity can add value to an organization not only through increased creativity and innovation but also through increased organizational flexibility that is induced by diversity. They point to two main sources of the phenomenon: one stemming from the changes in cognitive processes of the members of the diverse groups, and other

stemming from the changes in the organizational structure stimulated by the adjustment related to diversity¹⁰³.

The scholars advocating the value of diversity state that “one way that diversity can make organizations more flexible is through changes in the patterns of employees’ cognitive structures”¹⁰⁴. In that case the greater flexibility stems from the exposure to different perspectives, approaches and experiences that are provided by ethnic diversity. The exposure leads to the increase in divergent thinking in the individuals, which is related to higher flexibility of thought. An indirect support for that argument has been found in the research of bilingual individuals. The researchers have found that bilingual individuals have a substantially higher level of cognitive flexibility than the monolinguals.¹⁰⁵ The exposure to two cultures and two languages enhances the cognitive complexity of bilingual individuals and increases their ability of divergent thinking. It is argued that a similar mechanism works in situations when people are exposed to different cultures also to the lesser extent, for example, at work or in every day life.

The positive changes in cognitive process inside of ethnically diverse organizations are not only contributed to the process related to the exposure to different perspectives, but also, simply, to the fact that ethnically diverse organizations include a significantly bigger number of bilinguals, who are proven to be more cognitively flexible. The scholars argue that, since the diversity usually stems from including ethnic minorities, more ethnically diverse organizations are more likely to contain a bigger pool of bilingual or multilingual individuals. The inclusion of a bigger number of bilingual individuals increases the

¹⁰³ Cox (2001)

¹⁰⁴ Cox (2001) p. 8

¹⁰⁵ Lambert (1977)

organization's competitive advantage in terms of flexibility and divergent thinking potential of its members, and thus, in terms of adaptability to change.

The logic behind the process which leads to the increase of divergent thinking as a result of the exposure to different ideas, is well explained by the *minority dissent* concept, which has been described by the dissertation in the chapter dealing with diversity-creativity link. The scholars of minority dissent provided evidence that the minority dissent enhances both creativity and divergent thought in majority members.¹⁰⁶ The rationale behind the mechanism that leads to divergent thinking in minority dissent situations is similar to the one that leads to increased creativity. Simply, the exposure to different views allows the members to perceive the problem from different perspectives and that stimulates the recognition of multiple alternatives, which is related to divergent thinking. The occurrence of different perspectives within a group reduces the possibility of a single-minded process or a *tunnel vision*, which is often distinctive of groups, which are not exposed to diverse viewpoints¹⁰⁷.

The problem of single-minded thinking in groups, which are not exposed to minority views, is very well explained by the *groupthink* concept developed within the psychology of groups. The *groupthink* relates to the absence of critical thinking in groups caused by excessive preoccupation with maintaining group cohesiveness. Janis (1982) defines the *groupthink* in the following manner:

I use the term "groupthink" as a quick and easy way to refer to a mode of thinking that people engage in when they are deeply involved in a cohesive in-group, when the members' strivings for unanimity override their motivation to realistically appraise alternative courses of action. [...]

¹⁰⁶ Nemeth & Staw (1989), Van Dyne & Saavedra (1996), De Dreu & Beersma (2001)

¹⁰⁷ Sauser (1988)

Groupthink refers to a deterioration of mental efficiency, reality testing, and moral judgment that results from in-group pressures.¹⁰⁸

The social pressures for *groupthink* typically develop in cohesive, homogenous groups.¹⁰⁹ When group cohesiveness is high, all the members are more likely to express solidarity, mutual liking, and positive feelings towards the processes within the group. The members of such a group “tend to evolve informal normal norms to preserve friendly intragroup relations and these become part of the hidden agenda at their meetings”.¹¹⁰ The hidden agenda and the accompanying concurrence-seeking tendencies interfere with critical thinking of the group. In order to keep the cohesiveness and the friendly intragroup relations, the group resorts to distorting member’s observation and ignoring realistic challenges, anytime those observations and challenges call into question the cohesiveness of the group.

Until the emergence of the *groupthink* research, most of the group psychologists were underlining the positive aspects of group cohesiveness. They emphasized the importance of group cohesiveness and the positive valuation of the group by the members, and argued that it has an important effect on members’ motivation to continue to belong to the group and has a positive effect on the group performance.¹¹¹ The potentially detrimental effects of group cohesiveness were first emphasized by Bion (1961) who explained how the efficiency of all working groups can be adversely affected by the preconscious myths and misconceptions of their mutually dependent members – that is, by shared basic assumptions that tend to preserve the group without regard for the work at hand. The potential

¹⁰⁸ Janis (1982) p. 9

¹⁰⁹ Janis (1982) p. 7

¹¹⁰ Janis (1982) p. 7

¹¹¹ Lewin (1952)

detrimental effects of group cohesiveness were further researched by the scholars studying the *groupthink*.

The researchers of the groupthink underlined the fact that cohesiveness does not only have positive effects, but it can also lead to gross errors in group decisions.¹¹² They have observed that the cohesive groups develop strong conformity pressures. Moreover, they noticed that the greater the group's cohesiveness, the more power it has to bring about conformity. For the reasons of defending the unity and the esprit de corps of the cohesive group, the members of the group take steps, often without being aware of it, to counteract the disruptive influence of inside critics which question the shared basic assumptions of the group. Therefore, they are more likely to reject a nonconformist, than the members of a less cohesive group. The rejection of points of view other than the ones shared by the group does not allow for divergent thinking within the group and therefore, it hinders the creativity and flexibility of the group.

The proponents of *value-in-diversity* have stressed the fact that heterogeneous groups are much less cohesive than the homogenous groups and therefore, they are much less likely to fall into the trap of the *groupthink*. The decrease in group-cohesiveness related to higher heterogeneity is perceived by the scholars of *social identity theory* as having a negative impact on the group performance. However, the scholars of *value-in-diversity* argue that it might also have a positive impact because it allows to avoid the consequences of *groupthink*. The heterogeneous groups consist of members with diverse perspectives and backgrounds so it is much harder to impose on them a common set of basic assumptions that would be shared by everybody. Therefore, the diverse groups are much less constrained by the pressure to conform to the shared assumptions than the homogenous groups. As a result, the

¹¹² Janis (1982)

heterogeneous groups are inclined to be much more open to change, while the homogenous groups are much more willing to stay with the *status quo*.

While the above paragraphs describe the mechanisms behind the first source of higher openness to change stemming from diversity, which is related to the changes in cognitive processes of the group members exposed to diversity, the following paragraphs will describe the other remaining sources. Another way in which diversity can contribute greater flexibility, according to the proponents of *value-in-diversity* hypothesis, is through the responses that an organization has to make to adjust to the diverse workforce. In that case the greater flexibility is a kind of by-product. The example given by Cox is that the increase in workforce diversity induces the broadening of the policies and the reduction of standardization in the operating methods, which, in result, makes the organization more fluid, more agile and adaptable. The increase in fluidity of the organization is important because it “should allow the organization to respond to environmental changes faster and at lower cost”.¹¹³ Moreover, the scholars argue, if the organization has been able to deal with the challenge of diversity, it is more likely to deal better when it is faced with other types of challenges that involve change: “Most important of all, if organizations are successful in overcoming resistance to change in the difficult area of accepting diversity, it should be well positioned to handle resistance to other types of change”¹¹⁴. Cox and Blake (2001) state that even though there have not been yet any empirical studies conducted concerning that line of research, the logic of the argument seems to be compelling.

In addition to the above, Cox and Blake (1991) proposed a marketing argument which states that the organizations that can successfully attract a diverse workforce will obtain value by matching the demographic characteristics of the market they serve,

¹¹³ Cox (2001) p. 8

¹¹⁴ Cox & Blake (1991) p. 52

positioning them to sell to a broader and more diverse customer base, and subsequently, potentially increasing their organizational performance. A similar argument was delivered earlier by Morgan (1989), who stated that “to adapt successfully to its external environment, a system must incorporate all the variety found in that environment”.¹¹⁵ Thus, the organizational science provides theoretical support for the argument proposed by the dissertation, which states that ethnic diversity makes the country more adaptable to the global market and thus, more competitive on the global scale.

6.2. Empirical Support for Diversity-Openness to Change Link in Organizational Science

The organizational science has been increasingly asserting the fact that actively managed cultural diversity can lead to greater flexibility, openness, and the avoidance of *groupthink*.¹¹⁶ For example Adler (1991) found that multicultural organizations possess a greater openness to new ideas, flexibility and avoidance of the *groupthink*. Managers interviewed in the process of the research described multicultural organizations as more flexible and open to new ideas. Others noted the increase in multiple perspectives brought to problem solving and the increased ability to avoid *groupthink*. Again others stressed the ability of multicultural organizations to understand customers’ needs better – for example, to tailor their marketing campaigns to the nationality of their clients.¹¹⁷

The increased flexibility of ideas, also referred to as the increased ability of divergent thinking, in ethnically diverse groups has been proven empirically both by the scholars of cognitive and behavioral psychology, and organizational science. Several studies conducted

¹¹⁵ Morgan (1989) p. 76

¹¹⁶ Iles & Hayers (1997)

¹¹⁷ Adler (1991) p. 81

by Nemeth and others in the *minority dissent* field, have proven that the exposure to minority view stimulates divergent thinking. Moreover, the research has indicated that minority dissent has important positive effects for divergent thinking, even if the dissent itself is wrong: “In either case, it appears to stimulate divergent thought”¹¹⁸.

In organizational science, the research of McLeod and Lobel (1992) has indicated that bicultural individuals possess more flexibility in thinking and more ability to use innovative thinking¹¹⁹. Their study confirmed the results of the earlier studies in cognitive psychology which proved that bilingual individuals have a higher level of divergent thinking.¹²⁰ The research concerning the positive impact of bilingualism on the ability of divergent thinking has been initiated after Lambert and Anisfeld (1969) had found that the French-English bilingual children in Canada had higher levels of flexibility of thought than the monolingual children. Soon afterwards the research confirming the positive link between bilingualism and the increased flexibility of thought has started to emerge from around the world, more specifically from Singapore¹²¹, Switzerland¹²², South Africa¹²³, Israel and New York¹²⁴, western Canada¹²⁵ and Montreal¹²⁶.

According to Lambert (1977), the study of Montreal was especially persuasive because it involved a comparison of young children, some of whom were given the chance to become bilingual over a period of years and others who were not given the chance. Thanks to that, the study was able to prove the causal link between bilingualism and

¹¹⁸ De Dreu & West (2001) p. 1192

¹¹⁹ Cited in Richard (2000)

¹²⁰ Review of this research can be found in Lambert (1977)

¹²¹ Torrance, Gowan, Wu & Aliotti (1970)

¹²² Balkan (1970)

¹²³ Ianco-Worrall (1972)

¹²⁴ Ben-Zeev (1972)

¹²⁵ Cummins & Gulutsan (1973)

¹²⁶ Scott (1973)

flexibility, where the former enhances the latter¹²⁷. The study found that the group of youngsters who had become functionally bilingual through “immersion” schooling scored substantially higher on the ability of divergent thinking than the monolingual group¹²⁸. The ‘divergent thinking’ was defined after Guildford (1956) as a special type of cognitive flexibility.

Having revised all the research concerning the link between bilingualism and cognitive flexibility, Lambert (1977) concluded that:

There is then an impressive array of evidence accumulating that argues plainly against the common sense notion that becoming bilingual, i.e., having two strings to one’s bow or two linguistic systems within one’s brain, naturally divides a person’s cognitive resources and reduces his efficiency of thought. Instead one can now put forth a very persuasive argument that there is a definite cognitive advantage enjoyed by bilingual children in the domain of cognitive flexibility.¹²⁹

Other than the benefits coming from the increases in cognitive flexibility, ethnic diversity provides the benefits that are related to the avoidance of *groupthink*. There is not really a direct empirical support that has been provided for that argument. The scholars support their argument based on the fact that there is an empirical support for the opposite case where group cohesiveness, and thus group homogeneity, leads to the *groupthink* syndrome. They argue that: “Because group cohesiveness is directly related to degrees of homogeneity, and groupthink only occurs in highly cohesive groups, the presence of cultural

¹²⁷ Lambert (1977) p. 18

¹²⁸ Scott (1973)

¹²⁹ Lambert (1977) p. 18

diversity in groups should reduce its probability”¹³⁰. It has been shown empirically that demographic diversity in groups lowers the lower of the social cohesion.¹³¹ In the research conducted by Janis (1972) the cohesiveness of the group is defined as one of the major reasons behind the groupthink syndrome: “One major condition that I have repeatedly mentioned has to do with the degree of cohesiveness of the group”¹³². Therefore, the heterogeneous groups, on the contrary to the homogenous ones, have a high possibility of avoiding the trap of the *groupthink*, due their lower levels of group cohesiveness.

Janis conducted a research of historical case studies of major U.S. policy fiascos and found that the fiascos were, to a big extent, attributed to the *groupthink*, which was, in turn, attributed to the high cohesiveness of the group. His analysis has proven that “the more amiability and esprit de corps among the members of a policy-making in-group, the greater is the danger that independent critical thinking will be replaced by groupthink.”¹³³ He argued that the prime example of *groupthink* at work was the Bay of Pigs, when in 1961 President Kennedy and his small group of advisers accepted the CIA invasion plan on Cuba:

The failure of Kennedy’s inner circle to detect any of the false assumptions behind the Bay of Pigs invasion plan can be at least partially accounted for by the group’s tendency to seek concurrence at the expense of seeking information, critical appraisal, and debate. The concurrence-seeking tendency was manifested by shared illusions and other symptoms, which helped the members to maintain a sense of group solidarity.¹³⁴

¹³⁰ Cox & Blake (1991) p. 51

¹³¹ Milliken & Martins (1996), Tsui & Gutek (1999), Williams & O’Reilly (1998)

¹³² Janis (1972) p. 176

¹³³ Janis (1972) p. 13

¹³⁴ Janis (1972) p. 47

As argued before, the other channel through which ethnic diversity brings benefits to the economy is through the enhanced adaptability to the market by these firms, which are composed of ethnically diverse workforce. That argument is referred to in organizational science as the *marketing argument*. The empirical support for the argument is drawn from several case studies of firms operating locally and internationally that increased the diversity of their workforce and reaped benefits from it. For example T. Cox and S. Blake bring up the case of Avon Corporation, which is one of many examples that provide support for the marketing argument. The case refers to local market but the same logic applies to the firms which operate on the global market and use ethnic diversity in order to better match their clients.

Avon Corporation used cultural diversity to turn around low profitability in its inner-city markets. Avon made personnel changes to give Black and Hispanic managers substantial authority over these markets. These formerly unprofitable sectors improved to the point where they are now among Avon's most productive U.S. markets. Avon President Jim Preston commented that members of a given cultural group are uniquely qualified to understand certain aspects of the world view of persons from that group.¹³⁵

A convincing support for the argument that diversity is beneficial for economic productivity can be found in the actual behavior of the firms. Recently more and more, the firms stress the importance of diversifying their workforce and managing the diversity for their benefit.¹³⁶ Special units are designed and trainings are conducted within the firms in order to increase firm's diversity and to manage it in the right way. Just as an example of

¹³⁵ Cox & Blake (1991) p. 49

¹³⁶ Lattimer (1998)

some of the firms who pioneered in such actions are Avon, Ortho Pharmaceuticals, Procter & Gamble, Hewlett-Packard,¹³⁷ Northrop Grumman, General Electric¹³⁸, Corning and Xerox¹³⁹. And now many others have followed and included diversity in workforce as one of the firm's strategic goal. It has been reflected in the websites of those firms which include special pages concerning the firm's devotion to increased workforce diversity. A following extract from such a KPMG website provides a good example of the recent trend in firms' approach to diversity:

At KPMG, we believe in recognizing, welcoming and valuing our differences. Our diversity mission is to create a work culture that capitalizes on all the differences of our people and our client base – both current and future - in order to be the best that KPMG can be. Diversity refers to all the ways in which we differ. This includes background, mindset, skills, experience, age, gender, race, language, religion, social background, disability and sexual orientation. Diversity is a key strategic business issue for the firm. There are both social and business reasons for promoting diversity.[...] Diversity at KPMG represents a source of value because it gives us: broader perspectives, a greater understanding of our people and our clients, a richer source of ideas, a closer link to the communities in which we work. In short, it's all about providing a richness and range of skills and styles within our firm.¹⁴⁰

¹³⁷ Cox & Blake (1991) p. 53

¹³⁸ Lattimer (1998) pp. 9,12

¹³⁹ Thomas (1990)

¹⁴⁰ KPMG, "Everyone is different at KPMG. Our Success depends upon it.", KPMG website cited November 3rd 2004: <http://kpmgcareers.co.uk/WorkExperience/AboutKPMG/Diversity.html>

7. Diversity-Entrepreneurship Link

The proposed dissertation argues that there could be a positive link between ethnic diversity and entrepreneurship. This is related to two phenomena. First, ethnic diversity could be related to higher openness to change and that would promote entrepreneurship. As has been argued before in the dissertation, it could be that diverse societies tend to be more open to change, and therefore, they provide more individuals with entrepreneurial potential, as well as a more receptive audience for entrepreneurial actions. Therefore, a society that is open to change is essential for the entrepreneurial spirit to thrive. Thus, diversity, could indirectly lead to higher levels of entrepreneurship.

A second phenomenon reflects the direct link between ethnic diversity and entrepreneurship, and it is related to the fact that diverse societies have a higher percentage of minorities and immigrants, and those groups have a higher propensity to be entrepreneurial. The first phenomenon has been described in part of the dissertation concerning the link between diversity and openness to change, therefore, the following part will only focus on the second phenomenon responsible for the occurrence of the positive relation between ethnic diversity and entrepreneurship.

7.1. Empirical support for higher entrepreneurial propensity among minorities and immigrants

It has been observed that minorities and immigrants exert a higher propensity to be entrepreneurial than the native majority. The phenomenon was first observed and investigated in the US, and then studies from other Western countries have followed,

reaffirming the observation. The studies concern either minorities in general, including immigrants and native-born minorities, or immigrants in particular.

As for the US, it has been observed that in every decennial census from 1880 to 1990, immigrants were significantly more likely to be self-employed than natives.¹⁴¹ An immigration economist, George Borjas (1986), was one of the first to bring the issue to broader attention. Using the data from the 1970 and 1980 US censuses he conducted an extensive study of self-employment rates among immigrants and found that the self-employment rates of most immigrant groups exceeded those of native-born Americans. For example, among white male labor force participants the probability of self-employment was 16.5% for foreign-born, and 11.7% for native-born. Among Cuban labor force participants the probability of self-employment was 15.6% for foreign-born, and 10.9% for native-born. Among Asian labor force participants the probability of self-employment was 12.6% for foreign-born, and 12.1% for native-born. Among Black labor force participants the probability of self-employment was 5.3% for foreign-born, and 3.7% for native-born. The relationship did not hold for the Mexican and other Hispanic labor force participants where the probability of self-employment was 4.2% for foreign-born Mexicans, and 5.6% for native-born Mexicans, and it was around 8% for both foreign- and native-born other Hispanic participants.¹⁴²

The recent analysis of data in the US confirms the phenomenon observed by Borjas. The *Minorities in Business 2001* report states that the minority businesses are growing faster than the population in terms of both numbers of new firms and revenues. It reports that currently minorities own about 15% percent of the total firms in the US.¹⁴³ The data

¹⁴¹ Research Perspectives on Migration (1997) p. 1

¹⁴² Borjas (1986) pp. 486-487

¹⁴³ U.S. Small Business Administration, Office of Advocacy (2002) p. 12

concerning the number of firms as well as the growth rates for 1982, 1987, 1992 and 1997 shows that the minority-owned firms outpaced nonminority-owned firms substantially in each of those periods. In the period of 1982-87, the minority-owned firms grew at a rate of 55%, compared to the rate of 11% for the nonminority-owned firms. In 1987-92, the minority-owned firms grew at a rate of 68%, compared to the rate of 22% for the nonminority-owned firms. And for the period of 1992-97, the minority-owned firms grew at a rate of 30%, compared to the rate of 4% for the nonminority-owned firms.¹⁴⁴

Yet, another recent study finds a strong support for the argument that ethnic minorities exert a higher propensity for entrepreneurship. The Panel Study of Entrepreneurial Dynamics (PSED)¹⁴⁵ finds that black men and black women are about 50% more likely to engage in start-up activities than white men and women, and the difference between the two is statistically significant. The prevalence rate for Hispanic men is about 20% higher than for white men, but the difference is not statistically significant. And the Hispanic women are about equally likely to be involved in starting a business as white women.¹⁴⁶

Furthermore, the PSED study finds that the education is a significant predictor of nascent entrepreneurs, meaning those who attempt to start new businesses, especially for ethnic groups.¹⁴⁷ Among black men and women, and Hispanic men, those reporting any graduate training are two to three times more likely to be involved in a firm start-up. The impact of graduate education on nascent entrepreneurs among white men and women is

¹⁴⁴ U.S. Small Business Administration, Office of Advocacy (2002) pp. 19-20

¹⁴⁵ Reynolds, Carter, Gartner & Greene (2002); PSED is a national survey sponsored by the Ewing Marion Kauffman Foundation, the National Science Foundation and 33 member institutions. The random phone survey of 64,622 households nationwide was conducted for PSED study to find individuals actively engaged in starting new businesses. The survey identified a panel of 830 nascent entrepreneurs willing to provide information about their business start-up activities and followed their efforts for two-year period.

¹⁴⁶ Reynolds, Carter, Gartner & Greene (2002) p. 15

¹⁴⁷ Reynolds, Carter, Gartner & Greene (2002) p. 5

very small. The data shows that approximately 26 of every 100 African American men and 20 of every 100 Hispanic men with graduate education experience report efforts to start a new business. This compares to 10 of every 100 white men with graduate experience.¹⁴⁸ The PSED study also found that the effect of household income on entrepreneurial activity is similar to the effect of education. Those with higher incomes are more likely to be involved in starting a business.

The PSED study reveals that the entrepreneurial propensity among minorities is even higher and more widespread than previously disclosed by the data. Previously, the propensity to be entrepreneurial among minorities had been measured by the actual business start-ups. The problem with such measurement is that it measures the outcomes of entrepreneurial propensity and not the entrepreneurial propensity itself. Therefore, the entrepreneurial propensity of an individual who was involved in start-up activities but did not manage to form the company would not be accounted for by the start-up measure. The PSED measure uses the involvement in start-up activities as an indicator for the individual's entrepreneurial propensity. It shows that the real level of entrepreneurial propensity for many ethnic groups is actually much higher than the level that is indicated by the business start-ups. For example, the PSED study found that even though the Black people are 50% more likely to engage in start-ups than Whites, they actually make up the smallest percentage of subjects whose business idea had gotten off the ground. Among the Blacks originally polled, just 21% had actually started the business, compared to 34% of Whites. As for the Latino population, only 31% of Latinos originally surveyed had gotten their ideas translated into reality.

¹⁴⁸ Reynolds, Carter, Gartner & Greene (2002) p. 17

The authors of the PSED study discuss some of the reasons for the discrepancy that exists within the Black and Latino communities between the real level of entrepreneurial propensity and the actual business start-ups. They argue that an important part of the explanation of that discrepancy is related to the obstacles that the minority members face when attempting to start a business. Such obstacles include difficulties with accessing the financing and the lack of access to a network of successful businesses. The study says that members of minorities reported that the obstacles often made it impossible to start their business and stay afloat.

An important outcome of the study is the realization that the members of the Black and Hispanic communities, which, based on the start-ups data are not considered very entrepreneurial, actually exert a high entrepreneurial propensity. This is important because if the entrepreneurial propensity is measured by the outcomes of entrepreneurial endeavors, represented by successful start-ups, then only such minority groups as Asians, Cubans and Indians are those that exert higher propensity to be more entrepreneurial than the native-born majority. However, when the entrepreneurial propensity is measured by the actual engagement in start-up activities, irrespective of their outcomes, then also the Blacks and Hispanics emerge as groups that have a higher propensity to be more entrepreneurial than the native-born majority. In that situation, it is even more plausible to argue that the members of minorities in general, regardless of where they come from, have a higher propensity to be entrepreneurial than the native-born majority.

Studies in other Western countries have confirmed the assertion about minorities being more entrepreneurial than the native population. Just to give a few examples: in Sweden, the studies show that the non-Nordic European immigrants as well as Asian

immigrants have a higher probability to be self-employed than the native population.¹⁴⁹ In Australia, it has been also noticed that many minority groups have a higher propensity to be self-employed and that the minorities have made a significant contribution in the past and are making today to the growth of Australia through their involvement in small business enterprises.¹⁵⁰ In the UK, the reports show ethnic minorities are over-proportionally represented in business start-ups. While the minorities comprise approximately 6.4% of the total population of Great Britain¹⁵¹, they are believed to be responsible for about 10% of business start-ups in the UK.¹⁵² Furthermore, the analysis of the latest self-employment data reveals that a lot of minority groups in the UK have a higher propensity to be self-employed than the Whites. The Office of National Statistics in the UK reports that the self-employment rate for Whites is around 12%, while it is 19% for Bangladeshis and Pakistanis, 18% for Chinese, and 15% for Indians.¹⁵³ Scholarly analyses¹⁵⁴ estimate the rate for Turks and Turkish Cypriots to be around 20%. These figures indicate that the phenomenon observed in the US, that ethnic minorities have a higher propensity to be entrepreneurial than the native population, is also present in other Western countries. The phenomenon of ethnic minorities being more entrepreneurial has been less apparent in France and Germany.¹⁵⁵ Nevertheless, it has been already recognized by the scholars that the phenomenon of growing ethnic entrepreneurship has become virtually universal for Western countries.

¹⁴⁹ Hammarstedt (2001)

¹⁵⁰ Strahan & Williams (1988)

¹⁵¹ Office for National Statistics (1999)

¹⁵² Bank of England (1999)

¹⁵³ Office for National Statistics (2001)

¹⁵⁴ Basu & Altinay (2000)

¹⁵⁵ Radaev (1994)

7.2. Reasons behind the higher entrepreneurial propensity among minorities and immigrants

There is a big discussion concerning the determinants behind the phenomenon of ethnic minorities exerting a higher propensity to be entrepreneurial in comparison to the native population. There are different explanations offered by scholars that study the occurrence of ethnic entrepreneurship. However, most scholars agree that a significant part of the explanation lies in the fact that the burdens of immigration are frequently assumed by groups of the population known to be more active, and migration in this sense becomes a kind of “filter”.¹⁵⁶ An immigration economist who was one of the first to emphasize the positive sides of immigration, J. Simon, claims that the immigrants are likely to be self-selected on the basis of economically positive characteristics: “It makes sense that those persons who believe that they have characteristics that will enable them to succeed in a new country will be the most likely persons to migrate”.¹⁵⁷

The scholars argue that the members of the household who are “chosen” or who self-select themselves to emigrate abroad often have personal characteristics similar to those of entrepreneurs: “Like entrepreneurs, for example, they tend to be dynamic risk-takers – especially in the early stages of a flow when information about the point of destination is incomplete and the likelihood of success uncertain”.¹⁵⁸

Another way of explaining the higher rates of entrepreneurship among minorities and immigrants compared to the native majority is provided by the *disadvantage theory*. The theory argues that the motives for ethnic entrepreneurship lie in the challenges imposed on the minorities by their less favored position in the society. The supporters of the

¹⁵⁶ Radaev (1994)

¹⁵⁷ Simon (1989) p. 104

¹⁵⁸ Research Perspectives on Migration (1997) p. 1

disadvantage theory¹⁵⁹ argue that disadvantages coming from poverty, difficulty speaking the language of the country, unemployment or discrimination, constrain the labor market opportunities for ethnic groups, and that causes those groups to favor self-employment.

Hagen (1958, 1961) argues that the high entrepreneurial motivation among minorities is linked to their attempts in the economic sphere to compensate for their low social status. He states that men in minority groups often feel discriminated against and they try to compensate for that in the best and often the only way open to them, which is by succeeding in business. Also Schumpeter (1934) notices the pattern and argues that the fascination with accumulating material wealth, which is one of the central motivations for entrepreneurial action, “is specially strong for people who have no other chance of achieving social distinction”.¹⁶⁰

Hagen mentions many historical examples of such behavior – the Dissenters in England, the Protestants in France, the Samurai in Japan, the Jews in many countries, and the Parsees in India. Those minorities were prohibited from entering other types of activities in the host countries. Therefore, they resorted to trade, which was open to them, as a way of acquiring economic wealth and social status. Those trading peoples of minority status are referred to by the scholars in the field as “middleman minorities”.¹⁶¹

Another reason through which one could explain higher entrepreneurial propensity among immigrants and minorities relates to the higher level of achievement motivation among those groups, which is stimulated by the “hunger” for wealth. Simon (1987) proposed a model to explain why immigrants have a higher achievement drive than native-borns. In his model, the effort-exertion function is dependent upon wealth (and

¹⁵⁹ Light (1972), Moore (1983), Ram & Deakins (1996), Ram & Jones (1998), Johnson (2000)

¹⁶⁰ Schumpeter (1934) p. 93

¹⁶¹ Bonacich (1973)

opportunity). According to him, the “hunger” for wealth, which is created by the lack of it, results in people exerting an increased amount of effort in comparison to the people who possess a satisfying amount of wealth. Therefore, he argues, since immigrants on average arrive with less material assets than the natives possess, they experience a lack of wealth. And, according to Simon, that lack of wealth is a spur to their achievement.¹⁶²

The scholars do not agree to one answer to the question of where the increased initiative, vigor and propensity to be entrepreneurial among immigrants and minority groups comes from. It does not however, undermine the fact that the immigrants and minorities do exert a higher propensity to be entrepreneurial. Even if for some ethnic groups the mechanism works stronger than for others, still it can be said that in sum, societies that have immigrants and minorities have a higher amount of entrepreneurial propensity among its members, then the societies which are homogenous. As iterated by Simon:

How much of the vigor of immigrants is due to their being “hungry” rather than being settled and affluent, how much due to their being self-selected for vigor among the populations they come from, and how much due to the fructifying effects of living in the tension of two cultures is an open question; [...] what matters is that the vigor exists.¹⁶³

7.3. Entrepreneurial Dimensions of Minority and Immigrant Businesses

There is a discussion among scholars concerning the entrepreneurial dimensions of minority and immigrant business, also referred to as “ethnic entrepreneurship”. The question under discussion is whether the minority and immigrant entrepreneurship can be actually

¹⁶² Simon (1989)

¹⁶³ Simon (1989) p. 107

called entrepreneurship in the classic sense. On the one hand, minority and immigrant entrepreneurs are often cited for their 'entrepreneurial' traits, most notably, their tendency towards self-reliance and risk-taking.¹⁶⁴ On the other hand however, immigrants and minorities tend to be involved in businesses which do not have a strong innovation spin to it.

Entrepreneurship, in the classic sense, based on the way it was understood by Schumpeter, is the act of carrying out of an innovation. In Schumpeter's theory the agents who carry out innovations are referred to as the Entrepreneurs. The function of the entrepreneur is to introduce innovations into the firm. Schumpeter stresses however, that the term should not be understood explicitly. He says that "nobody ever is an entrepreneur all the time, and nobody can ever be only an entrepreneur".¹⁶⁵ An entrepreneur is a person who, at a given time, performs the entrepreneurial function of introducing the 'new combination'. Schumpeter underlines that what makes a person an entrepreneur is his leadership in introducing an innovation. He recognizes that most of the time it is the owners who perform the entrepreneurial function in the firm.

The problem that some scholars have with referring to immigrant and minority businesses as 'entrepreneurial' is due to the fact that those businesses are usually not the frontiers of breaking new ground in products, process, or administrative form.¹⁶⁶ Most of ethnic businesses are small and medium size enterprises (SMEs) in the sectors of retail and services. And those sectors, according to them, are more likely simply to replicate and reproduce old forms, which is not entrepreneurial in the classic sense of the term.

¹⁶⁴ Aldrich & Auster (1986), Cormack & Niessen (2002)

¹⁶⁵ Schumpeter (1939) Vol. I, p. 103

¹⁶⁶ Aldrich & Waldinger (1990) p. 112

The dissertation will argue, however, that even though the ethnic businesses are not on the edge of innovation, one still cannot claim that they do not innovate. In a situation when there is competition in the market each enterprise has to be innovative in order to remain in business. As argued by Drucker (1983):

The enterprise that does not innovate inevitably ages and declines. And in a period of rapid change such as the present, an entrepreneurial period, the decline will be fast.¹⁶⁷

The market of SMEs is certainly one where there is a strong competition. Therefore, the owners of the enterprises have to be innovative and perform the entrepreneurial role in their businesses in order not to lose their customers to the competition. Even in retail and services, those who want to stay in business have to innovate, at least a little, and at least from time to time. Thus, competition in the SME sector, where ethnic entrepreneurship is mostly founded, ensures that there is innovation, and, even if smaller than in the hi-tech sectors, it still is an innovation.

An example of such innovation was encountered by the author of the dissertation on a field study to Rome, Italy in a multi-ethnic neighborhood.¹⁶⁸ The innovation was found in a type of business that is regarded by many scholars as one where it is hard to think of introducing any novelty or innovation; a laundry place. The owner of the place, an immigrant from Bangladesh, was creative enough to think of such an innovation. Other than the laundromats, he put also two computers in the room and connected them to the internet. This way, the people who were waiting for their laundry could surf the internet in

¹⁶⁷ Drucker (1986) p. 149

the meantime, and provide double revenue for the owner of the place.¹⁶⁹ This example shows that innovation is possible also in sectors such as retail and services, which are considered to be a plain replication of the old form by some scholars. They might even require more creativity and innovativeness than other sectors, in relation to which it is easy to think of a possible innovation.

III. Identifying the Right Context

It has been demonstrated by the scholars of organizational science that the relationship between ethnic diversity and innovation and thus, performance is indirect and depends on the context in which it is placed. The scholars have observed that there are several moderating variables, which affect the impact of ethnic diversity on a firm's performance. Those variables, referred to as moderating or conditioning variables, create the right context for ethnic diversity, in which ethnic diversity can realize its benefits in terms of increased innovation, creativity and flexibility.

The conditioning variables identified by the scholars of organizational science relate to the level of firms. The dissertation intends to adopt those conditioning variables for the level of countries. This chapter of the dissertation will present the conditioning variables as indicated by the scholars of organizational science and it will transpose those conditioning variables from firm- to country-level.

In addition, this chapter of the dissertation will try to identify any additional conditioning variables that might have not been pointed out by the scholars of

¹⁶⁹ The laundry place was located in a multi-ethnic district of Rome, just next to the main railway station Termini.

organizational science, but seem to be important for the analysis at the country-level. It is conceivable that certain conditioning variables might not have been pointed out by the scholars of organizational science because they are inherent to the realities of the firms and taken for granted, and thus, do not require analysis and discussion. However, certain inherent characteristics of the firm might actually be part of the right context conducive to the realization of the potential of ethnic diversity. If such characteristics are not part of the inherent characteristics of countries then they should be brought to the attention and identified also as the conditioning variables on the country level. An example of such could be the idea of the use of a single language, which is rather taken for granted on the firm level, but it is not obvious at the country level, where several official languages might exist.

For the purpose of extracting the additional conditioning variables, the dissertation will adhere to the theories from organizational science which have been used as theoretical basis for the argument that ethnic diversity can be a source of creativity such as the '*value-in-diversity*', the '*minority dissent*', the '*self-verification*' theory and the '*resource-based*' theory. Besides, the dissertation will also utilize theories developed in social sciences which talk about the right context for ethnic diversity on the level of societies, for example the societal-integration model developed by Gordon (1961).

III.1. Indirect Relationship between Diversity and Innovation

An increasing number of scholars in organizational science recognizes that the relationship between ethnic diversity and innovation, and thus, performance is indirect and is moderated by the existence of some third variables. What brought the scholars to this assertion is the fact that the existing theories, in the field of management, indicate that ethnic

diversity can have both positive and negative effects on the performance of firms.¹⁷⁰ Approaches to diversity based on the '*value-in-diversity*' hypothesis,¹⁷¹ as well as those using the *resource-based* theoretical framework,¹⁷² suggest that ethnic diversity has a positive impact on the organization. At the same time, the theorists supporting the *social identity theory* argue that ethnic diversity has a negative effect on organizational behaviors and performance.¹⁷³ Both theories have earned significant empirical support.

The contrasting theories and contradictory empirical findings regarding the outcomes of ethnic diversity have urged the scholars to explore the possibility that certain conditions may moderate these outcomes and thus, the relationship between ethnic diversity and performance may be context specific. The scholars have argued that it is most likely that there is not a simple, direct relationship between diversity and performance. Instead, the effect of ethnic diversity on firm performance is indirect and depends on the organizational context within which it resides.

The mechanism behind the indirect relationship between ethnic diversity and innovation, and thus performance, may be best described using the '*contingency approach*'. This approach has been used by some scholars in organizational science to explain and examine the indirect relationship between ethnic diversity and innovation.¹⁷⁴ The contingency approach says that the effect of one variable on another variable depends upon some third variable. The approach is used when it is most likely that there is no direct relationship between X and Y, but the relationship is contingent upon the existence, or the level, of a

¹⁷⁰ See Williams & O'Reilly (1998), for review

¹⁷¹ Cox & Blake (1991), Elsass & Graves (1997), McLeod, Lobel & Cox (1996), Richard (2000)

¹⁷² The '*resource-based*' theory argues that the sources of sustainable competitive advantage must be valuable, imperfectly imitable, and rare; since ethnic diversity meets these requirements it may serve as a source of advantage; definition from Richard (2003) p.110

¹⁷³ Chatman et al. (1998), Pelled et al. (1999), Riordan & Shore (1997), Thomas (1999), Tsui, Egan & O'Reilly (1992)

¹⁷⁴ Richard (2000, 2003)

third variable W and thus, a more complex causal statement is required. The third variable, W, moderates the relationship between X and Y and can, therefore, be called a moderator of the relationship, or a conditioning variable of the relationship.¹⁷⁵

The indirect nature of the relationship between ethnic diversity and innovation might lead to confusion concerning the attributes of diversity. If one looks at the direct relationship between diversity and innovation and does not find the positive relationship, or even finds a negative one, then one implies negative attributes to ethnic diversity. That is what has often happened in organizational science and also in political economy.¹⁷⁶ Ethnic diversity has been charged by some scholars with strictly negative allegations. What the proponents of value-in-diversity found out, however, is that the assumption about ethnic diversity being strictly negative in outcomes is wrong. It is wrong because it is based on research that implies a direct relationship between ethnic diversity and performance, while the relationship is actually indirect.

III.2. Importance of the Right Context

It has been observed in the organizational science that, if diversity is placed in the right context, then it can add value and enhance the performance of the firm. However, if the right context is not present, then ethnic diversity can actually impair the performance of the firm. Therefore, ethnic diversity displays the qualities of a double-edged sword. The positive properties of ethnic diversity include: increased creativity and innovation, increased problem solving capabilities, increased organizational flexibility, increased human talent and benefits for marketing strategy. The negative qualities of ethnic diversity include: increased

¹⁷⁵ Donaldson (2001)

¹⁷⁶ Easterly and Levine (1997)

potential for conflict, decreased effectiveness of communication and decreased levels of social attraction and commitment within the group.¹⁷⁷

The scholars of organizational science argue that it is the context in which diversity is placed in which decides if the positive or negative attributes of ethnic diversity will be realized. They underline that having diversity is not enough to reap the benefits associated with it because the presence of a resource does not imply its use.¹⁷⁸ What is necessary is the right management of diversity. Therefore, putting the right context in place is essential for being able to seize the benefits of ethnic diversity, as stated by Cox (1991):

Even though theory and research suggest that diversity can be a resource to enhance organizational performance, there is a crucial distinction between merely having diversity in the workforce and developing the organizational capacity to leverage diversity as a resource. The challenge of diversity is not simply to have it but to create conditions in which its potential to be a performance barrier is minimized and its potential to enhance performance is maximized.¹⁷⁹

The double-edged qualities of ethnic diversity imply that once you have diversity, you simply have to have the right context in place. Otherwise, not only you will not be able to reap the benefits of it, but you might also experience the negative sides of ethnic diversity such as high level of conflict and communication breakdowns. Therefore, as argued by the scholars of organizational science, ethnic diversity is a type of resource that cannot be just left by itself. It needs to be managed and leveraged, which means that it needs to be put in the right context. Furthermore, the management of diversity is not something that you can

¹⁷⁷ Cox (1991) pp. 4-5

¹⁷⁸ Hartenian & Gudmundson (2000) p. 216

¹⁷⁹ Cox (1991) pp. 15-16

do once and then forget about it. On the contrary, it requires a constant and ongoing commitment which is genuine and serious.

8. Conditioning Variables on Group and Firm Level

Having discovered that the relationship between ethnic diversity and innovation is indirect and depends on the context, the scholars of organizational science took upon the endeavor of finding out what the right context is. Several studies have been conducted in the last few years in order to identify the elements that pertain in the right context. Different approaches have been used and the topic has been examined from different perspectives, ranging from structural to cognitive and psychological.

The research on identifying the right context is still under way, and it has not been yet fully solidified into one encompassing theory. However, the scholars have pointed out several variables that moderate the relationship between cultural/racial diversity and performance of groups, organizations or firms. Until the present, the following variables have been either indicated by the scholars, or can be deduced from the writings of the scholars of organizational science, as being conducive to the translation of ethnic diversity into positive outcomes:

- valuing diversity;
- growth and innovation based strategy;
- interaction between diverse individuals

8.1. Valuing Diversity

Out of all the different requirements for translating diversity into creativity the one that seems to permeate throughout all of the studies is the requirement of perceiving diversity as a value. Valuing diversity seems to lie at the heart of the approach that allows one to translate ethnic diversity into innovation and thus, increased performance. A lot of other conditioning variables defined by the scholars are somehow an emanation, or further consequences of this one principle. They would not be able to exist if the valuing diversity principle would not be present at the basis of the whole process. The following paragraphs address the conditioning variable of valuing diversity, as well as other additional conditioning variables which are derived from the value in diversity approach. The additional conditioning variables, which are derivations of the value in diversity principle, are the following:

- a. integration-and-learning perspective;
- b. verification of personal self-views;
- c. simultaneous verification of personal and social self-views;

The scholars of organizational science underline that the most important requirement, which lies at the basis of building the right context, is to perceive diversity as a value. They argue that preparing organizations to have and to leverage diversity requires a fundamental change in thinking about assumptions and relationships concerning ethnic diversity. The organizations have to start perceiving ethnic diversity as a resource, which has a potential to add value and not just to disrupt performance. As argued by Cox (1991):

Managing and leveraging diversity requires a process of deep organizational change. [...] The process recognizes that real change in this area will require a systemic approach toward an ultimate goal of institutionalizing a new

culture – one that welcomes diversity and allows all members to use their skills and abilities to achieve their full potential in pursuit of business and personal goals.¹⁸⁰

8.1a. Integration-and-Learning Perspective on Diversity

The analysis conducted by Ely and Thomas (2001) provided proof for the argument that valuing diversity as a resource is essential for creating the environment in which ethnic/cultural diversity¹⁸¹ can realize its potential benefits. The authors have conducted a qualitative research in three culturally diverse organizations and have analyzed the impact of different *diversity perspectives* on the functioning of those organizations. They defined the diversity perspective as the “group member’s normative beliefs and expectations about cultural diversity and its role in their workgroup”¹⁸². They analyzed the impact of three different types of diversity perspectives: integration-and-learning, access-and-legitimacy, and discrimination-and-fairness.

The *integration-and-learning* perspective is essentially the ‘valuing diversity’ approach. It is a perspective where diversity is treated as a resource for learning and adaptive change; where the insights, skills, and experiences employees have developed as members of different cultural identity groups are regarded as potentially valuable resources that the workgroup can use to rethink its primary tasks and redefine its markets, products, strategies, and business practices.¹⁸³

The *access-and-legitimacy* perspective is based on the recognition of the marketing value of the culturally diverse workforce, where diversity is used for gaining access to and

¹⁸⁰ Cox (1991) p. 30

¹⁸¹ Ely & Thomas (2001) use the term *cultural diversity* which refers to race, p. 236

¹⁸² Ely & Thomas (2001) p. 234

¹⁸³ Ely & Thomas (2001) p. 240

legitimacy with the culturally diverse markets. The groups with such approach to diversity do not include the cultural competencies of their diverse workforces into their main functions, but only use their diversity at the margins, to connect with a more diverse market.¹⁸⁴

The *discrimination-and-fairness* perspective is an approach where cultural diversity is perceived as an end in itself. Unlike the other two approaches, the discrimination-and-fairness perspective does not connect having a culturally diverse workforce with the enhancement of organization's functioning. The reasons for having a culturally diverse workforce are dictated by the moral imperative to ensure justice and a fair treatment of all members of the society. A diverse workforce serves as an evidence of just and non-discriminatory treatment of employees. An organization with such an approach focuses its efforts on providing equal opportunities in hiring and promotion, suppressing prejudicial attitude, and eliminating discrimination, but it does not try to use diversity to its advantage in terms of functioning and performance.¹⁸⁵

The results of the analysis conducted by Ely and Thomas (2001) showed that, out of all the three perspectives, only the integration-and-learning perspective gave the right foundation and guidance needed to realize sustained benefits from diversity. The members of diverse groups that embraced this perspective felt valued and respected. They reported feeling that their "whole person" was known, valued and respected by others and that they could express "more of who they were" at work, including those things that differentiated them from others. As a result of the integration-and-learning perspective, the functioning of the organization was "enhanced by the cross-cultural exposure and learning, and by work

¹⁸⁴ Ely & Thomas (2001) p. 243

¹⁸⁵ Ely & Thomas (2001) pp. 245-246

processes designed to facilitate constructive intergroup conflict and exploration of diverse views”.¹⁸⁶

The other two perspectives did not provide the right foundation and guidance needed to achieve the sustained benefits from diversity. According to the authors, the crucial dimension along which the three diversity perspectives varied was whether and how cultural diversity was linked to the group’s work and work processes.¹⁸⁷ They described the impact of the two perspectives on the functioning of groups in their study, in the following way:

In the access-and-legitimacy perspective, cultural diversity is a potentially valuable resource, but only at the organization’s margins and only to gain access to and legitimacy with a diverse market. [...] this view of the role of racial diversity led to race-based staffing patterns that matched the racial make-up of the markets they served. This fostered perceptions of white-staffed functions as higher status than functions staffed by people of color; racially segregated career tracks and opportunities, which fostered concerns among staff of color about the degree to which they were valued and respected; [...] The resulting interracial/interfunctional tensions appeared to inhibit learning and people’s ability to be maximally effective in their work.

Finally, in the discrimination-and-fairness perspective [...] this view of the role of racial diversity restricted the discourse about race to one in which employees negotiated the meaning of all race-related differences on moral grounds. Questions and concerns about fairness led inevitably to strained race relations characterized by competing claims of innocence, with each group assuming a defensive posture in relation to the other.¹⁸⁸

¹⁸⁶ Ely & Thomas (2001) pp. 254, 258, 261

¹⁸⁷ Ely & Thomas (2001) p. 265

¹⁸⁸ Ely & Thomas (2001) pp. 265-266

In the study of Ely and Thomas, the intervening process through which the integration-and-learning perspective enhanced group performance was the creation of the feeling of being valued and respected among the diverse people. That feeling enabled the diverse members of the group to openly voice their ideas and thus, contribute to the creativity and divergent thinking of the group.

There has been a theory developed in the field of social psychology, called the *self-verification theory*, which explicitly focuses on that phenomenon and explains its dynamics on the level of individual cognitive processes. The self-verification theory helps to establish further conditioning variables which help to translate diversity into creativity. The following paragraphs present that theory.

8.1b. Verification of Personal Self-Views

The *self-verification theory* has been developed in the course of searching for the moderators, on the social psychological level, that would allow one to translate the potential of diversity into reality. The self-verification theory focuses on defining the context, which would create the feeling of being valued and respected among the members of diverse groups, and thus, ensure the communication of the distinctive ideas and unique perspectives by those individuals. It recognizes that the creation of a social psychological climate that would encourage diverse people to communicate their ideas is essential for the translating diversity into innovation:

There are sound reasons to believe that the social psychological climate that prevails in groups will be a powerful determinant of innovation-even more powerful, perhaps, than the abilities of individuals who make up the group.¹⁸⁹

The self-verification theorists aim at identifying the cognitive individual processes that would moderate the harmful effects of diversity caused by intergroup categorization processes. The self-verification theory has been created as an alternative to the self-categorization theory, which also has provided an answer to the question concerning the moderators needed to translate diversity's potential into reality. The answer provided by the *self-categorization theory* points to the establishment of superordinate goals as moderators of the harmful effects of diversity. It contends that the members of diverse groups must shift their focus from the qualities that make them unique to the superordinate identity of the group in order to avoid harmful categorizations based on demographic differences.¹⁹⁰

The self-verification theorists argue the contrary and contend that, while evoking a collective categorization may minimize the use of category-based biases and stereotypes, it may also discourage individuals from behaving in ways, which are distinct to their unique identities.¹⁹¹ Therefore, the self-categorization theory falls short as a strategy for finding value in diversity because it is precisely these unique ways of thinking and acting that constitute the potential benefits of a diverse group. Swann et al. (2004) explain the logic behind that argument in the following way:

Indeed, taken to its logical extreme, self-categorization theory suggests that members of diverse groups should become so single-mindedly committed to

¹⁸⁹ Swann et al. (2004) p. 23

¹⁹⁰ Chatman et al. (1998)

¹⁹¹ Polzer et al. (2002)

the groups' agendas that distinctions among them become blurred. Such blurring of the differences that make a team diverse will necessarily thwart efforts to find value in diversity. From this vantage point, although emphasizing superordinate identities may serve to unify members of diverse groups initially, as a strategy for finding value in diversity, it is a tantamount to arguing that the best way to exploit a resource (in this case, the unique characteristics of diverse group members) is to minimize and disregard that resource!¹⁹²

The goal of the self-verification theorists, therefore, was to create a strategy for finding value in diversity. They wanted to offer a different solution than the one offered by the self-categorization theory, where the solution implies suppressing diverse identities for the group identity. They argued that there is abundant anecdotal evidence suggesting that diverse groups sometimes do emphasize their differences and still simultaneously become socially integrated.¹⁹³ How it happens, however, is still unclear. Therefore, they wanted to provide the answer to the daunting question of how diverse groups interact effectively while remaining cognizant of their differences.

The self-verification theorist contended that, in order for ethnic diversity to be translated into innovation¹⁹⁴, the diverse people have to attain confirmation of their self-views. Only under such circumstances will the diverse people feel comfortable to actually voice their opinions and thus, contribute to creative thinking. The self-verification theory concludes that the atmosphere of acceptance, understanding and tolerance towards people

¹⁹² Swann et al. (2004) p. 10

¹⁹³ Polzer et al. (2002)

¹⁹⁴ Here innovation is not understood in the full Schumpeterian sense, but it is understood as creativity

coming from different groups is essential for ethnic diversity to bring positive results in terms of creativity.¹⁹⁵

The self-verification scholars have grounded their theory on the processes through which people seek and attain confirmation of their self-views. There is a growing body of research, they argued, that supports the proposition that people want to be known for who they believe they are. It has been observed that when people enter into relationships with others who verify their self-views they will feel more intimate and satisfied with the interaction and they are more inclined to want to continue the relationship.¹⁹⁶

Furthermore, the scholars of the self-verification theory have discovered through their research that self-verification enhanced the feelings of connection to the group and fostered creative task performance. Swan et al. (2004) summarize the results of their study concerning that discovery in the following way:

Apparently, when group members had their unique attributes and perspectives verified, they felt recognized and understood. Such feelings emboldened them to offer creative ideas and insights they might otherwise have felt too inhibited to share. In addition, feeling known and understood by the group may have increased motivation to cooperate with one another by making members identify more with the group.¹⁹⁷

The self-verification theorists argue that the effect of greater diversity on group functioning is likely to depend on the level of interpersonal congruence in the group. High interpersonal congruence fosters mutual understanding and appreciation for one another's perspectives and thus, buffers the group from the potentially disruptive effects of diversity

¹⁹⁵ Polzer et al. (2002), Swann et al. (2004)

¹⁹⁶ Polzer et al. (2002) p. 297

¹⁹⁷ Swan et al. (2004) p. 16

coming from negative categorizations. The *interpersonal congruence* is defined as a “the degree of similarity between a person’s self-views and others’ appraisals of that person”.¹⁹⁸ High interpersonal congruence occurs when there is an agreement between people’s self-views and the appraisals of their partners. In a situation of high interpersonal congruence, the members of diverse groups feel valued and respected and thus, are more inclined to make higher investments and have a greater willingness to open up and take risks, which all are the qualities that stimulate creativity and divergent thinking in groups.

8.1c. Simultaneous Verification of Personal and Social Self-Views

Even though the self-verification theory provides an alternative approach to managing diversity than the one offered by the self-categorization theory, nonetheless the self-verification theorists do recognize the validity of the main assertions made by the self-categorization theory.¹⁹⁹ They agree with the contention proposed by Chatman et al. (1998) which states that the superordinate goal can reduce the destructive intergroup categorizations through replacing the negative categorizations with the collective categorizations which encourages group members to unite around their shared social self-views. The self-verification theorists argue that their intention is not to question the importance of the verification of social self-views for the well functioning of diverse groups, but to complement the work of the self-categorization scholars with new insights.

The self-verification theorists argue that the problem with the self-categorization theory is that it “captures only a portion of the psychologically significant processes that

¹⁹⁸ Polzer et al. (2002) p. 297

¹⁹⁹ Swann et al. (2004)

unfold in groups”²⁰⁰. It correctly underlines the importance of the verification of social self-views but it neglects the importance of the verification of personal self-views. Moreover, the principle of *functional antagonism* propagated by the self-categorization scholars states that the verification of social self-views and personal self-views is mutually exclusive.²⁰¹ According to the self-categorization scholars, people cannot enjoy verification of distinct personal and social self-views simultaneously, but they have to make a trade-off between the two.

The scholars of the self-verification theory disagree with the assertion of functional antagonism and argue that people can “have it both ways”. They argue that the verification of the personal and social self-views can occur independently and simultaneously. They believe that many social and personal self-views are quite compatible and may even complement one another. According to them, a simultaneous verification of both personal and social self-views is actually necessary for the well functioning of diverse groups engaged in creative tasks.²⁰²

Swann et al. (2004) note that the configuration where both the personal and social self-views were verified was actually present in the organizations featuring an integration-and-learning perspective in the study of Ely and Thomas (2001). It was possible because the collective goals of the group were compatible with the personal self-views. What made the two goals compatible was the perception of diversity as a value to the group.

The collective goal of the group with the integration-and-learning perspective was to learn from diversity and thus, diversity was perceived as a cherished and desirable characteristic of the group. Therefore, the individuals who were diverse felt that they could verify their personal self-views related to their different cultures because those self-views

²⁰⁰ Swann et al. (2004) p. 21

²⁰¹ Turner (1985)

²⁰² Swann et al. (2004) p. 20

were totally compatible with the superordinate goal of the group. As a result, the members of the group that followed the integration-and-learning perspective could verify their personal and social views simultaneously. Swann et al. (2004) explain the psychological dynamics that unravel from the simultaneous verification of the personal and social self-views in the following way:

Verification of their personal self-views will make them feel known and understood, and thus increase their attraction to other group members as well as their commitment to the group. Quite independently, verification of their social self-views will increase their allegiance to and interest in remaining in the group.²⁰³

The scholars of the self-verification theory argue that the combination where both personal and social self-views are verified is optimal for diverse groups engaged in creative tasks. This combination allows for the development of coherence in the group, and commitment to its collective goals, but at the same time it permits the preservation of diversity of its members, and thus, allows the group to take advantage of its diversity and utilize it as a resource for creativity and divergent thinking.

8.2. Growth and Innovation Focused Strategy

Another conditioning variable that allows one to translate diversity into creativity, as identified by the scholars of organizational science, is the Growth and the Innovation Focused Strategy. The empirical studies conducted on the firm level have demonstrated that cultural diversity brings positive outcomes in terms of performance for the firms that follow

²⁰³ Swann et al. (2004) p. 20

a growth or an innovation-focused business strategy.²⁰⁴ At the same time however, the studies have revealed that cultural diversity brings negative outcomes to firms that follow a downsizing strategy or a strategy which is low on innovation.²⁰⁵

The scholars conducting the studies have concluded that ethnic diversity is a resource that can offer a competitive advantage to some firms, while it may be a performance detriment to others, depending on the business strategy of the firm. Richard McMillan, Chadwick & Dwyer (2003) have found that in association with a growth or innovation-based strategy, racial diversity enhances productivity. Furthermore, the results of their studies show that the positive relationship between diversity and productivity intensifies as strategic growth increases.²⁰⁶ For the firms, however, which pursue a strategy low on innovation or a downsizing strategy, the relationship between diversity and productivity becomes negative. Given the results of their studies, the authors concluded that: “Simply put, racial diversity is beneficial to innovators”.²⁰⁷

The first attempt to assess the moderating effect of business strategy on the relationship between cultural (racial) diversity and firm performance has been undertaken by Richard (2000). The first part of his study found no empirical support for a positive direct relationship between cultural diversity²⁰⁸ and firm performance. However, the second part of his study, when the growth strategy was added to the context, found a positive relationship between cultural diversity and firm performance. The results of his study showed that racially diverse firms that pursued a growth strategy experienced a higher return on equity

²⁰⁴ Richard (2000), Richard, McMillan, Chadwick & Dwyer (2003)

²⁰⁵ Richard (2000), Richard et al. (2003)

²⁰⁶ Richard (2000) p. 171

²⁰⁷ Richard et al. (2003) p. 114

²⁰⁸ In the article of Richard (2000) the term “cultural diversity” refers to racial diversity; the two terms are used interchangeably throughout the article

(ROE) than firms with the same level of diversity and no growth strategy or a downsizing strategy.

Richard (2000) concluded that the results of his study demonstrate that the positive impact of racial diversity on firm performance depends on the context. In the absence of the right contexts there could be no relationship observed, or a negative one, between cultural diversity and organizational outcomes. Only when the moderating variable is added to the context, does the relationship between become significant and positive. He argued that the growth strategy is just one possible moderating variable and that there is a need to look for other moderators of the relationship between diversity and performance.

In a continuation of that line of research, Richard, McMillan, Chadwick & Dwyer (2003) conducted another study which had a very similar design to the previous one, but assessed a different type of business strategy as a moderating variable. The authors chose and analyzed the innovation-focused strategy as a moderator of the relationship between racial diversity²⁰⁹ and firm performance. As in the previous study, Richard et al. (2003) used the resource-based view of the firm and the contingency approach as the economic foundations of their analysis.

The *resource-based* view offers the theoretical basis for predicting a positive relationship between diversity and organizational performance. It states that resources constitute a sustainable competitive advantage for a firm to the extent that they create value, remain hard to imitate and appear rare.²¹⁰ The scholars of diversity and strategic human resource management argue that, since the competitive advantage gained from technological and physical resources have become easier to emulate, it is the human resources that provide the crucial differentiating factor between firms and thus, can aid firms in gaining an enduring

²⁰⁹ The study of Richard et al. (2003) uses the term “racial diversity” and “cultural diversity” interchangeably

²¹⁰ Barney (1991), Lado, Boyd & Wright (1992)

competitive advantage. However, in order for human capital to constitute a source of sustainable competitive advantage, it must create value, remain hard to imitate and rare.²¹¹

According to the proponents of the resource-based view, cultural diversity in human capital constitutes a source of enduring competitive advantage for firms because it creates value which is both imperfectly imitable and rare. The value of cultural diversity comes from enhanced creativity, problem solving and flexibility, all of which are stimulated by the interaction of individuals with diverse cultural backgrounds. Moreover, cultural diversity can add value to the firm in terms of reaching a broader customer base and adjusting its human resources to mirror the culturally diverse market targeted by the firm.

As for the limitability element, the scholars argue that cultural diversity is hard to imitate due to social complexities and synergies created when culturally diverse people work together and cooperate to achieve organizational goals.²¹² Moreover, it is almost impossible to create the same set of human resources with similar attributes and characteristics, even if attempted.²¹³ In addition, the competitors might not even attempt to imitate the resource because they might simply not realize that the increased creativity and flexibility of the competing firms comes from the cultural diversity of their workforce.²¹⁴

As for the rarity element, the scholars argue that cultural diversity is a rare asset because there are not yet many firms who realize its value. Many firms still perceive diversity as a cost that needs to be managed and not as an asset to be fostered. Furthermore, the representation of minorities in the labor market remains relatively sparse, and the companies

²¹¹ Barney & Wright (1998)

²¹² Harrison, Price & Bell (1998), Richard (2000), Richard et al. (2003)

²¹³ Wright & McMahan (1992)

²¹⁴ Richard et al. (2003)

must compete for the individuals with the skills, qualifications, and characteristics needed for the firm, within the small minority populations.²¹⁵

Richard et al. (2003) argue that the resource-based view does not consistently take into account the social context within which resources are embedded and therefore, the economic foundation of their analysis has to be supplemented with the contingency theory. The *contingency theory* states that the features of the environment, strategy, and structure all interact and, together, influence the organization. The authors used the contingency theory to examine how the innovation-focused strategy may interact with cultural diversity to exert a positive influence on firm performance.

The innovation-focused strategy was chosen as a contingency variable because according to the authors, it allows the firm to assume a position in which it can exploit and benefit from cultural diversity. The authors departed from a conception that a firm can take advantage of its resources, only if it is in a position to exploit and benefit from them.²¹⁶ They stated that a strategic focus on innovation can allow the firm to assume such a position with respect to the resource of cultural diversity.

A firm whose strategic goal is innovation would be more successful when it possesses the complementary assets, in particular the human resources necessary to develop the innovative processes. Therefore, the authors argue that a firm pursuing an innovation strategy is likely to benefit from the cultural diversity and the creativity and flexibility obtained from a diverse workforce.²¹⁷ The authors put forward the following hypothesis, which was empirically proven later in the course of their study:

²¹⁵ Richard et al. (2003)

²¹⁶ Barney & Wright (1998), Richard (2000)

²¹⁷ The variable used by Richard et al. (2003) to measure the Innovation Strategy was a three-item scale where the items were drawn from the Strategic Posture scale developed by Covin and Slevin (1989) of which *innovation* is one facet. "The 7-point, Likert-type items measure the extensiveness and frequency of product innovation

Racial diversity and innovation strategy will have a positive interaction effect on firm performance, such that the more a firm pursues an innovation strategy, the more it will benefit from a racially diverse workforce.²¹⁸

Richard et al. (2003) argued that the positive interaction effect between racial diversity and innovation strategy on firm performance²¹⁹ captured by the study indicates that a racially diverse workforce in conjunction with high levels of innovation can provide a competitive advantage to firms. The results of the study showed that racial diversity is likely to enhance performance for banks pursuing an innovation strategy, while it is likely to decline performance for banks low in innovation. Furthermore, for the banks pursuing an innovative business strategy, increasing the level of racial diversity should increase firm performance.

The results of the study support a contingency/resource-based perspective which states that in order for the firm to ensue competitive advantage from the human resources, the resources have to be properly aligned with the organizational context. The study showed that the banks were able to accrue competitive advantage from the racially diverse workforce because those human resources were in line with the strategy of the firm, which emphasized innovation.

Richard et al. (2003) pointed out to several implications of their study. They underlined that increasing workforce diversity may not benefit the firm in a direct manner. Moreover, in the case when there is no appropriate context, diversifying the firm might have

and technological leadership used by the firm to develop or maintain a competitive advantage (Covin & Slevin 1989; Miller 1983). The mean rating on these items was used to determine the banks' degree of innovativeness ($\alpha=.69$); the higher the score, the greater the bank's tendency to pursue an innovation-focused business strategy" (Richard et al. 2003, p.116)

²¹⁸ Richard et al. (2003)

²¹⁹ In Richard et al. (2003) the firms under investigation were from the banking industry

detrimental effects on firm performances. Therefore, they stressed that it is essential for the firms that are racially diverse, or those seeking to increase their workforce diversity, to assess their organizational strategy in order to ensure that it is aligned with the potential attributes of a racially diverse workforce. They concluded that the firm will likely benefit from a culturally diverse workforce to the degree that its organizational contexts fully elicits the attributes possessed by a racially diverse workforce.²²⁰

8.3. Interaction between Diverse Individuals

The concepts of the value-in-diversity hypothesis, kaleidoscope thinking and creative synergy point to another conditioning variable which is necessary for the positive outcomes of diversity to crystallize, that is the interaction and communication between diverse individuals. For all of those concepts explaining the dynamics behind the creative processes inside diverse groups, it is the *interaction between diverse individuals* which is necessary for the creative process to take place. The interaction is especially important for what the author of the dissertation calls a second channel of creativity²²¹, which relates to the generation of new quality ideas resulting from the interaction of individuals with diverse perspectives, which is also referred to by the scholars of psychology as collective creativity.

²²⁰ The research is in accordance with the earlier writings in the organizational science which state that the effects of diversity may depend on the nature of the group's task (Jackson 1992, Hambrick, Davison, Snell & Snow 1993, Hambrick 1993, Iles & Hayers 1996). According to the earlier writings, diversity is best suited for creative tasks, while homogeneity is more desirable for routine tasks. If the task requires creativity and divergent thinking then diversity is desirable and beneficial because it provides the varied perspectives and the consideration of a broader range of options and alternatives, and thus greater stimulation and creativity. However, if the task is defined, structured and routine then diversity might be less beneficial or even impairing to the effectiveness of the group. In routine tasks the need for creativity is low but a need for group cohesiveness is high, and diversity brings the opposite to what is needed for a routine task. The research on the growth and innovation focused strategy is in line with the writings on the nature of the task because in order for a firm to have a creative task to work on the firm has to follow a strategy that would encourage creative activities.

²²¹ See Ch. 4.1a. of the Dissertation: *Value-in-Diversity* Hypothesis and Supportive Theories

The value-in-diversity hypothesis states that the creation of new quality ideas stems from the interaction between diverse individuals because it exposes the individuals to the diverse ideas and experiences of other people. The interaction between diverse individuals is also stressed as elemental for the notion of kaleidoscope thinking. The one most important condition necessary for kaleidoscope thinking to take place is to have contact with people from a variety of perspectives. Finally, the interaction between diverse individuals is also at the basis of the process of creative synergy. Creative synergy is only possible when there is an interaction between diverse individuals inside of a group.

As stressed by the scholars of creative synergy and kaleidoscope thinking, the interaction between people with diverse perspectives, experiences and backgrounds “has something to offer over and above the simple combination of individually generated ideas”²²². In case of the ongoing sharing of ideas, and twisting it over and over again, the interaction of individuals adds an extra value and generates a new product. This new product is a novel idea that was generated exactly thanks to the interpersonal interaction between diverse individuals. Thus, the interaction between diverse individuals is a necessary condition for the ethnic diversity to be translated into creativity, and thus higher productivity.

9. Conditioning Variables on Country Level

The theories of organizational science point to several conditioning variables on the level of groups, firms and organizations that are necessary to translate ethnic diversity into positive outcomes. As mentioned in the previous chapter, on the level of groups, firms and organizations, the following variables have been indicated by the scholars, or can be deduced

²²² Kurtzberg & Amabile (2000-2001) p. 289

from the writings of the scholars of organizational science, as being conducive to the translation of ethnic diversity into positive outcomes:

- valuing diversity;
 - integration-and-learning perspective
 - verification of personal self-views
 - simultaneous verification of personal and social self-views
- growth and innovation focused strategy;
- interaction between diverse individuals.

Based on the insights from the theories of organizational science, the dissertation will aim at translating the conditioning variables derived at the level of groups, firms and organizations to the level of countries. The aim of this chapter of the dissertation is to identify the right context necessary to translate ethnic diversity into positive outcomes on the level of the state.

9.1. Valuing Diversity on the Country Level – Democratic Pluralism

The scholars of organizational science underline that the most important requirement which lies at the basis of building the right context for ethnic diversity is to perceive diversity as a value. Only firms that value diversity are able to extract the positive aspects of diversity such as increased innovation, creativity and openness. The dissertation argues that when translated to the state level, a system which provides the best basis for valuing diversity is democratic pluralism.

The scholars of organizational science found that there are certain additional elements that are necessary for the positive process of valuing diversity to take place. They found that the valuing of diversity is possible when the firm has an integration-and-learning perspective on diversity, and when the diverse people can verify their personal-self views, as well as when there is a simultaneous verification of both personal and social self views within the diverse group. All of those three elements are a necessary part of the value in diversity approach.

The dissertation argues that, when translated to the state level, the integration-and-learning perspective on diversity would be represented in state policies that aim at integrating diverse people into the society. Such policies consist of inclusive citizenship laws and the adoption of multicultural policies, either in an explicit or implicit manner. Furthermore, the integration-and-learning perspective on diversity on a country level would be represented by policies that show that a country treats diversity as a learning resource. Such policies would include policies that encourage high-skilled immigration, ensure labor market access for immigrants, and promote social mobility among the diverse members of the society.

In the case of the verification of personal self-views among diverse individuals, the dissertation argues that the verification of personal self-views among the members of different ethno-linguistic groups is possible at the state level, if the country gives recognition to cultural difference. In the case of the simultaneous verification of personal and social self-views the dissertation argues that it is possible on the state level, if the country has a broad definition of nationhood, which is inclusive and tolerant to all the diverse individuals living in the country.

In result, the three elements which are the necessary part of the value in diversity approach on the level of firms translate into the following conditioning variables on the level of countries:

◆ Value in diversity translates into **Democratic Pluralism**

- the integration-and-learning perspectives translates into:
 - policies that aim at integrating the diverse people (inclusive citizenship laws, multicultural policies)
 - policies that show that a country treats diversity as a learning resource (encouragement of high-skilled immigration; labor market access; promotion of social mobility among the diverse members of the society)
- verification of personal self-views translates into:
 - country gives recognition to cultural differences
 - institutional recognition ('multination federalism' and immigrant multiculturalism)
 - recognition in the attitude of the citizens
- simultaneous verification of personal and social self-views translates into:
 - country has a broad and tolerant definition of nationhood

The dissertation argues that, on the country level, the conditioning variables derived from the three elements, which are the necessary part of the value in diversity approach provide an additional support for democratic pluralism in managing diversity. They also define and characterize what type of democratic pluralism is the most beneficial in terms of turning ethno-linguistic diversity into positive outcomes.

Therefore, the dissertation argues that, in terms of institutional design, democratic pluralism is the pillar of the right context, which allows one to translate ethnic diversity into positive economic outcomes. The conditioning variables that are derived from the three elements, which are part of the value in diversity approach, constitute an addition to democratic pluralism, a very important addition which makes democratic pluralism even more conducive to translating ethnic diversity into positive economic outcomes.

In that understanding, countries which are plural democracies already have the right context in place. However, countries that are plural democracies but also possess the characteristics defined by the three additional conditioning variables, should be more successful in managing diversity than the countries which are plural democracies but do not possess the additional characteristics. Thus, according to the dissertation, countries that are plural democracies but do not have the other conditioning variables in place, are expected to do worse in terms of translating diversity into economic outcomes than countries which are plural democracies but also meet the conditions indicated by the three additional conditioning variables.

Democratic Pluralism

The perception of diversity as a value has been indicated by the scholars of organizational science as a starting point and a necessary requirement for ethnic diversity to bring positive outcomes. The dissertation argues that when translated to the state level, valuing diversity would mean that a country is run by rules and policies that cherish and encourage diversity among its citizens. Cherishing and encouraging diversity would mean that a country is supporting the cultivation of diverse ethnocultural identities and practices

of its citizens, that the country promotes the attitude of appreciation and tolerance towards diversity among its citizens.

The dissertation contends, that the system which is most appreciative of ethno-linguistic diversity and thus, provides the best basis for valuing diversity is democratic pluralism because it is based on principles that support the cultivation of diverse ethnocultural identities and practices of its citizens within a single state. Democratic pluralism is understood as “a condition of society in which diverse ethnic, racial, religious, or social groupings ‘maintain their autonomous participation in their traditional culture within the confines of a single civilization’ or state”.²²³

Doran states that democratic pluralism is the best system to mediate and manage the differences between diverse communal groups. Pluralism protects the culture and identity of respective communities and since the preferences of the communities are secure, the communities are able to participate in the activities of the larger states. Democratic process, on the other hand, helps to mediate the differences in preferences, which usually exist between the different communities, when making a common policy.²²⁴ Thus, it is a united concept of both ‘pluralism’ and ‘democracy’ which makes the system work and makes democratic pluralism successful in managing diversity within a single state.

As argued by Doran (2001) democratic pluralism is based on tolerance towards cultural diversity. Democratic pluralism seeks to harmonize and politically integrate the different ethnic groups living within a single state. Doran states that the principles of democratic pluralism ensure that diverse communities can not only live in harmony with each other inside of a single state, but that they can also thrive spiritually, economically, linguistically, and intellectually. Plural democracies, through allowing the diverse groups to

²²³ Doran (2001) p. 5

²²⁴ Doran (2001) p. 10

retain their traditional cultures, and through endorsing a harmonious coexistence between diverse communal groups, promote the tolerance towards cultural diversity among its citizens.

A way in which plural democracies often encourage the attitudes of tolerance towards diversity, as well as encourage the perception of diversity as a value among its citizens, is through publicizing a positive image of ethnocultural diversity. The propagation of the positive image of diversity is usually conducted through the media, educational system, as well as through the state laws and official government statements.

The dissertation argues that the additional elements which were indicated by the scholars of organizational science as necessary for the positive process of valuing diversity to take place should be considered as the elements which aid democratic pluralism and which denote which characteristics of democratic pluralism are the most desirable. Those elements should be considered as assisting the system of democratic pluralism in turning ethnic diversity into positive outcomes.

9.1a. Integration-and-Learning perspective on diversity on the Country Level

The perspective on diversity, which reflects the principle of valuing diversity, as indicated by the scholars of organizational science, is the integration-and-learning perspective on diversity. It is a perspective, which perceives diversity as a resource for learning and adaptive change. The diverse skills, perspectives and experiences of the individuals are perceived as potentially valuable resources, which can be utilized in the work processes of the group.

The dissertation argues that, when translated to the state level, the integration-and-learning perspective would be reflected in the policies that aim at integrating the diverse people into the society. Such policies include the policies that relate to the citizenship, education and employment for the immigrants residing in the country. The integration-and-learning perspective on the state level would be also reflected in policies which show that a country treats diversity as a learning resource. The dissertation argues that the indication of whether the country treats diversity as a resource is whether it not only admits low skilled immigration, but whether it is open to high-skilled immigration.

Policies that Integrate Diverse Individuals

Policies that aim at integrating the diverse individual include liberal citizenship laws and multicultural policies. Multicultural policies can be adopted by a country either in an explicit manner as an official policy of a state, as it is the case in Canada or Australia. The multicultural policies can also be adopted by a country in a more implicit manner, not as an official approach, but as part of the policies concerning immigration, as it is the case in the US and many Western European countries. Furthermore, the countries differ in respect to the range of the multicultural policies that they adopt. Some countries can adopt only a few multicultural policies, and others might adopt the full range of multicultural policies.

It is important to notice that, as far as the policies that aim at integrating the diverse people into the mainstream society are concerned, such policies are considered positive and desirable only in relation to immigrants, but not to national minorities. The reason behind that is because national minorities usually have the opposite claims in terms of integration, and they actually want to resist integration. They usually demand some form of self-government, so that they would be able to live and work in their own culture, and not have

integrate to the mainstream society. The immigrants, on the other hand, demand that they would be integrated into the larger society. As summarized by Kymlicka (2001a):

National minorities have resisted integration and fought to maintain or rebuild their own societal culture while immigrants have accepted the expectation that they will integrate into the dominant societal culture.²²⁵

Inclusive Citizenship Law

As far the citizenship law is concerned, the country can be considered as having an integrative approach towards immigrants, if the naturalization of immigrants is a relatively easy process; and if the country promotes citizenship among culturally diverse foreign-born residents through explicit campaigns, which encourage naturalization.

Furthermore, in relation to the citizenship law, the country can be considered as having an integrative approach towards its foreign-born residents, if it has schemes that allow naturalization for those foreign-born residents who came to the country as temporary or irregular migrants, but remained in the country afterwards and now have already been settled in the country for a long period of time.

Kymlicka (2001b) stresses the importance of giving the access to citizenship to such irregular and temporary immigrants. He argues that it is essential for the integration of foreign-borns, to offer citizenship, not only to regular immigrants, but also to immigrants who have been previously denied the citizenship. Michael Walzer (1983) refers to those groups of immigrants as 'metics' and defines them as groups of long-term residents who are

²²⁵ Kymlicka (2001a) p. 156

nonetheless excluded from the society.²²⁶ Kymlicka explains that the ‘metics’ include *irregular immigrants* and *temporary immigrants*. The irregular immigrants include those who either entered the country illegally or overstayed their visa, and who are therefore not legally domiciled, such as many North Africans in Italy. The temporary immigrants include those who entered either as refugees seeking temporary protection or as ‘guestworkers’ (from German: *Gastarbeiter*), such as Turks in Germany.²²⁷

The most basic claim of the ‘metics’ is to regularize their status as permanent residents, and to gain access to citizenship. Kymlicka argues that the approach which denies citizenship to metics is both morally and empirically flawed: “it violates the very idea of liberal democracy to have groups of long-term residents who have no right to become citizens”²²⁸. As for empirical evidence, it has been found that once the metics have settled, founded a family and started raising their children, nothing short of expulsion is likely to get metics to return to their country of origin.

According to Kymlicka (2001b), the best-known examples of countries which are very reluctant to integrate metics into the national community are Germany, Austria and Switzerland.²²⁹ Those countries, which consider themselves as traditionally non-immigrant, are usually not accepting of newcomers and often very xenophobic. The policy towards metics in those countries has been to try to deny them the citizenship, and to try to dispose of them by either expulsion or voluntary return. The policy did not have the desired results, and, in most cases, it did not manage to pressure the metics to leave the country. Moreover,

²²⁶ The term ‘metics’ has been propagated by Michael Walzer (1983); it is a term borrowed from Ancient and it refers to long-term residents who are nonetheless excluded from the polis. Due to the legal, political, economic, social and psychological exclusion, the ‘metics’ tend to exist in the margins of the larger society.

²²⁷ Kymlicka (2001b) p. 39

²²⁸ Kymlicka (2001b) p. 41

²²⁹ Kymlicka (2001b) p. 40

it marginalized the metics and that led to an increase in criminality, political alienation and even religious fundamentalism among the immigrants.

Kymlicka (2001a, b) argues that the policy of denying the citizenship to metics does not work . Moreover, it endangers the larger society because it is most likely to result in creating a permanently disenfranchised, alienated and racially-defined underclass, which, in turn, is most likely to lead to increased criminality, political alienation and religious fundamentalism. Kymlicka argues that, in order to avoid that, there is a need towards adopting amnesty programs for illegal immigrants, and granting citizenship to guestworkers and their children. He says that lately, one can observe a trend towards adopting such policies, even in the traditionally non-immigrant countries.

Kymlicka argues that countries which are not willing to naturalize its foreigners, including the metics, should not allow the foreigners into their territory in the first place. He argues that it is common theme that the governments, knowing that their economy requires large numbers of illegal immigrants, would turn a blind eye to it. The same hypocritical approach, he states, can be recorded among the citizens who decry illegal immigration but are more than happy to take advantage of the cheaper food or cheaper services which illegal immigrants make possible.

Kymlicka stresses that it is important that a country has a consequent policy in regard to illegal immigration. If it does not want to grant citizenship rights to metics, it should completely ban any forms of temporary or illegal immigration; but if it allows the temporary and irregular immigrants inside the country, it should introduce schemes that would make it possible for them to gain the citizenship:

Some democracies may strongly dislike the idea of naturalizing foreigners. If so, they must not allow foreigners to settle in the first place, by eliminating 'guestworker' programs and by preventing illegal immigration. Democracies have no obligation to admit would-be metics. But if a country allows a group of non-nationals to settle and become permanent residents, then liberal-democratic principles require that these metics be able to naturalize.²³⁰

Multicultural Policies

Other than liberal citizenship laws, there is a set of other policies which, according to the dissertation, indicate the integrative approach of a country towards its foreign-born residents. Those policies are referred to as 'multicultural policies'. Those policies are considered conducive to integration because they provide a favorable environment for the integration and assist the settlement/integration process of immigrant communities.

The dissertation argues that the multicultural policies make it easier for the immigrants to integrate because they do not require from them to adapt into the dominant culture, which is usually a difficult and strenuous process. They only require from the immigrants to integrate into the institutional and linguistic structure of the country. The multicultural policies allow the immigrants to retain their distinctive culture, and still become part of the society, and thus they make it much easier for the immigrants to integrate.

Furthermore, the dissertation argues that the multicultural policies ensure that the integration process does not kill the diversity of the individuals who are subjects of the process of integration. In a situation when integration does not recognize the distinct identities of the immigrants, the result of the integration is assimilation, and assimilation kills the diversity. Thus, countries which have the approach of assimilating the diverse individuals

²³⁰ Kymlicka (2001b) p. 42

cannot be considered as having an integration-and-learning perspective on diversity, because diversity actually gets lost in the process of assimilation of the immigrants to the dominant culture. Thus, for a country to have an integration-and-learning perspective on diversity, it cannot try to assimilate its immigrants, but it has to try to integrate them with a recognition of their distinctive cultures, so that the immigrants can retain their cultures and tradition, and thus, the country can retain its diversity.

Policies that indicate that a country treats diversity as a Learning Resource

The dissertation argues that an indication of whether a country treats diversity as a learning resource is whether the country is open to high-skilled immigration, whether its labor markets are accessible to immigrants, and whether it promotes social mobility among the diverse members of the society.

Openness towards high-skilled immigration

The dissertation argues that a country which encourages not only low-skilled immigration, but also high-skilled immigration, reveals that it has a learning perspective on diversity because the high-skilled immigrants possess an even higher potential of diverse ideas from which the people, who are exposed to them, can learn. Thus, a country that invites high-skilled immigrants demonstrates that it has learning perspective on diversity because it has a willingness to learn from the talent coming from different cultures.

If a country mainly accepts the low-skilled immigrants, it means that the country does not have a learning perspective on diversity. The potential for learning from diversity in the low-skilled areas of the economy is lower than in the areas which require high-skilled

labor. Thus, the country which employs immigrants in the areas where the contribution of new ideas does not add much value reveals that it does not recognize the potential benefits of diversity for new idea creation and learning.

It should be underlined that it does not mean that the low-skilled diverse laborer does not carry the potential benefit of creativity related to his diversity, he does. The potential of increased creativity coming from the interaction of diverse individuals is also present in the context of low-skilled labor activities. However, the benefits coming from creativity in the low-skilled areas of the economy are lower than in the high-skilled areas of the economy. Therefore, countries which are accepting mainly low-skilled labor reveal that they do not recognize the benefits of diversity because they do not want to include diverse individuals in the regions of the economy where creativity is most desired, which are usually sectors occupied by high-skilled laborers.

The different approaches towards immigration, concerning the openness towards high-skilled immigration, can be observed among the countries of North America on the one hand, and continental Europe on the other. As argued by a journalist and a fruitful writer on diversity issues, G. Pascal Zachary (2000), the countries of continental Europe absorb foreigners as an act of charity, rather than an act of increasing the country's competitiveness. He presents the example of Germany to illustrate the attitudes prevailing in continental Europe towards high-skilled immigrants. He quotes the words of a known German migration scholar, Rainier Munz, to present the approach of Germans towards immigration: "The country doesn't want talented immigrants. [...] Immigration is seen as a burden. If we take people, it's for humanitarian reasons, not because we want them". The

reason why Germans do not want talented people from abroad, according to Munz, is because they “like their cozy world the way it is, and they want to avoid competition”.²³¹

Zachary argues that while the countries of North America set their immigration targets, to a large extent based on potential economic benefits, the countries of continental Europe do the opposite. By setting the immigration targets based on ‘charity’, the countries of continental Europe increase the economic burden to their economies because the low-skilled laborers are less prepared to integrate and live in the new countries.

There is a similarity between the approach described by Zachary as prevalent in the countries of continental Europe, and the diversity perception described by the scholars of organizational science as the discrimination-and-fairness perspective. The discrimination-and-fairness perspective does not connect having a culturally diverse workforce with the enhancement of an organization’s functioning. In the diversity-and-fairness perspective, the reasons for having a culturally diverse workforce are dictated by the moral imperative to ensure justice and a fair treatment. The empirical studies conducted on firms by the scholars of organizational studies showed that this perspective did not provide the right foundation and guidance needed to achieve the sustained benefits from diversity in terms of increased innovation, creativity and openness to change.

Labor market access, and social mobility for immigrants

The dissertation argues that, other than the openness to high-skilled immigration, there are two other variables that indicate that a country treats diversity as a learning resource and those are: labor market access and social mobility for the immigrants. If a country provides favorable conditions for labor market access and social mobility for the

²³¹ Zachary (2000) p. 129

immigrants, then it reveals that it values diversity and appreciates the contributions of the immigrants.

If the country has favorable laws concerning labor market access for the immigrants, it means that the country wants to encourage the immigrants to enter the labor market, and thus, that it sees value in the work created by the immigrants. Hence, a country which encourages the labor market access for its foreign-borns shows that it values diversity and perceives diversity as a learning resource.

If a country has a relatively high social mobility of its foreign-born, it shows that the country appreciates the contribution of the immigrants, and thus, that it perceives the immigrants as a resource. If the social mobility of immigrants in a given country is relatively high, it means that the country creates opportunities for the progress of the immigrants, and if such, it means that the country sees value in the immigrants, and that it recognizes that, if given the opportunity, the immigrants can constitute a resource to the economy.

Furthermore, allowing the immigrants to progress in the society, and not blocking their social advancements, shows that a country recognizes that the contribution of the immigrants is valuable not only on the lower levels of the economy, but also on the higher levels. If the country recognizes the value of the immigrant contribution on the higher levels of the economy, where the value is highly dependent on innovation and creativity, then the country reveals that it treats the immigrants not only as a resource but more specifically, as a learning resource.

Thus, a country which has favorable laws concerning labor market access and the social mobility of immigrants reveals that it has a learning perspective on diversity. Furthermore, the two elements are usually considered by the scholars of immigration as the indications of an integrative approach of a country towards its foreign born residents.

Therefore, a country which encourages labor market access and social mobility of its immigrants shows that it has an integration-and-learning approach towards diversity.

9.1b. Verification of Personal Self-Views on the Country Level

The scholars of the psychology of organizations indicated the self-verification of personal views is necessary to translate diversity into innovation. In order for diversity to bring positive results in terms of creativity, the diverse people must feel valued, respected, understood and accepted. Only in such an atmosphere would the people have the courage to open up, take risks, and voice their views, a behavior which is necessary for creativity and divergent thinking.

The dissertation argues that, when translated to the level of countries, the self-verification of personal views of diverse people is possible when the state gives the citizen a feeling that it is “OK” to be culturally different, and that it is fine to pursue your particular cultural identity even if it is different from the cultural identity of the dominant group. Such a situation is possible when the state gives recognition to cultural differences; when it recognizes and respects the different identities and cultures of its citizens.

Indication that a country gives recognition to cultural difference

The dissertation argues that in general, plural democracies give recognition to cultural differences of its citizens, because, as argued by Doran (2001), democratic pluralism is “a condition of society in which diverse ethnic, racial, religious, or social groupings

maintain their autonomous participation in their traditional culture within the confines of a single civilization or state”²³².

The dissertation argues that if a country already is a plural democracy, a more exact level to which the country is recognizant and respectful of diversity, can be assessed by taking into consideration the institutional recognition as well as the recognition that is reflected in the attitudes of its citizens towards diversity.

Institutional recognition

The institutional recognition is characterized by the way in which the state institutions accommodate the cultural diversity of national minorities and immigrants. The dissertation argues that the forms in which a plural democracy can accommodate the cultural diversity of national minorities and immigrants are the ‘multination federalism’ in case of national minorities, and ‘immigrant multiculturalism’ in case of immigrants.

‘Multination federalism’

The way in which multinational federations accommodate the cultural diversity of national minorities is by shifting part of the power to regional political units. The idea of multination federalism as a way of accommodating cultural differences has been acclaimed by Doran (2001) who states that “The wise government is the government that devolves as many decisions as possible to the local level in which communities can best express their collective wills”²³³.

²³² Doran (2001) p. 5

²³³ Doran (2001) p. 11

In multination federations, the federal political units often correspond with distinct ethno-cultural groups who desire to retain their self-government and cultural distinctiveness.²³⁴ As argued by Kymlicka (2001b), in multinational federations, the boundaries and powers of one or more sub-units are defined with the intention of enabling a national minority to exercise self-government. In such federations, the shifting of the power to the regional level controlled by national minorities is a way of accommodating the claims for recognition of cultural distinctiveness of the national minorities.

The clear examples of countries in the Western world which use federalism for the very reason of accommodating minority groups include Canada (for the Quebecois), Belgium (for the Flemish), Spain (for the Catalans, Basques, and Galicians), and Switzerland (for the French- and Italian-speakers). Other multination federations around the world include Nigeria, Malaysia, India, Ethiopia, and Russia.²³⁵

At the same time, there are federations which were not designed as a way of accommodating ethno-cultural difference, to which Kymlicka refers as ‘administrative-territorial federations’, but which have adopted some forms of territorial autonomy for their historic minorities. Moreover, there are countries, which are not federations but they have adopted certain forms of quasi-federal territorial autonomy to accommodate the claims of their national minorities. Philip Resnick (1994) refers to all those countries who adopted any forms of territorial autonomy for their historical minorities as the ‘multination federations’.

Kymlicka states that currently we can see an increased trend towards quasi-federal forms of territorial autonomy as a way of accommodating the claims of national minorities and even more so, of indigenous peoples. Just as Resnick, he also calls those countries the ‘multination federations’, despite the fact that not all of them are federations in the technical

²³⁴ Kymlicka (2001b) p. 29

²³⁵ Kymlicka (2001b) reference n. 19, p. 87

sense. He explains the reason behind referring to all those countries as ‘multination federations’ in the following way:

They are not all federations in the technical sense, but they all embody a model of the state in which national minorities are federated to the state through some form of territorial autonomy, and in which internal boundaries have been drawn, and powers distributed in such a way as to ensure that each national group is able to maintain itself as a distinct and self-governing societal culture.²³⁶

The countries which are indicated by the scholars²³⁷ as examples of ‘multination federation’, in a sense that they have adopted some quasi-federal forms of territorial autonomy, are the following: the United Kingdom (in reference to Scotland and Wales), the United States (in reference to Puerto Rico and the American Indians), Italy (non-federation; in reference to German-speakers in South Tyrol), Finland (non-federation; in reference to Swedes in the Åland Islands), the Scandinavian countries (in reference to the Sami community) and New Zealand (in reference to Maori community).

Kymlicka (2001b) argues that the trend towards multination federalism, understood in the broad sense as a trend to adopt some forms of territorial autonomy to accommodate the claims of the national minorities, is very widespread in the West. He states that among Western democracies with national minorities, only France and Greece have firmly rejected any notion of territorial autonomy for their historic minorities. Most national minorities in Western democracies, argues Kymlicka, currently have more autonomy that they had 30-50

²³⁶ Kymlicka (2001b) p. 30

²³⁷ see Kymlicka (2001b) p. 30

years ago. Furthermore, there are hardly any national minorities that have had their autonomy reduced over that period.²³⁸

Immigrant multiculturalism

The dissertation argues that the way in which plural democracies accommodate the claims for recognition of the immigrants residing in the country is through the adoption of multicultural policies. As argued previously, multicultural policies reveal that a country gives recognition to the distinctive cultures of the immigrants. The existence of multicultural policies ensures that the immigrants do not have to give up their traditions and cultures, and that they can be a full part of the society without having to adopt the dominant culture of the country.

The immigrant multiculturalism is based on the assumption that pressured, quick integration, and the lack of recognition to diverse identities of the immigrants, might lead to undesirable results such as a serious damage to people's self-respect and sense of agency.²³⁹ Charles Taylor (1994) argues that a non-recognition or misrecognition can inflict a serious harm on a human. It can be a form of oppression, and can push someone into an imposed and destructive identity, imprisoning someone in a false, distorted, and reduced mode of being.²⁴⁰ Taylor argues:

[...] misrecognition shows not just a lack of due respect. It can inflict a grievous wound, saddling its victims with a crippling self-hatred. Due recognition is not just a courtesy we owe people. It is a vital human need.²⁴¹

²³⁸ Kymlicka (2001b) p. 31

²³⁹ Taylor (1994), Kymlicka (2001a)

²⁴⁰ Taylor (1994) p. 25

²⁴¹ Taylor (1994) p. 26

The scholars of political science argue that due to the serious damages and oppressions inflicted by the lack of recognition, the people should not be deprived of a due recognition of their identities. Taylor argues that “just as all must have equal civil rights, and equal voting rights, regardless of race or culture, so all should enjoy the presumption that their traditional culture has a value.”²⁴² He states that people need not only to receive the recognition of their distinctive identity, but also to receive recognition that their different culture is worthy and constitutes a value. Taylor states that the recognition of cultural difference is very important for the human well-being and that it constitutes a vital human need.

The dissertation argues that the adoption of multicultural policies, either in an explicit or an implicit manner, is a way in which plural democracies can aid their recognition of cultural difference in relation to immigrants residing on their territories. Kymlicka (2001a) presents a wide range of policies which are usually associated with immigrant multiculturalism, which include:²⁴³

- *affirmative action programs* (e.g. preferential treatment of visible minorities in access to education, training, or employment);
- *representation in the state legislative or advisory institutions* (e.g. guarantees of a certain number of seats in the legislative and advisory institutions to ethnic minorities);
- *curriculum reform in schools* (e.g. revision to the history and literature curriculum within public schools to give greater recognition to the historical and cultural

²⁴² At the same time however, Taylor states that he is “not sure about the validity of demanding this presumption as a right”, Taylor (1994) p. 68

²⁴³ The categorization of the multicultural policies was made based on Kymlicka (2001a) pp. 159, 163

contributions of ethnocultural minorities; bilingual education programs for the children of immigrants at the primary school level);

- *institutional adaptation* (e.g. regulatory guidelines about ethnic stereotypes in the media; revision of the work schedules or dress-codes as to accommodate the religious holidays and practices of immigrant groups; adopting workplace harassment codes prohibiting racist comments);
- *public education programs* (e.g. anti-racism educational campaigns; cultural diversity training for the police, social workers or health-care professionals);
- *cultural development programs* (funding of ethnic festivals and ethnic studies programs; providing mother-tongue literacy courses for adult immigrants).

Kymlicka states that the ‘multicultural’ model of immigrant integration is already very widespread in the West. The first country which officially adopted the multicultural policies was Canada in 1971, but since then multiculturalism has been adopted by many other countries, from Australia and New Zealand, to Sweden, Britain, and the Netherlands. Kymlicka argues that most recently, also Germany is moving closer to the immigrant model of multiculturalism. According to him, currently in Western Europe only France and Greece continue to resist any official recognition of immigrant multiculturalism; and Switzerland and Austria continue to resist any serious move to integrate metics.²⁴⁴ Otherwise, argues Kymlicka, reiterating the words of Nathan Glazer (1997) “we are all multiculturalists now”.

Kymlicka stresses that the United States, even though it does not have an official multiculturalism policy at the federal level, it has implicitly adopted a multiculturalist

²⁴⁴ Kymlicka (2001b) p. 88

approach.²⁴⁵ That opinion is shared by other scholars, such as John C. Harles (2004) who argues that, taking the official multiculturalism apart, the substance of multicultural policy is not much different in the United States and Canada. Moreover, he argues that the US, with its non-explicit multicultural approach, has been as successful in integrating immigrants as those countries which have officially adopted multiculturalism, such as Canada or Australia.²⁴⁶

Kymlicka (2001a) stresses, the three major immigrant countries in the West – the United States, Australia and Canada, have been very successful in integrating immigrants. They have 150 years of experience with large scale-immigration, he says, and they have managed to integrate large numbers of immigrants from all over the world without any serious threat to unity stability, or prosperity, which is an impressive achievement.

Attitudes of the citizens towards diversity

The dissertation argues that when assessing the level of recognition of cultural difference in a given country one should also consider the attitudes of its citizens towards diversity. The dissertation states that in order for the immigrants to feel respected and valued, they have to receive recognition not only for the state, but also from the citizens of the country. If the attitude of the citizens towards the immigrants is negative, the attempts of the government to give recognition and make the immigrants feel valued and respected will fail. In order for the immigrants to feel valued and respected they have to reassert themselves as worthy in every day interactions with the other citizens of the country.

²⁴⁵ Kymlicka (2001b) p. 34

²⁴⁶ In that point Harles disagrees with Kymlicka, who argues that Canada is the most successful in the integration of immigrants, closely followed by Australia; Harles argues that the US is as successful as the other two.

The attitude of citizens towards diversity is characterized by their willingness and ability to value, tolerate, work and live together with people who are different from them. The dissertation argues that the attitude of citizens towards foreign-born is mainly shaped by the image of the immigrants presented by the media and by the political and public campaigns.

According to a study conducted in California²⁴⁷, which is the most diverse state in the United States, the variations in citizen's opinions concerning immigrants were best explained not by what goes on in local contexts, but by their political orientations, and by what they learned from the respective pro- and anti- campaigns concerning the ethnic issues. The authors of the study argue that this finding suggests that the attitude formation on racial and ethnic issues in California politics occurs more on a global than a local basis. They concluded that, based on the California example, it appears the way in which the political leaders and the mass media frame the issues is more critical to racial and ethnic attitudes than the local context.²⁴⁸

9.1c. Simultaneous Verification of Personal and Social Self-Views on the Country Level

The scholars of self-verification observed that the confirmation of personal self-views in the group has enhanced the commitment and the feelings of connection to the group. However, the scholars observed that the verification of personal self-views is very hard if they are in contradiction with the social self-views derived from the common identity of the group, or common goal of the group. Thus, in order for the personal self-views to be

²⁴⁷ Cain et al. (2000)

²⁴⁸ Cain et al. (2000) p. 66

verified, they have to be compatible with social self-views and with the common objective of the group.

The scholars noticed that on the level of the group, such a situation of compatibility of the two types of views is possible when the collective goal of the group recognizes the value of diversity of its members. In such a situation the group members can verify their personal self-views, which reflect their diverse identities, as well as their social self-views, because valuing diversity is part of the super-ordinate goal of the group. The scholars notice that the configuration, where both types of self-views are verified, is present in the integration-and-learning perspective on diversity where the super-ordinate goal of the group is to value and learn from diversity.

Furthermore, the scholars of organizational science observed that the simultaneous verification of both personal and social self-views is necessary for the coherence of the group. According to them, the verification of personal self-views is not sufficient to create coherence in the group, and it has to be accompanied by the verification of social self-views. The scholars of organizational science concluded that a situation in which both personal and social self-views are verified is optimal for diverse groups engaged in creative tasks.

The dissertation argues that, when translated to the state level, the configuration in which both personal and social self-views can be verified by the members of the society occurs when the state defines itself as a nation composed of diverse individuals and asserts that it perceives this diversity as a value. In such a case, the state gives the citizen a feeling that the cultural difference does not exclude the person from the society, and what's more, the cultural difference is valued and encouraged by the state. Such a situation is possible only if the definition of the nation is understood in a more open and broader sense, which is inclusive to diverse cultures and races.

Broad definition of nationhood

As argued by Will Kymlicka (2001a), an open definition of national community is not restricted to those of particular race, ethnicity, or religion, “anyone can join the nation if they want to do so”.²⁴⁹ In such a situation, being part of the nation requires only the adherence to the institutional and linguistic structure of the country, and does not require the cultural assimilation to the dominating group. Countries which are inclusive towards diverse individuals exhibit a thin conception of national identity, as explained by Will Kymlicka (2001a) in the following way:

In order to make it possible for people from different ethnocultural backgrounds to become full and equal members of the nation, and in order to allow for the widest possible range of individual diversity and dissent, the terms of admission are relatively thin – e.g. learning the language, participating in common public institutions and perhaps expressing a commitment to the long-term survival of the nation, but do not require adopting a particular religion or conception of the good life.²⁵⁰

Michael Ignatieff (1993) named the thin conception of nationhood a ‘civic’ nationalism, in opposition to ‘ethnic’ nationalism, which is based on a thick conception of nation. The distinction has been adopted by many scholars of political science. In this standard view, the ‘civic’ nationalism is a form of nationhood, which is defined purely in terms of adherence to certain principles of democracy and justice. The ‘civic’ nations are neutral with respect to ethnocultural identities of their citizens and in those nations, ethnic dissent does not constitute the criteria for membership. The ‘ethnic’ nationalism on the other hand, defines the national membership based on common ethnic dissent, language and

²⁴⁹ Kymlicka (2001a) p. 40

²⁵⁰ Kymlicka (2001a) p. 40

culture. The 'ethnic nations' perceive the reproduction of a specific ethno-national culture and identity as one of their most important goals.²⁵¹

Michael Walzer (1992a, 1992b) argues that the clearest example of a state which is neutral with reference to language, history and calendar of the various ethnic and national groups existing within its borders, is the United States. He argues that a strong indication of the United States neutrality in terms of ethnic identity is the fact that the United States does not have a constitutionally recognized official language.²⁵² He argues that the United State is a good example of a country where state and ethnicity have been separated, and the state stands above all the various ethnic and national groups present in the society.

The examples of states where the idea of nationhood is perceived in a more thick sense, and thus, less inclusive to people coming from different ethnicities, are the examples of most of the countries of Continental Europe. As argued by Francis Fukuyama²⁵³, most European countries until most recently have had, or still have, a definition of nationality based on ethnicity. Fukuyama argues that such thick definition of nationality is not open to newcomers and it constitutes a problem because it makes it very hard, or even impossible, for the immigrants to integrate, and that often leads to their marginalization in the society:

²⁵¹ Pfaff (1993) p. 162

²⁵² Some scholars of political science, for example Will Kymlicka (2001), put in question the concept of ethno-cultural neutrality of the liberal democratic states. They argue that the claim that 'civic nations' are ethno-culturally neutral is a myth, which is false, both historically and conceptually. They argue that, at one point or another, virtually all liberal democracies have attempted to diffuse a single societal culture throughout all of its territory, and United States is not an exception in that regard. The United States government deliberately engaged in the process of establishing the hegemony of English and designing the boundaries of the states to ensure that Anglophones would be a majority in each of the fifty states. Kymlicka argues that those decisions were not unintended, but were made with the intention of promoting integration into what he call 'societal culture'. However, it is important to stress that Kymlicka understands 'societal culture' in a very thin sense, as a conception of culture, which focuses on a common language and societal institution. And his use of the term 'culture' is in conflict with the way it is used in most academic disciplines, where culture is defined in a more thick sense, referring to the sharing of specific history, rituals of life, folk-customs and habits. The dissertation argues that if the term 'culture' is defined in a more thick way, which is in accordance with the prevailing orthodoxy in most of the academic disciplines, then we can still talk about the 'neutrality' of the liberal democratic state.

²⁵³ Fukuyama (2004) [Interview]

[...] the problem in Europe is that they do not have a concept of citizenship, in most European countries, that would allow Muslim immigrants to really assimilate; the way people can come to the United States and hope to become Americans. That is a relatively easy process in the US and one that has been done by a lot of immigrants in the United States; and that involves a couple of things. It involves defining citizenship in a universal, democratic way, but one that is fundamentally open to people. The Germans did not do this up until 2000; the German citizenship law said that you had to have a German mother, so that was really ethnically based. There is still much more ethnic consciousness, even though that is not the official policy. The Europeans have a much more ethnic sense of who they are as a community.²⁵⁴

Kymlicka (2001a) gives Bulgaria as an example of a country where, until recently, the idea of nationhood had been defined in a very thick, ethnic sense. He states that until recently Bulgaria have had a very tough citizenship laws. In order to be a 'true' Bulgarian, reports Kymlicka, one must have had a Bulgarian surname, be descended from ethnic Bulgarians, belong to the Orthodox Church, speak Bulgarian without an accent, and even dress like a Bulgarian. Kymlicka stresses that such laws made it very difficult for Turks living in Bulgaria to be accepted as members of the Bulgarian nation.²⁵⁵

²⁵⁴ Fukuyama (2004) [Interview: the English version available from the author of the interview]

²⁵⁵ Kymlicka (2001) p. 40

9.2. Growth and Innovation Based Strategy on the Country Level

The empirical studies conducted by the scholars of organizational science have demonstrated that cultural diversity brings positive outcomes, in terms of performance, for firms that follow a growth or an innovation focused business strategy. At the same time, the studies have revealed that cultural diversity brings negative outcomes for firms that follow a downsizing strategy or a strategy, which is low on innovation. The scholars conducting the studies have concluded that ethnic diversity is a resource that can offer a competitive advantage to some firms, while it may be a performance detriment to others, depending on the business strategy of the firm.

The scholars of organizational science state that in order for the firm to ensue competitive advantage from the human resources, the resources have to be properly aligned with the organizational context of the firm. The research supported that proposition. It showed that the firms were able to accrue competitive advantage from racially diverse workforce when those human resources were in line with the strategy of the firm, and that happened when the strategy emphasized innovation.

Following the findings and the logic of organizational research, the dissertation argues that diversity as a resource needs a special strategy in order for a country to benefit from it. A country that wants to take advantage of diversity has to assume a position to exploit that resource. Otherwise, the country would not be able to use it and benefit from it. The dissertation argues that a strategic focus on innovation and growth in the economic strategy is necessary for the country to assume such position with respect to the resource of cultural diversity. Only with such a strategic focus a country can benefit from ethnolinguistic diversity.

The dissertation argues that, when translated to the state level, a growth and innovation based strategy is present when a country pursues a strategy that aims at strengthening the competitiveness and the innovativeness of the economy. The dissertation argues that a good indication of the existence of a growth based strategy on a country level could be the existence of a good business climate and flexible labor markets; while a good indication of the existence of an innovation based strategy could be the level of spending on innovation, meaning the expenditure on R&D.

9.4. Interaction between Diverse Individuals on the Country Level

Based on the theory of organizations, the interaction and communication between diverse individuals is necessary for ethnic diversity to be translated into creativity and thus, higher productivity. Only if the diverse individuals interact and communicate with each other, presenting their diverse views on the issues, can the benefits of diversity be realized.

The dissertation argues that, when translated to the state level, the interaction and communication between diverse individuals is possible if they have a contact with each other at various levels of social live, to which the dissertation refers as mixing. Furthermore, the dissertation argues that an element that makes the communication among diverse individuals possible is the existence of a common language. It does not have to be only one common language, it could be more than one, however, it is important that a common language exists, in which all the citizens of the country can communicate.

Mixing

The dissertation argues that the contact is possible when there is a mixing between different ethnocultural groups of the society, which occurs on the level of secondary group relationships, as well as on the level of primary group relationships.²⁵⁶ The dissertation will refer to the mixing on the two levels of social life as the 'secondary level mixing' and the 'primary level mixing'.

The *secondary level mixing* leads to a situation in which people of different ethnic background are placed into secondary contacts with each other. It is possible when there are no barriers based on ethnicity in the operation and employment of public and private institutions, facilities and services. Moreover, it is possible when there are no barriers to settlement based on ethnicity. Secondary level mixing is usually related to the full achievement of civil rights for all groups comprising the society. It leads to a situation which places people of different ethnic backgrounds into secondary contacts with each other.

The *primary level mixing* involves the formation of intimate relationships of love, caring and friendship between people from different ethno-cultural groups. The primary level mixing is a crucial conditioning variable for the relationship between diversity and openness to change. Even though, the openness to change is also stimulated through the secondary contacts between diverse individuals, it is the primary contact between diverse individuals which has the most profound impact on the attitudes related to the openness to change. The primary contacts across ethnic lines lead to the broadening of cultural

²⁵⁶ The primary group relationships include the relationships based on the intimate bonds present in the context of family and friendships. The secondary group relationships relate to the interactions in the context of job, institutions and more formal interactions - definition based on Gordon (1964)

perspectives and an appreciation of diverse values and that leads to a greater openness to change.

Furthermore, since the primary contacts across ethnic lines increase the warmth, personal friendship and trust between ethnically diverse individuals, they increase tolerance towards difference in the people who are engaged in those contacts. The stereotypes fall and are exchanged by positive attitudes towards difference and change; and since the attitudes were created by the primary contacts, they are lasting and deep. Thus, primary level mixing contributes greatly to building of tolerance for diversity in the society.

Common language

As for the existence of a common language in which the diverse individuals can communicate between each other, it is a necessary condition for the country to have at least one language which is spoken by the entire population of the country. The country should encourage the cultivation of diverse languages and cultures, however, at the same time the country should have at least one common language, which would be used for the formal operations of the country and would be known by each member of the society.

Again, it is important to note that there could be more than one common language in a country; however it is important that there is at least one. The policies introduced in the 70's by the Canadian Prime Minister Pierre Trudeau, concerning the bilingualism of Canadian citizens, are a good example of an attempt to have two common languages, which can be spoken in the entire country.

10. Right Context Identified

The theoretical analysis conducted by the dissertation suggests that the “right context” which allows one to translate ethnic diversity into positive outcomes consists of the following three elements: (1) democratic pluralism – value in diversity; (2) growth-and-innovation focused strategy; and (3) interaction between diverse individuals. A detailed list of the elements that compose the “right context” is the following:

(1) Democratic Pluralism – Value in Diversity

- the integration-and-learning approach policies:
 - policies that aim at integrating the diverse people (inclusive citizenship laws, multicultural policies)
 - policies that show that a country treats diversity as a learning resource (encouragement of high-skilled immigration; labor market access; promotion of social mobility among the diverse members of the society)
- verification of personal self-views:
 - country gives recognition to cultural differences
 - institutional recognition (‘multination federalism’ and immigrant multiculturalism)
 - recognition in the attitude of the citizens
- simultaneous verification of personal and social self-views:
 - country has a broad and tolerant definition of nationhood

(2) Growth-and-Innovation Focused Strategy

- commitment to improving the competitiveness of the economy: good business environment, policies supporting flexible labor markets, relatively large spending on R&D

(3) Interaction between Diverse Individuals

- mixing
- common language for communication

VI. Operationalization of Country Level Analysis

11. Hypothesis

The dissertation argues that ethnolinguistic diversity could constitute a resource for a country that possesses it. The channel through which ethnolinguistic diversity could positively affect the economy is through the increases in creativity, entrepreneurship and openness to change that diversity brings about. Theoretically, the value of ethnolinguistic diversity in human capital comes from enhanced creativity, problem solving, flexibility and openness to change, all of which are stimulated by the interaction of individuals with a diverse cultural background.

Nonetheless, the dissertation further argues that the positive impact of ethnolinguistic diversity on the economy depends on the context in which it is placed. The dissertation argues that ethnolinguistic diversity could lead to creativity, but only if there is the right context in place. In the absence of the right context diversity does not bring positive economic outcomes, and even more, it can be a detriment to the economy. However, in the presence of the right context diversity could bring benefits to the economy in terms of higher innovativeness, increased creativity, entrepreneurship and openness to change.

The dissertation argues that in order to take advantage of diversity the country has to assume a position in which it can exploit and benefit from ethnolinguistic diversity. The dissertation stands on the view that a country can only take advantage of its resources if it is

in a position to exploit and profit from them.²⁵⁷ The right context can allow the country to assume such a position. Only in the presence of the right context can the country mobilize diversity as a resource and exploit it to the benefit of the economy.

Based on the research of diversity in organizational science and on the theoretical application of that research to the country level, the dissertation has identified a set of conditioning variables that form the right context necessary to mobilize diversity as a resource. According to the theoretical analysis conducted in the dissertation, the right context consists of the following: (1) democratic pluralism – value in diversity; (2) growth-and-innovation focused strategy; and (3) interaction between diverse individuals [for the extended list of the conditioning variables see the section of the dissertation “Right Context Identified”]. Only if those conditions are present, could the country be in the position to exploit its ethnolinguistic diversity and benefit from it. Given the above, the dissertation puts forward the following hypothesis:

Hypothesis:

Countries which are ethnolinguistically more heterogeneous would have higher levels of innovativeness (creativity, openness to change and entrepreneurship) than countries which are less heterogeneous, but only if they have the right context in place.

A further implication of the hypothesis is that the countries which are ethnically heterogeneous, but do not have the right context in place, may not experience the positive economic effects of diversity. For those countries which do not have the right context in

²⁵⁷ As it was stated for the firm by Barney & Wright (1998), Richard (2000)

place diversity may have none or even a negative impact on the levels of innovativeness in the economy. The dissertation argues that the absence of the right context might be the reason why some of the cross-country studies point to the negative effects of ethnic diversity on the economy.²⁵⁸ The dissertation states that if the right context is added to the equation, the relationship between ethnic diversity and the economic outcomes, here measured by the levels of innovativeness, could be positive.

12. Dependent, Independent and Intervening Variables

12.1. Dependent Variables

The Dependent variable of the analysis is the innovativeness of the country, or more precisely the innovativeness of its people. Since the concept of innovativeness is three-dimensional, as previously argued by the dissertation, then we should actually distinguish four dependent variables which include: Creativity, Openness to Change, Entrepreneurship, and then an all inclusive Innovation.

However, due to the lack of comprehensive and comparable data the dissertation will not be able to directly include the Entrepreneurship variable into the analysis. The entrepreneurship is usually measured by the business start-up (or “birth”) rates. As argued in the *OECD Statistical Newsletter* (2005a)²⁵⁹ there are big methodological differences in national data sets concerning business start-ups, and those differences do not allow for a consistent international comparability of the data. The newsletter mentions that the OECD is currently undertaking steps to create a comprehensive and comparable data set on business start-ups.

²⁵⁸ Easterly & Levin (1997), La Porta, Lopez de Silanes, Shleifer & Vishny (1999), Alesina & Spolaore (2003), Alesina, Spolaore & Wacziarg (January 2003)

²⁵⁹ OECD (2005a) p. 4

However, at the time of the writing of the dissertation such data has not yet been available. Therefore, the Entrepreneurship variable cannot be directly included in the analysis. However, the analysis will include the entrepreneurship dimension of innovativeness in an indirect way.

The dissertation will include the entrepreneurship dimension indirectly through the Creativity variable. The Creativity variable will be partially measured by the size of the services sector and the size of the knowledge-intensive “market” services. Both of those variables are related and dependent on the levels of entrepreneurship existing in the society because the entrepreneurship is needed for the creation of the firms in the services sector. Thus, the measure of Creativity includes also the entrepreneurial dimensions of innovativeness.

In result, the dissertation identifies three dependent variables for the analysis: Creativity, Openness to Change and Innovation. The Creativity variable is intended to measure the creation of new knowledge (and to a limited extent, when it is related to entrepreneurship, also the commercialization of new knowledge²⁶⁰); the Openness to Change variable is intended to measure the diffusion of new knowledge; and the Innovation variable is supposed to incorporate all of the above dimensions of innovativeness, so it should constitute of both the Creativity and the Openness to Change variables. The author is aware of the fact that the direct inclusion of the entrepreneurship measures would make the Innovation variable more complete, however due to the lack of comparable data on entrepreneurship the dissertation has to consent with including entrepreneurship only in an indirect way into the analysis.

²⁶⁰ If the Entrepreneurship variable had been directly included in the analysis, it would have supposed to measure the commercialization of knowledge.

12.2. Independent Variables

The Independent variable of the analysis is the Ethnolinguistic Diversity. The variable intends to measure the ethnolinguistic fractionalization of the country. It intends to provide an indication of how societies differ between each other with respect to the extent of ethnolinguistic differentiation. The dissertation would like to include two dimensions of ethnolinguistic diversity into the analysis. The first dimension relates to the ethnic differentiation coming from old minorities, and the second dimension relates to ethnic differentiation coming from the more recent waves of immigration.

Until now the immigration aspect of diversity has not been included into the analysis of the impact of diversity on economic outcomes. The dissertation would like to include that measure into the analysis to see whether the effects of endogenous diversity are similar that the effects of the diversity coming from immigration. Despite the fact that diversity coming from immigration might be smaller in magnitude than endogenous diversity, its effect on innovativeness might be comparable to the effect of endogenous diversity. It could be due to the fact that the diversity coming from immigration is more 'fresh' or 'new', and thus, it might carry an even stronger creativity potential than the diversity coming from old minorities.

12.3. Intervening Variables

Besides the Independent and the Dependent variables, the theory proposed by the dissertation calls for the inclusion of the Intervening variable which is the Right Context variable. According to the theory, the Right Context variable is supposed to act as a catalyst for the positive effects of the ethnolinguistic diversity, and thus, it has to be included in the

analysis as a conditioning variable. The theory derived by the dissertation on the basis of the organizational science mentions several elements that are part of the right context. The three main elements include: (1) democratic pluralism – value in diversity; (2) growth-and-innovation focused strategy; and (3) interaction between diverse individuals.

Ideally, all of the elements of the Right Context should be included in our analysis. However, due to data issues, it is impossible to do so. The dissertation intends to conduct a quantitative analysis and therefore, it has to use only those elements of the right context that can be measured in a quantitative way. Unfortunately, a lot of elements of the right context require qualitative measures. Such elements include the democratic pluralism – value in diversity (with the exception of the integration- and learning-perspective, which can be somehow measured quantitatively), and the interaction between diverse individuals.

Thus, out of all the elements of the right context only the integration-and learning-perspective, and the innovation- and growth-focused strategy are the elements that can be measured in a quantitative way. Therefore, the dissertation will be able to directly include in the analysis only to the Integration- and Learning-perspective on diversity, and the Innovation- and Growth-Focused Strategy as the variables that indicate the existence of the right context.

However, since the democratic pluralism has been identified by the dissertation as crucial for translating diversity into innovativeness, the dissertation will try to incorporate it into the analysis in an indirect way. In order to do so the dissertation will include in the analysis only those countries which can be considered as plural democracies. Therefore, it will purposely limit the sample size and use only the OECD countries as a sample for the analysis. (The OECD countries were chosen also for the reason of data availability and comprehensiveness). There are differences between the OECD countries with respect to the

quality of the democratic pluralism, but all of them can be generally qualified as plural democracies. Thus, all of them fulfill one of the requirements of the right context which means that, potentially, all of them are in the position to exploit the benefits of ethnolinguistic diversity.²⁶¹ In that way, democratic pluralism is also integrated into the analysis.

13. Model

13.1. Sample Size

The dissertation will choose the 30 OECD countries as a sample for the analysis. The author is aware of the fact that such a small sample size for a cross-country regression weakens the validity of the results. However, the goal of the dissertation is not to provide robust proof for the hypothesis, but rather to make a preliminary check whether the hypothesis is plausible. Since no attempt has been made in the literature before to test such a hypothesis, the dissertation would like to make a first attempt in that direction. It is left to future research to assess whether the hypothesis holds also when the sample size is enlarged and more countries are included.

The choice of OECD countries was dictated by two reasons. One reason is related to data availability. The OECD collects broad and extensive data for its members, which allows for a greater choice of variables. For many of the variables that will be used in the analysis there is none or only very limited data available outside of the OECD countries.

²⁶¹ In order to test the hypothesis of whether the democratic pluralism is indeed a condition for translating the ethnolinguistic diversity into innovativeness, one would have extend the sample to the countries which are not plural democracies. The dissertation however, will not conduct such analysis due to data scarcity and in order to keep the dissertation within a reasonable scope.

Choosing the OECD countries as a sample allowed the analysis to be more profound and comprehensive.

The second reason for choosing the OECD countries as a sample is connected to the theoretical grounds of the research, as has been mentioned in the previous section. The limitation of the sample only to OECD countries allows one to include democratic pluralism into the model. Democratic pluralism has been identified as a crucial element of the right context but it is rather hard to measure in a quantitative way. Since our analysis is of a quantitative nature, we would have had to disregard democratic pluralism from our analysis. By using the OECD countries we can include it in the analysis since all of the OECD countries can be, more or less, considered plural democracies.

13.2. Method

The dissertation intends to conduct an empirical quantitative analysis to test the hypothesis posed by the dissertation. The dissertation will use single cross-country regression analyses to evaluate the influence of ethnolinguistic diversity on innovativeness, and what is most important, to assess the impact of the right context on the relationship between diversity and innovativeness.

Before testing the hypothesis through the regression analysis, however, the dissertation will first identify the Independent, Dependent and the Intervening variables through the use of a factor analysis. A number of variables, which appear to capture the dimensions of ethnolinguistic diversity, innovativeness and the right context in the best way, will be chosen. Then a factor analysis will be conducted to see whether there is an underlying factor among those variables. In case there is no underlying factor, the dissertation will have

to make a decision which variable is the best indicator for the Independent, Dependent and the Intervening variable, respectively. If there are underlying factors, and if it makes sense from the content perspective, then the variables which form the separate factors will be grouped into distinct single scales and the scales will be used as the Independent, Dependent and Intervening variables in the regression analysis.

13.3. Regression Framework

The hypothesis of the dissertation states that ethnolinguistic diversity leads to higher innovativeness, however, only in the presence of the right context. Furthermore, the dissertation argues that when the right context is not present, then the ethnolinguistic diversity might have a neutral or even negative effect on the levels of innovativeness. Thus, the dissertation claims that the relation between ethnolinguistic diversity and innovativeness is not unconditional, but it could be a significant function of the right context variable.

In order to test the hypothesis the dissertation will conduct two regression analyses for each of the dependent, independent and intervening variables. The aim of the first regression will be to establish whether there is a relationship between diversity and innovativeness, even without the right context variable in place. The aim of the second regression will be to test the hypothesis posed by the dissertation, and to establish whether the positive relationship between diversity and innovativeness indeed is a function of the right context variable.

We will use generic variables when presenting the two regression models in the form of equations. The dependent variable will be represented by the generic variable Innovation I , the independent variable will be represented by the generic variable Diversity Div , and the

intervening variable will be represented by the generic Right Context variable *RC*. However, the two regressions will be conducted for all the dependent, independent and intervening variables that will be identified by the factor analysis.²⁶²

As a first step, the dissertation will test the impact of diversity on innovativeness in the situation when the right context is not in place. The first regression can be presented with the following generic equation:

$$[1] \quad I = \alpha_0 + \alpha_1 \text{Div}$$

If not a specific choice of the sample, we would expect the first regression to be insignificant because the hypothesis states that the relationship between diversity and innovativeness is only positive and significant when the right context is in place. However, due to the choice of the OECD countries as a sample for the analysis, we should already expect a positive and a significant relationship between diversity and innovativeness because one of the context variables is already included in the analysis.

The choice of the OECD countries purports that one of the right context variables, which is democratic pluralism, is already accounted for in the analysis. Therefore, in our group of countries the relationship between diversity and innovativeness should be already positive and significant. In other words, we expect that for plural democracies diversity matters unconditionally (alone) for innovativeness. However, the significance might not be very strong because the other right context variables are still missing from the equation.

Given that the results of the first regression show some positive significance and thus, give basis for the claim that, in plural democracies, ethnolinguistic diversity leads to

²⁶² In all the regressions the error term will be omitted.

higher innovativeness, we will carry on with the second regression. The second regression can be represented with the following generic equation:²⁶³

$$[2] \quad I = \alpha_0 + \alpha_1 \text{ Div} + \alpha_2 \text{ Div RC}$$

The second regression equation has been derived in the following way:

$$I = \alpha_0 + \alpha_1 \text{ Div}$$

$$\alpha_1 = (\gamma_0 + \gamma_1 \text{ RC})$$

Hence:

$$I = \alpha_0 + (\gamma_0 + \gamma_1 \text{ RC}) \text{ Div}$$

$$I = \alpha_0 + \gamma_0 \text{ Div} + \gamma_1 \text{ RC Div} \quad \text{or} \quad I = \alpha_0 + \alpha_1 \text{ Div} + \alpha_2 \text{ Div RC}$$

The second regression will be the actual test of the hypothesis proposed by the dissertation. The second regression will test whether the relationship between diversity and innovativeness is indeed conditioned by the existence of the right context, as stated by the hypothesis. In other words, it will test whether the significance of the relationship between diversity and innovativeness is indeed a positive function of the right context.

In order to test the conditionality argument of the right context we introduce into the second regression an interaction term of diversity and the right context variable *DivRC*. The interaction term of diversity and the right context will show how diversity matters at different levels of the right context. Thus, looking at the interaction term will tell us whether the importance of diversity for innovativeness indeed increases with the presence of the

²⁶³ Ideally, the second regression should also include a separate Right Context variable *RC*, and have the following equation: $I = \alpha_0 + \alpha_1 \text{ Div} + \alpha_2 \text{ RC} + \alpha_3 \text{ Div RC}$. However, it is impossible to run such a regression due to the problem of high multicollinearity (for example for the variables *I*, *Div*, *RC*, *DivRC*, the *mean vif* equals 27.57). Hence, we have to run the interacted regression without a separate *RC* variable.

right context, and thus it will tell us whether the relationship between diversity and innovativeness is indeed conditioned by the existence of the right context variable.

If the interaction term α_2 will be statistically less significant than the coefficient on diversity α_1 then it will mean that the relationship between diversity and innovativeness is not dependent on the right context. However, if the interaction term α_2 will be statistically more significant than the coefficient on diversity α_1 then it will mean that diversity matters more for innovativeness when it is combined with the right context. In other words it will mean that the relationship between diversity and innovativeness is a function of the right context.

Furthermore, the coefficient on diversity will tell us what the impact of diversity on innovativeness is when the right context is at a level of zero. Thus, it will tell us what the relationship between diversity and innovativeness is without the existence of the right context. Therefore, the second regression will not only tell us how the importance of diversity for innovativeness changes with the existence of the right context, but it will also tell us what the relationship between diversity and innovativeness is when the right context is not present.

To conclude, the dissertation will apply a two-regression model to test the hypothesis posed by the dissertation. The model will be employed for each of the Dependent, Independent and Intervening variables that will be distinguished through the factor analyses. The first regression is just a preliminary step to test the grounds for further analyses. It is the second regression that is vital for testing the hypothesis posed by the dissertation. The results of the second regression are crucial for checking the plausibility of the hypothesis of the dissertation, which states that the relationship between ethnolinguistic diversity and innovativeness is a positive function of the right context variable.

PART FOUR: EMPIRICAL ANALYSIS

14. Measurement of Variables

Except for two cases, the dissertation will rely on the OECD data for the analysis. The OECD has collected a very comprehensive set of data for its members. Since all of the countries in the sample belong to the OECD, using OECD data ensures the most complete and coherent data for the analysis. The dissertation however, uses non-OECD data to measure the ethnolinguistic diversity coming from old minorities because the OECD does not have data for it. To measure the ethnolinguistic diversity coming from old minorities, the dissertation uses the Index Ethnolinguistic Fractionalization (ELF), which has been a commonly used measure in the previous studies, and the more recent measures of ethnolinguistic fractionalization created by Alberto Alesina.

Another case when the dissertation uses a different source of data than the OECD is in relation to Internet Technology.²⁶⁴ The dissertation uses different data because the data published by the OECD does not include the data on generic Top Level Domains (gTLDs) when counting the country-related internet hosts.²⁶⁵ The OECD bases its country-related internet hosts data on the registrations under the country code Top Level Domains (ccTLDs).²⁶⁶ The gTLDs however, constitute 64% of all the registration, thus, excluding the gTLDs from the count significantly distorts the picture of internet diffusion between

²⁶⁴ Except for the data on Secure Servers where the dissertation uses the OECD data. The reason for this is because the alternative ITU data does not compile the data on Secure Servers. Thus, for the Secure Servers the dissertation uses the OECD data, and for all the other Internet Technology variables such as Internet Hosts, Internet Users and number of PCs the dissertation uses the ITU data.

²⁶⁵ OECD (2005b) p. 99

²⁶⁶ OECD (2005c) p. 156; the US domains include .us, .edu, .mil, .gov.

countries.²⁶⁷ Therefore, the dissertation decides to use the World Telecommunication Indicators Database published by the International Telecommunication Union (ITU).²⁶⁸ The ITU data is broadly used as an indicator of Internet Technology diffusion and it takes into account both the ccTLDs and the gTLDs. However, the ITU data is not free from problems because it assumes that the majority of gTLDs are U.S. based registrations and it assigns all of the codes which are not country codes to the United States. Therefore, as noted in the ITU technical notes, the number of Internet hosts can only be considered an approximation. Still, the distortion of data is smaller than when the gTLDs are simply removed from the data.

As for the time reference of the data, the dissertation will use the latest data available. In the cases when there is missing data for some of the countries for a given year, the dissertation will use the latest data available from the previous years. Furthermore, the dissertation will use year-to-year data, but in certain cases, such as patents, it will use data averaged over a period of time to provide a more balanced view of the production of patents. In other cases, such as the Contribution of ICT capital to GDP growth, the use of the time averages was dictated by the data being available only in that form for the biggest number of countries.

14.1. Measurement of Dependent Variables

The dissertation will choose an array of variables to measure each of the dependent variables: Creativity, Openness to Change and Innovation. The dissertation has to choose several variables for each of the dependent variables because there is no established canon of

²⁶⁷ For the US the gTLDs constitute even 95% of all the domain name registrations.

²⁶⁸ ITU data and methodology downloaded free from the website: www.itu.int

which variables should be chosen to measure the variables distinguished by the dissertation. By using several indicators to measure the dependent variables the dissertation wants to make sure that it captures many different dimensions of the dependent variables.

14.1a. Creativity

The Creativity variable is intended to measure how creative or inventive the society of a given country is. According to the dissertation the Creativity variable should measure the invention part of the innovation process. Thus, the Creativity variable should measure the new thinking, the novelty of the ideas and in general, the creation of new knowledge in the society.

There are several indicators that have been used by the researchers to measure the creation of new knowledge in the society. One of those indicators is the literature-based innovation output indicator. The indicator measures the value and importance of the new knowledge. It consists of data on scientific publications, also referred to as bibliometrics. Originally the bibliometrics was limited to collecting data on numbers of scientific articles and other publications, but recently more sophisticated and multidimensional techniques based on citations of articles (and more recently also patents) were developed.²⁶⁹

The dissertation will use one of the OECD scientific output indicators which is the Relative prominence of cited scientific literature indicator to measure the value and the importance of the new knowledge created in a given country. The Relative prominence of cited scientific literature weighs the volume of published articles by the frequency of citations. It is measured by comparing a country's share of cited literature with its world share of scientific articles, and a country's citation of its own literature is excluded. The

²⁶⁹ OECD (2002a) p. 203

citations attest to the productivity but also to the influence of scientific literature. Moreover, the international citations highlight the visibility of scientific research beyond national boundaries.²⁷⁰ Therefore, the Relative prominence of cited scientific literature is a good indicator of the magnitude of valuable new knowledge produced in a country.²⁷¹

Other than literature-based indicators, the other indicators which have been used by the researchers to measure the creation of new knowledge in the society are the patent counts. Patents are exclusive rights issued by authorized bodies to inventors to make use of and exploit their inventions for a limited period of time.²⁷² The patent counts are actually the most frequently used country-related measure of the inventive output. The literature-based indicators are less frequently used in the literature, because they are relatively expensive to produce and thus, are available for only for selected years and for selected countries.²⁷³

Patents have been widely used as a proxy for innovative output but the measure has well-known drawbacks. First, many patents have no technological or economic value, and others have very high value but those differences are not reflected in the patent count. The patent counts assume all patents to be of generally equal value, and that is very misleading. Second, many innovations are not patented, and others are covered by multiple patents, which again makes the patent counts a misleading measure of the inventive capacity of a country.²⁷⁴ Due to the drawbacks of patent data the publications suggest that the number of patents should be used only in conjunction with other indicators.²⁷⁵

The dissertation would like to point to another drawback of patents which is their high relevance for measuring the inventions in the manufacturing sector, but their low utility

²⁷⁰ OECD (2005b) p. 40

²⁷¹ Acs, Anselin & Varga (2002) p. 1070

²⁷² OECD (2004a) p. 35

²⁷³ Acs, Anselin & Varga (2002) p. 1069

²⁷⁴ OECD (2005d) p. 22

²⁷⁵ OECD (2002a) p. 202

for measuring the inventions in the services sector. As argued in the OECD publications, the patent system was developed under very different circumstances than the current ones.²⁷⁶ The system was created in the realm of an industrial economy, to measure the inventions of the most vibrant sector of the economy which was then the manufacturing sector. The inventions in the manufacturing sector were tangible. The situation is different now, when the services sector is the key sector of the developed economies. The inventions that take place in the services sector are mostly intangible, and thus, a host of them escape the standard measures of innovation.

In the last decades, there has been a major change in the structure of the economy, the importance of the manufacturing industry has declined and services became the most vital sector of the economy. There has been a shift of economic activities between sectors and the associated reallocation of jobs. The OECD publications report that as the OECD economies have become richer, an increasing proportion of consumption and production activities, has taken place in the services sector. The services sector has expanded rapidly over the recent decades and currently accounts for over two-thirds of OECD business activity, 70% of jobs,²⁷⁷ and 70% of total OECD value added.²⁷⁸

The shift toward a service economy has not been accompanied by a better understanding of how to measure the inventions that take place in the services sector. Many services sectors are considered highly innovative²⁷⁹ but their inventive output is very hard to measure. Traditionally, the services have been considered less innovative than manufacturing but the most recent studies show that the services are more innovative than previously considered. In some areas, such as knowledge-intensive business services, they are even

²⁷⁶ Kahin (2004), p. 210

²⁷⁷ OECD (1998) p. 17

²⁷⁸ Tamura, Martinez, Kergroach (2005) p. 133

²⁷⁹ OECD (2000a) p. 29

more innovative than the manufacturing industry.²⁸⁰ Recently, the service sector firms start to employ the formal mechanism of intellectual property (IP) protection, such as patents, copyrights and trademarks to protect their invention from imitation. This is especially true in relation to software patents and “business methods” patents. However, as argued by the OECD publications, a host of innovative activity in services is organizational and disembodied in nature and thus, it is very hard to capture it by the standard measures of innovation.²⁸¹ Therefore, still most inventions in the services sector are not patented and thus, they are not accounted for by the patent data.²⁸²

Since the invention in the services sector is not well accounted for by the patent statistics, and since the services play a key role in the economy, the dissertation decided to employ some indicative measures of the magnitude and quality of the inventive activities that take place in the services sector.²⁸³

There is also an extra reason for which the dissertation considers it important to include the data on services sector into the analysis. The reason is that the services sector relies heavily on human capital in its innovative effort and the dissertation argues that the human capital is actually the channel through which ethnolinguistic diversity increases the level of innovation in the country. As stressed in the OECD publications, human capital is a pillar of the innovative process in the labor-intensive services sector. Furthermore, human capital appears to be more important for the innovative process in the services sector than it is in the manufacturing sector. According to the third European Community Innovation

²⁸⁰ Tamura, Martinez, Kergroach (2005) p. 134

²⁸¹ Tamura, Martinez, Kergroach (2005) p. 135

²⁸² OECD (2000a) p. 81

²⁸³ The necessity of using more indicative measures of inventions that take place in the services sector has been also stressed in the OECD publications (OECD, 2000a, p. 81). The dissertation will use the development of the services sector as an indicator of the inventive activities that take place in the services sector. The indicators of the development of the services sector will include: the Share of knowledge-intensive “market” services in total gross value added, the Contribution of the services sector to productivity growth and the Share of services in total value added.

Survey (CIS3),²⁸⁴ the share of employees with higher education is in general larger in market services than in manufacturing.²⁸⁵

Since the services sector relies heavily on human capital for its innovation process, then the impact of ethnolinguistic diversity should be especially evident in the development of the services sector. The dissertation argues that the ethnolinguistic diversity increases the creativity of the people, and thus the creativity of human capital. The effects of the increased creativity of the human capital then translate into higher levels of innovativeness in a country. Due to the above, the dissertation finds it crucial to include the data on the development of services sector into the analysis.

At the same time, the dissertation would like to include the data on the development of the manufacturing sector into the analysis. The data should be included for the purpose of testing the argument that the inventions in the manufacturing sector are much more “patentable” than the inventions in the services sector. If the argument has any basis, then we would expect countries with a stronger manufacturing sector to have a higher number of patents than the countries with a weaker manufacturing sector but with a stronger services sector. If the argument has no basis, then we would not expect any relationship between the development of the specific sectors of the economy and the number of patents.

The dissertation will use the data on the development of the services and the manufacturing sector, as well as the data on the patents, from the OECD database. As for the patent data, the dissertation will use the patent counts relative to the population of the country. In order to have the most comprehensive coverage of patent data, it will include

²⁸⁴ The Community Innovation Survey aims to gather information on business innovation across the European Union (EU) area. The results of CIS3 discussed in Tamura, Martinez, Kergroach (2005) p. 135

²⁸⁵ Tamura, Martinez, Kergroach (2005) pp. 133, 149

several categories of patent counts starting from the Triadic patent families,²⁸⁶ and going through the different groups of patent counts from the European Patent Office (EPO) and the US Patent & Trademark Office (USPTO).²⁸⁷ The EPO and USPTO patent counts will consist of the following categories: the patents as a whole, the Information and Communication Technology (ICT) patents and the Biotechnology patents.

As for the data on the development of the services sector, the dissertation will include the following indicators: the Share of knowledge-intensive “market” services in total gross value added, the Contribution of the services sector to productivity growth and the Share of services in total value added. The development of the manufacturing sector, on the other side, will be measured by the Share of high and medium-high technology manufactures in total gross value added and the Share of manufacturing in total value added.

The dissertation will moreover, include two other measures that intend to give an additional indication on the magnitude and quality of new knowledge created in the economy. Those measures include the Technology Balance of Payments (TBP) as % of GDP and the Contribution of ICT capital to GDP growth.

The Technology receipts and payments constitute the main form of disembodied technology diffusion,²⁸⁸ thus the Technology Balance of Payments (TBP) should be a good indicator of the inventions that take place not only in the manufacturing sector but also in the services sector (at least those related to technology). The TBP measures international technology transfers: license fees, patents, purchases and royalties paid, know-how, research

²⁸⁶ The indicator of Triadic patent families has been recently developed by the OECD in order to improve the quality and the international comparability of patent-based indicators. It was created in order to eliminate the “home advantage” bias and generally represent patents of high value. The Triadic patent families are defined as a set of patents taken at the European Patent Office (EPO), the Japanese Patent Office (JPO) and the US Patent & Trademark Office (USPTO) that share one or more priorities.

²⁸⁷ The reason why the dissertation will not include separate JPO counts of patents is because the OECD does not carry that type of data. The JPO counts are only included in the triadic patent families.

²⁸⁸ OECD (2005b) p. 154

and technical assistance. The trade in technology comprises of four main categories: transfer of techniques; transfer of design, trademarks and patterns; services with technical content; and industrial R&D.²⁸⁹ The fees associated with the technology transfers relate to production-ready technologies, thus the TBP is a good indicator of the quality of the inventions. It is also a good indicator of the magnitude of the new knowledge created in a country because it measures the amount of technology that is sold to other countries.

The Contribution of ICT capital to GDP growth is the last variable on the list of Creativity variables. The measure has been developed within the OECD framework.²⁹⁰ It uses a well-established growth accounting framework to assess the role of ICTs as capital inputs and the contribution of these capital inputs to output growth.²⁹¹ The dissertation argues that it is a good indicator of the creativity of a given country because it shows how creative the countries are in applying the new technology into productive uses.

It has been observed in the OECD publications that there are differences across countries concerning the contribution of ICT capital to GDP growth. While the investment in and the use of information technology have been widely spread among the OECD countries, some countries were much better in turning the new technology into productive uses than other countries. The dissertation argues that one of the reasons for it is the difference in creativity potential between countries. Some countries are simply more creative than others in finding productive applications of the new technology, and thus seizing the benefits of the new knowledge. As argued by the dissertation, the differences in creativity levels between countries are attributed to the differences in ethnolinguistic diversity existing

²⁸⁹ OECD (2005b) p. 154

²⁹⁰ Shreyer (2000), Colecchia & Shreyer (2002)

²⁹¹ Shreyer (2000) p. 3

in those countries, and countries with more diversity should be more creative in applying the new knowledge than countries which are less diverse.

To conclude, the dissertation has identified fifteen variables to measure the different dimensions of Creativity. The variables include: Relative prominence of cited scientific literature, Triadic patents per population, EPO patents per population, USPTO patents per population, ICT patents EPO per population, ICT patents USPTO per population, Biotech patents EPO per population, Biotech patents USPTO per population, Share of knowledge-intensive “market” services in total gross value added, Share of high and medium-high technology manufactures in total gross value added, Contribution of services in total value added, Share of manufacturing in total value added, Technology Balance of Payments (TBP) as % of GDP and the Contribution of ICT capital to GDP growth (in percentage points). All those variables are intended to provide an estimation of the creation of new knowledge in the society. *Annex A* lists all the variables, their respective STATA names and the years for which the data is reported.

14.1b. Openness to Change

The Openness to Change variable is intended to measure the openness of the society to new ideas and to new knowledge. Thus, the Openness to Change variable should measure the ability of a society to adapt to changing technological trends and to new technologies. Therefore, while the Creativity variable is intended to measure the creation of new knowledge, the Openness to Change variable is intended to measure the diffusion of new knowledge in the society.

The diffusion of new knowledge in the society is usually measured by the diffusion of Information and Communication Technology (ICT) in the economy. As argued in the OECD publications, the core indicator of ICT diffusion is the investment in ICT.²⁹² Thus, the dissertation will use the Investment in ICT as one of the indicators of knowledge diffusion. It will also add an extra variable related to ICT investment which is the Investment in Software. Both of those measures indicate how the society is adapting the new technology by investing in that new technology.

The other indicators which are widely used to measure the diffusion of ICT in the society are the indicators of Internet and Computer diffusion in the society. The ones which are the most commonly used are the Secure Servers, Internet Hosts and Internet Users. The dissertation will also add the indicator which measures the number of PCs (Personal Computers).²⁹³

All those indicators measure the uptake of the ICT technology in the society. The Secure Servers indicator measures the number of servers that use secure software for purchasing goods and services or transmitting privileged information over the Internet, e.g. credit cards details. Therefore, the Secure Servers have been widely used as the indicators of electronic commerce development.²⁹⁴ The Internet Hosts and Internet Users measure the internet penetration in the society, while the number of PCs indicator measures the spread of personal computers in the society.

As for Internet Hosts, a host is a domain name associated with an IP (Internet protocol) address. This includes any computer or device connected to the Internet *via* full-time or part-time, direct or dial-up connection. The hosts, however, are no longer necessarily

²⁹² OECD (2003) p. 20

²⁹³ All those Internet and Computer diffusion measures will be reported relative to the country population.

²⁹⁴ OECD (2000a) p. 71

individual devices as it used to be. Therefore, the host counts tend to be lower and should be seen as an indicator of the minimum size of the Internet. Still, the host counts are good indications of the extent of growth in Internet hosting activities.²⁹⁵

As for the Internet Users, the data is based on nationally reported data on internet users. The data has been gathered from national surveys, or if the country does not have surveys, from the reports of subscriber counts by the Internet Service Providers. As for the number of PCs, the data shows the estimated number of Personal Computers. The figures for PCs come from the annual questionnaire supplemented by other sources.²⁹⁶ The measure of Internet Users and the number of PCs are further good indicators of the extent to which the new technology is adopted by the society.

To conclude, the dissertation has identified six variables to measure the Openness to Change of different countries. The variables indicate the extent of the diffusion of new knowledge in the society and they include the following: Investment in ICT as % of gross fixed capital formation, Software Investment as % of non-residential gross fixed capital formation, Secure Servers per 100 000 inhabitants, Internet Hosts per 100 inhabitants, Internet Users per 100 inhabitants and PCs per 100 inhabitants. All those variables are intended to provide estimations of the diffusion of the new knowledge in the society and thus, the openness of the society to new knowledge and to changes in technological trends. *Annex A* lists all the variables, their respective STATA names and the years for which the data is reported.

²⁹⁵ OECD (2005b) p. 98

²⁹⁶ ITU Technical Notes, <http://www.itu.int/ITU-D/ict>

14.1c. Innovation

The Innovation variable is intended to measure the innovativeness of countries. Since the concept of innovation is three-dimensional, as previously argued by the dissertation, then the Innovation variable should include all the three dimensions of Innovation which are the Creativity, Openness to Change and Entrepreneurship. However, because of the lack of comprehensive and comparable data on entrepreneurship, more specifically on the business start-ups, the Innovation variable will not cover the Entrepreneurship dimension. It will only include the Creativity and the Openness to Change dimensions of innovativeness. In order to encompass the two dimensions it will combine together all the measures of Creativity and Openness to Change, which have been identified by the dissertation. Then, a factor analysis will be conducted to establish whether those variables can be collapsed together to form one Innovation Scale, or if they have to be divided into several Innovation scales.

14.2. Measurement of Independent Variables

The dissertation will choose several variables to measure the ethnolinguistic diversity of countries. It will measure two dimensions of ethnolinguistic diversity which are the ‘older’ diversity coming from Old Ethnic Minorities and the ‘newer’ diversity coming from Immigration. For measuring the diversity coming from Old Ethnic Minorities it will rely on the data which has been previously used in the studies on the impact of ethnolinguistic diversity on economic growth. For the measuring the diversity coming from Immigration it will rely on the immigration data from the OECD database.

14.2a. Ethnolinguistic Diversity – Old Ethnic Minorities

The ethnic diversity coming from Old Ethnic Minorities intends to measure the ethnolinguistic fractionalization stemming from the existence of endogenous ethnic groups in the society. The dissertation will use two sources of data to measure it: the Ethnolinguistic Fractionalization Index (ELF) from the beginning of the 60s, and the more recent fractionalization indices developed by Alesina et. al.²⁹⁷

The index which has been most widely used in the linguistic and sociology literature to measure the ethnolinguistic diversity stemming from endogenous minorities is the Index of Ethnolinguistic Fractionalization referred to as ELF. The index is based on Soviet data collected in the early 1960s and published in the *Atlas Narodov Mira* (1964), and subsequently included in Taylor and Hudson's *Handbook of Political and Social Indicators* (1972).²⁹⁸

The ELF index has been compiled for 129 countries, and its broad coverage is one of the principal reasons why it has been used in the vast majority of cross-national quantitative analyses of the impact of ethnic diversity on economic growth.²⁹⁹ The ELF index makes the distinction between different ethnolinguistic groups on the basis of ethnic, linguistic and religious differences between those groups. It measures the probability that two randomly selected people from a given country will belong to different ethnolinguistic groups. The index is calculated using a simple Herfindahl concentration formula:

$$ELF = 1 - \sum_i s_i^2$$

The problem with the Herfindahl formula is that it does not account for the variations in the ethnic diversity of the countries. It does not distinguish between dominance

²⁹⁷ Alesina (2002)

²⁹⁸ The ELF index has some problems associated with it: first, the problems that stem from the underlying ethnographic data from which it is calculated, and second, the problems that arise from attempting to summarize a country's ethnic diversity with a single measure. For more on that topic see: Posner (2000)

²⁹⁹ Mauro (1995), Canning and Fay (1993), Easterly & Levine (1997), Collier (2001)

and fractionalization in ethnic diversity. For example, it gives the same score (0.5), to countries which have two big groups of equal size, and to countries which have three groups, containing two-thirds, one-sixth and one-sixth of the population, respectively. The different spread of ethnic diversity might have a different impact on innovativeness. Generally, we would expect higher fractionalization to be better for creativity because it would provide more diverse backgrounds and thus, more stimulation for diverse ideas. However, the scope of the dissertation is not to assess the impact of different types of ethnic diversity on innovativeness, but just to assess the impact of the existence of ethnic diversity on innovativeness. Therefore, it is justified to use the diversity data calculated with the Herfindahl index.

The second source of data that will be used by the dissertation to measure the ethnolinguistic diversity coming from Old Minorities comes from the publication of Alesina et. al, where the new measure of ethnic fractionalization has been developed. The researchers have created a New Measure of Ethnic Fractionalization to revisit the question of the impact of ethnic diversity on the quality of government and economic growth.³⁰⁰ They have developed three separate indices to measure the diversity of countries which include: linguistic fractionalization, religious fractionalization and ethnic fractionalization. Their main goal in gathering data on fractionalization was to clearly distinguish between ethnic, religious and linguistic heterogeneity, and to avoid lumping the data together into one “ethnolinguistic” variable, as it has been done for the ELF index.³⁰¹

Their data has been also computed using the Herfindahl concentration formula. Therefore, their new index measures the probability that two individuals in a given country will come from different ethnic, linguistic or religious groups. However, they apply that

³⁰⁰ Alesina et. al (2002)

³⁰¹ Alesina et. al (2002) p. 4

formula to different underlying data. They use alternative sources of data such as the Encyclopedia Britannica (2001), CIA World Factbook (2000), Ethnologue Project, Levinson (1998) and the Minority Rights Group International (1997). Therefore, their data refers to a much more recent time than the ELF index.

Since Alesina et. al are using data from different sources, their index does not have the same year of reference. The time coverage varies from 1981 till 2001. However, the authors argue that it does not constitute a problem because “ethnic fractionalization displays tremendous time persistence”³⁰². They state that the group shares are sufficiently stable, especially within a 30-year horizon, and that the changes within that horizon have a minor impact on fractionalization measures.³⁰³

14.2b. Ethnolinguistic Diversity – Immigration

The ethnic diversity coming from Immigration intends to measure diversity that stems from more recent waves of immigration into the country. It intends to measure the ‘newer’ diversity present in the country. Since the measures of ethnolinguistic fractionalization do not take into account immigration, or take it into account only to a very limited extent,³⁰⁴ the dissertation would like to include into analysis separate measures of immigration. The measures will be taken from the OECD Immigration database.

³⁰² Alesina et. al (2002) p. 7

³⁰³ The dissertation would argue that the statement could be indeed true in case of endogenous groups; however it might not be true in case of immigration.

³⁰⁴ The measures of diversity based on endogenous groups either do not take into account immigration (ELF), or take it into account only in a very limited way (Alesina’s index). The reason why the Alesina index captures some of the diversity coming from immigration is that the data for that index has been collected from the last twenty or even ten years. Due to that, the New Measure of Ethnic Diversity includes some of the effects of immigration. However, the index does not make a distinction between the endogenous groups and the immigrants. For example in case of Switzerland, apart from the 4 big groups, the German, the French, the Italian, and the Romaine group, the rest is lumped into “Other Swiss”, without a distinction whether it is related to endogenous ethnic groups or immigrants.

The OECD Immigration database has been recently revised to make the data on immigration more comparable across countries.³⁰⁵ Before the revision, there has been a lack of comparability in the migration estimates due to the differences between countries in defining the “immigrant population”. The main settlement countries (Australia, Canada, New Zealand and the United States) report statistics on foreign-born (a criterion based on the place of birth), while the European and Asian OECD countries report statistics on foreigners (a criterion based on nationality).³⁰⁶

The foreign-born population covers persons who are first-generation migrants. They might have already acquired the citizenship of the new country of residence, but they are accounted for, in the statistics, as immigrants. Thus, the foreign born population consists of both foreign and national citizens. The foreign population, on the other hand, includes immigrants who have kept the nationality of their home country as well as second- and third-generation immigrants born in the host country.³⁰⁷ It does not account for immigrants who have already acquired a nationality of the new country. This distorts the data on immigration stocks especially for countries which have high rates of naturalization, such as Australia, Canada, the United States, the Netherlands and Sweden.

In order to make remove the problems of comparability in the immigration data between countries, the OECD has undertaken a project to harmonize the reported statistics on immigration. It launched a data collection across OECD countries that would incorporate the question on both the country of birth and the nationality of persons enumerated. The undertaking has resulted in a new database on immigrants in OECD countries which was first published in the year 2004. The new database is the first

³⁰⁵ OECD (2004b), Dumont & Lemaître (2005)

³⁰⁶ OECD (2004b) p. 16

³⁰⁷ OECD (2004b) p. 42

internationally comparable data set with detailed information on the foreign-born population for almost all OECD countries.³⁰⁸ The dissertation will rely on the new OECD data set to assess the size of immigrant populations in the OECD countries.

The dissertation will use three indicators to measure the level of immigration in the OECD countries. First, it will use the indicator which measures the Stocks of foreign-born population as % of total population.³⁰⁹ This indicator is intended to measure the size of the immigrant population in the respective countries. However, since the indicator is based on the data of foreign-born, it does not account for the immigrants which have been born already in the new country of residence, but still do not have the nationality of that country, so they still remain immigrants. In Europe and Asia, when the citizenship at birth is based on that of the parents (*jus sanguinis*), there might be still a big number of such immigrants. Therefore, in order to account also for those immigrants, the dissertation will use a second measure of immigration the indicator of Non-citizens as % of total population.³¹⁰ This indicator measures the number of immigrants which do not have the citizenship of the country of residence.

A third indicator, that will be used by the dissertation in relation to immigration, is the indicator that measures the Stocks of foreign or foreign-born labor force as % of total labor force.³¹¹ It measures the size of the labor force composed of foreigners and immigrants. The dissertation decided to include this measure into the analysis because it specifies how much of the immigrant population is actually employed in the labor force. Therefore, it indicates how big the impact of creative potential carried by the immigrants on the total labor force is. It is the workplace where the diverse individuals meet and interact

³⁰⁸ Dumont & Lemaître (2005) p. 4

³⁰⁹ OECD (2004b) p. 142

³¹⁰ OECD (2004b) p. 142

³¹¹ OECD (2004b) p. 59

with each other, and thus inspire each other's ideas and thoughts, and thus stimulate higher creativity.

To conclude, the dissertation has identified seven variables to measure the Ethnolinguistic Diversity of different countries. Four of those variables measure the ethnolinguistic fractionalization coming from Old Ethnolinguistic Minorities and they include the following: ELF (Ethnolinguistic Fractionalization Index), the Alesina Fractionalization Index on Ethnicity, the Alesina Fractionalization Index on Language, and the Alesina Fractionalization Index on Religion. The remaining three variables measure the ethnolinguistic diversity coming from Immigration and they include the following measures: Stocks of foreign-born population as % of total population, Non-citizens as % of total population and the Stocks of foreign or foreign-born labor force as % of total labor force. All those variables are intended to provide estimations of the extent of ethnolinguistic diversity, both 'old' and 'new', that is present in the different countries. *Annex A* lists all the variables, their respective STATA names and the years for which the data is reported.

14.3. Measurement of Intervening Variables

The dissertation has previously established that, out of all the elements of the right context, there are only two elements which can be measured in a quantitative way, and thus, can be directly incorporated into our analysis. Those elements include: the integration- and learning-perspective on diversity, and the growth- and innovation-focused strategy. The dissertation will identify several variables that intend to measure whether the country has an integration- and learning-perspective on diversity, and whether the country pursues a

growth- and innovation-focused strategy. For measuring both of those variables the dissertation will rely on the OECD data.

14.3a. Value in Diversity – Integration- and Learning-Perspective on Diversity

The integration- and learning-perspective on diversity is part of the Value in Diversity approach towards ethnolinguistic diversity. The countries which have an integration- and learning-perspective on diversity, perceive ethnolinguistic diversity as a potentially valuable resource which can be utilized by the society for its well-being. The perspective would be reflected in policies that aim at integrating diverse individuals into the society. It would be also reflected in actions that reveal that a country treats diversity as a learning resource. As previously identified by the dissertation, the integrative policies would consist of: inclusive citizenship laws, and multicultural policies. And the policies that reveal a learning approach towards diversity would include: openness towards high-skilled immigration, favorable conditions for labor market access for immigrants, and policies that allow for high social mobility of immigrants. Two of those policies, which are the multicultural policies and the policies that allow for high social mobility of immigrants, have to be left out from our analysis because they are very hard to measure in a quantitative way. For all the other policies the dissertation has found quantitative data which can be used in the analysis.

The inclusive citizenship law intends to measure whether the country promotes the acquisition of citizenship among immigrants. The dissertation has chosen two measures to assess the rate of acquisition of nationality in different countries. The two measures include:

the Naturalization/Acquisition of nationality as % of foreign population³¹², and the % of Foreign-born with the citizenship of country of residence³¹³. Both of those measures indicate the magnitude of naturalizations taking place in a given country, and thus, indicate the inclusiveness of the citizenship laws in different countries.

The openness towards high-skilled immigration intends to measure whether the country encourages high-skilled or low-skilled immigration. There are two indicators that will be used to assess the openness towards high-skilled immigration: the % of Highly-Skilled Foreign-born and Low % of Low-Skilled Foreign-born.³¹⁴ Those two measures give an indication of the shares of both the high-skilled and low-skilled immigration present in different countries.

In order to assess the favorable conditions for labor market access for immigrants the dissertation will choose two types of indicators: those that indicate low unemployment of Foreign-born, and those that indicate High Labor Participation Rate of Foreign-born. The low unemployment among immigrants will be measured by two indicators: Low % of Foreign-born Unemployment rate, and Small % Gap in unemployment between Foreign-born and Natives;³¹⁵ while the High Labor Participation Rate of Foreign-born will be assessed by two measures: the % of Foreign-born Labor Participation rate, and the Small % Gap in Foreign-born to Native-Labor Participation rate.³¹⁶ All of those measures indicate the participation of immigrants in the labor force and the differences in the labor participation

³¹² The statistics on the rates of Naturalization/Acquisition of nationality cover all means of acquiring the nationality of a country, except where otherwise indicated. The naturalization rate gives the number of persons acquiring the nationality of the country as a percentage of the stock of foreign population at the beginning of the year; OECD (2004b) p. 352

³¹³ OECD (2004b) p. 142

³¹⁴ High-skilled are those with “tertiary” education, and Low-skilled immigrants are those with “less than upper secondary” education; OECD (2004b) p. 145

³¹⁵ OECD (2004b) p. 90

³¹⁶ OECD (2004b) p. 90

between the immigrants and natives, therefore they assess the conditions for labor market access for immigrants existing in different countries.

14.3b. Growth and Innovation Focused Strategy

The Growth- and Innovation-Focused Strategy is intended to measure the extent to which a country pursues a strategy that encourages innovation and growth in the economy. As previously argued by the dissertation, a growth and innovation based strategy is present when a country pursues a strategy that aims at strengthening the competitiveness and the innovativeness of the economy. A good indication of the existence of a growth-focused strategy on a country level could be the existence of a good business climate and flexible labor markets, while a good indication of the existence of an innovation based strategy could be the level of spending on innovation.

The Growth-Focused Strategy will be measured by two types of variables: those that measure Competitive Business Climate, and those that measure Flexible Labor Markets. The competitiveness of the Business Climate will be measured by three indicators: Low Economic regulations in business, Low Administrative regulations in business,³¹⁷ and Low Barriers to Entrepreneurship.³¹⁸ The flexibility of Labor Markets will be measured by Low Level of Employment Protection Legislation (EPL).³¹⁹

The Innovation-Focused Strategy, on the other hand, will be measured by the level of spending on Research and Development. The dissertation will use an OECD indicator,

³¹⁷ The Administrative regulations include reporting, information and application procedures, and the burdens on business start-ups, implied by both economy-wide and sector-level requirements. The Economic regulations include all other domestic regulatory provisions affecting private governance and product market competition (such as state control and legal barriers to entry in competitive markets); OECD (2005e) p. 31

³¹⁸ OECD (2005e) p. 33

³¹⁹ Employment Protection Legislation (EPL) measures the restrictiveness of protection legislation on regular employment; OECD (2006) p. 149

which is the Gross domestic expenditure on R&D as % of GDP (GERD), to compare the level of R&D spending between different countries. GERD is defined as a total intramural expenditure on R&D performed on the national territory during a given period.³²⁰ As noted by the *OECD Frascati Manual*, GERD and the GERD matrix are the basis of international comparison of R&D expenditures.

To conclude, the dissertation has identified thirteen variables to measure the Right Context Intervening Variables. Eight of those variables measure the Value in Diversity approach and more specifically the existence of the Integration- and Learning-Perspective on Diversity in a given country. They include: Naturalization/Acquisition of Nationality as a percentage of Foreign Population, Percentage of Foreign-born with the citizenship of country of residence, Percentage of Highly-Skilled Foreign-born, Low percentage of Low-Skilled Foreign-born, Low percentage of Foreign-born Unemployment rate, Small percentage Gap in Unemployment between Foreign-born and Natives, Foreign-born Labor Participation rate, and Small percentage Gap in Labor Participation Rate between Foreign-born and Natives.

The remaining five variables measure Growth- and Innovation-Focused Strategy and they include the following measures: Low Economic regulations in business, Low Administrative regulations in business, Low Barriers to Entrepreneurship, Low Level of Employment Protection Legislation (EPL), and R&D Expenditure as % of GDP (GERD). All those variables are intended to provide an indication of the existence of the Right Context in different countries. *Annex A* lists all the variables, their respective STATA names and the years for which the data is reported.

³²⁰ GERD includes both the defense and civil spending on R&D; for more details on the definition of GERD see OECD (2002) p. 121

15. Factor Analysis - Creating Single Scales for the Variables

Having identified the list of variables,³²¹ the dissertation will conduct a Factor Analysis to assess whether it is possible to create single scales for each of the Dependent, Independent and Intervening variables. The aim of the factor analysis is to achieve data reduction and construct single scales which can be used in further analyses. The underlying idea of the factor analytic approach is the assumption that some underlying factors, which are smaller in number than the number of observed variables, are responsible for the covariation among the observed variables.³²² Conducting the factor analysis allows one to identify those common factors and to group the variables into separate single scales.

The first step of the factor analysis involves an examination of the interrelationships among the variables. For that purpose, a correlation matrix will be created and the correlations among the variables will be examined to determine whether there might be some underlying factors among the variables. If the correlation table indicates the existence of common factors then the factor analysis will be conducted to identify those factors and to distinguish which variables are associated with which factors. Finally, the variables that compose each of the factors will be grouped into single scales and used as the Dependent, Independent and Intervening variables in the regression analysis.

³²¹ See *Annex A*

³²² Kim & Mueller (1978) p. 13

15.1. Creating Scales for Dependent Variables

15.1a. Creativity Factor Analysis

A correlation matrix of the Creativity variables has revealed that there are many high correlations between the variables indicating that there could be some underlying factors present among the variables. A Principal Components Factor Analysis that was performed on those variables has determined that there are two underlying factors among the Creativity variables. The factors have been identified based on the eigenvalues, scree chart, percent of variance explained, factor loadings, content validity and alpha reliability. A detailed summary of the correlations and the factor analysis is presented in *Annex B*. The table below shows the list of variables comprising of Factor 1 and Factor 2 for the Creativity factor analysis.

Table 1. Creativity - variables comprising of Factor 1 and Factor 2

| Factor 1 | Factor 2 |
|-------------------|------------------|
| 1 sC_triadic | 1 sC_citat_scien |
| 2 sC_EPO | 2 sC_BT_EPO |
| 3 sC_USPTO | 3 sC_BT_USPTO |
| 4 sC_ICT_EPO | 4 sC_serv_know |
| 5 sC_ICT_USPTO | 5 sC_serv_va |
| 6 sC_manuf_hmtech | 6 sC_techbal |
| 7 sC_manuf_va | 7 sC_ICT_contrib |

When examining the content of the two lists of variables, Factor 1 contains of variables that relate to the patents in general and to the ICT patents, as well as to the manufacturing sector. The factor analysis indicates that all the variables comprising of Factor 1 have very similar variation patterns. That implies that countries which have high levels of

patents in general and high levels of patents related to the ICT would also have large manufacturing sectors.

Factor 2, on the other hand, is composed of the variables associated with high level of scientific citations, Biotechnology patents, relatively large services sector, high technological balance and a strong contribution of the ICT to productivity. Again, the factor analysis indicates that all those variables have similar variation patterns. That means that the countries which have high levels of biotechnology patents, relatively positive technology balance and high ICT contribution, also have a large services sector.

Given that the services sector development comes after the manufacturing sector development in the economic progress, thus, the countries with more developed services sectors can be considered as more *modern* in their development. And thus, the countries which have the manufacturing sector more developed can be considered as more *traditional* in their development.

At the same time the biotechnology patents are considered much more cutting edge technology than the general or the ICT patents.³²³ Thus, again, the countries which have relatively high levels of biotechnology patents can be considered as more modern in their focus. And the countries which have relatively high levels of general and ICT patents can be considered as relatively more traditional in their focus.

And finally, the countries with a relatively high technology balance and high ICT contribution to the productivity growth can be also considered as more modern in their technological development than the countries which have a low technology balance and

³²³ The ICT patents were still considered as cutting edge a couple of years ago, however now it is no longer the case because other more advanced technologies have appeared, such as biotech and nanotechnology, which took the cutting edge position away from the ICT. The same applies to the high- and medium-technology manufactures, which once were considered as distinctive of a country's advancement but not anymore because the real cutting edge progress is taking place in different sectors of the economy.

where the ICT has a low contribution to the productivity. A high technology balance entails that a country is successful in selling technology that it produces and that its technology is in high demand in other countries. Thus, it means that a country is more advanced in their technology production than the countries that have to buy the technology from it. Thus, it means that such a country is more modern oriented in their technology production than the countries which have to buy that technology.

As for the ICT contribution to the productivity growth, a country where the ICT has a relatively contribution to productivity growth can also be considered more advanced in their creativity than the country where the ICT contribution is relatively lower. Being able to reach higher productivity growth from ICT means that a country is more creative in using and applying the new knowledge, and such countries can be considered more modern in their approach than the countries which are not as good in finding creative usage for the new technology.

For all the reasons presented above, the factor scale created from Factor 1 will be called by the dissertation a Traditional Creativity Scale, and the factor scale created from Factor 2 will be called a Modern Creativity Scale. The scales will be formed by summing all the variables comprising of each factor in respect to every country.³²⁴ The following Table presents the two Scales and the variables that comprise of each of the scales.

³²⁴ The command used in the STATA program for summing the variables for the scales is *rmean*, the command sums the variables by taking an average.

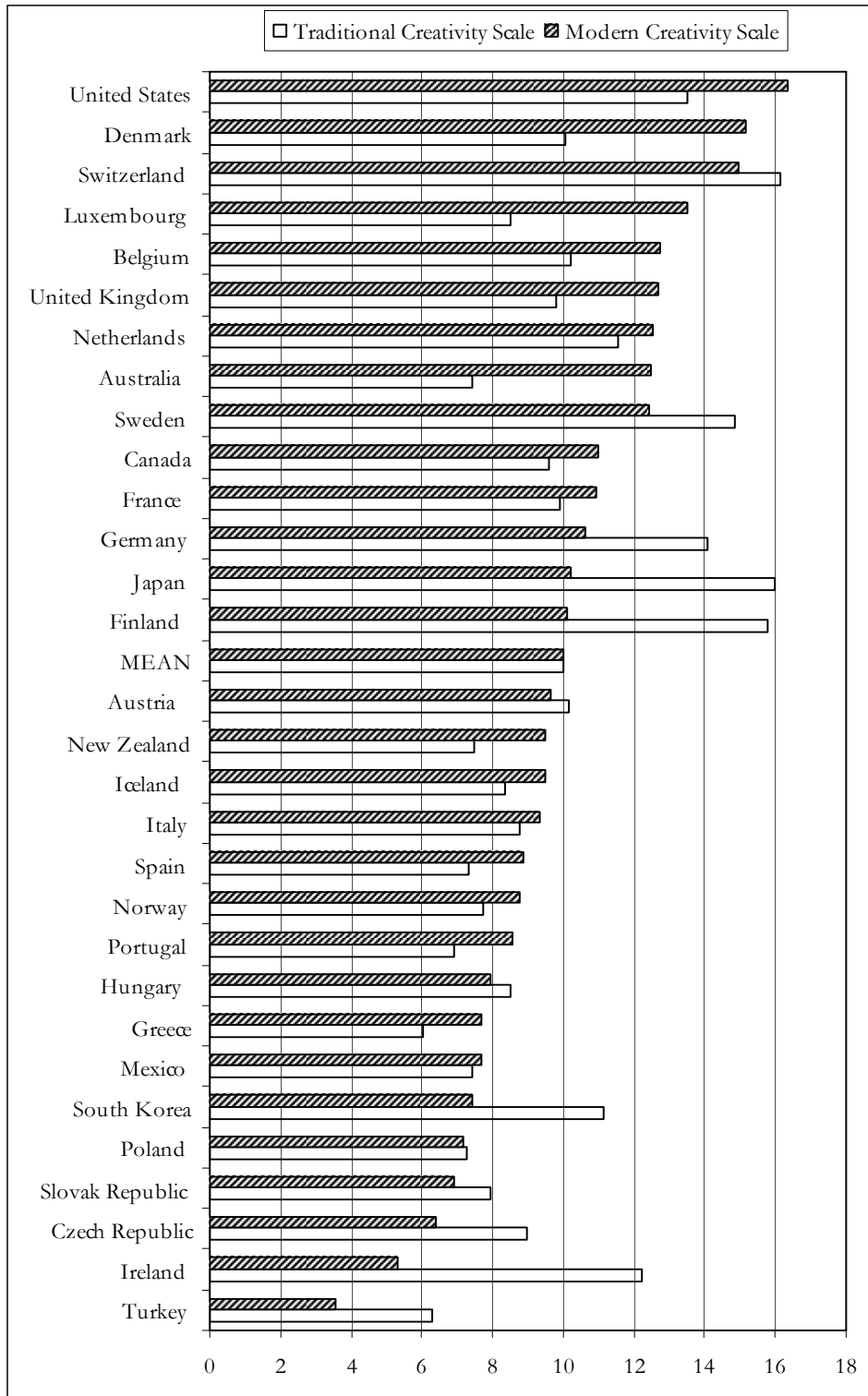
Table 2. Variables comprising of the Traditional Creativity Scale and Modern Creativity Scale

| Traditional Creativity Scale | | Modern Creativity Scale | |
|------------------------------|-----------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------|
| 1 | Triadic patents per population | 1 | Relative prominence of cited scientific literature |
| 2 | EPO patents per population | 2 | Biotech patents EPO per population |
| 3 | USPTO patents per population | 3 | Biotech patents USPTO per population |
| 4 | ICT patents EPO per population | 4 | Share of knowledge-intensive "market" services in total value added |
| 5 | ICT patents USPTO per population | 5 | Share of services in total value added |
| 6 | Share of high-and medium-technology manufactures in total value added | 6 | Technology balance of payments as % of GDP |
| 7 | Share of manufacturing in total value added | 7 | Contribution of ICT capital to GDP growth |

The Figure below presents the scores on the Traditional Creativity Scale and the Modern Creativity Scale for all the OECD countries.³²⁵ The countries which are the highest on the Traditional Creativity Scale are Switzerland, Japan, Finland, Sweden and Germany. And the countries with the highest scores on the Modern Creativity Scale are the USA, Denmark, Switzerland, Luxemburg and Belgium. Some of the countries, such as the USA, Switzerland, the Netherlands and Sweden are relatively high on both of the Scales. Other countries exhibit a strong preponderance on the side of the Traditional Creativity Scale, and those countries include Ireland, Japan, Finland, South Korea, Germany, Czech Republic and Sweden. There are also countries that exhibit a strong preponderance on the side of the Modern Creativity Scale and those countries include Denmark, Luxemburg, Australia, USA, UK, Belgium and New Zealand.

³²⁵ For the reason of comparability, and in order to avoid negative values, the two scales have been standardized so that the mean equals 10 and standard deviation equals 3.

Figure 1. Traditional Creativity Scale and Modern Creativity Scale



15.1b. Openness to Change Factor Analysis

The list of the Openness to Change Variables consists of six variables. A correlation matrix has revealed that there are many high correlations between the variables indicating that there could be some underlying factors present within the variables. A Principal Components Factor Analysis was performed on those variables to determine the common factors among the variables. A detailed summary of the correlations and the factor analysis is presented in *Annex C*.

The examination of the eigenvalues, scree chart, percent of variance explained, factor loadings, content validity and alpha reliability has shown that there is one underlying factor present among the Openness to Change variables. That means that all of the variables that have been chosen by the dissertation as the indicators of Openness show similar patterns of variation and thus, can be grouped into one single scale. The scale that will be created from those variables will be named the Openness Scale. The following table lists all the variables that are part of the Openness Scale:

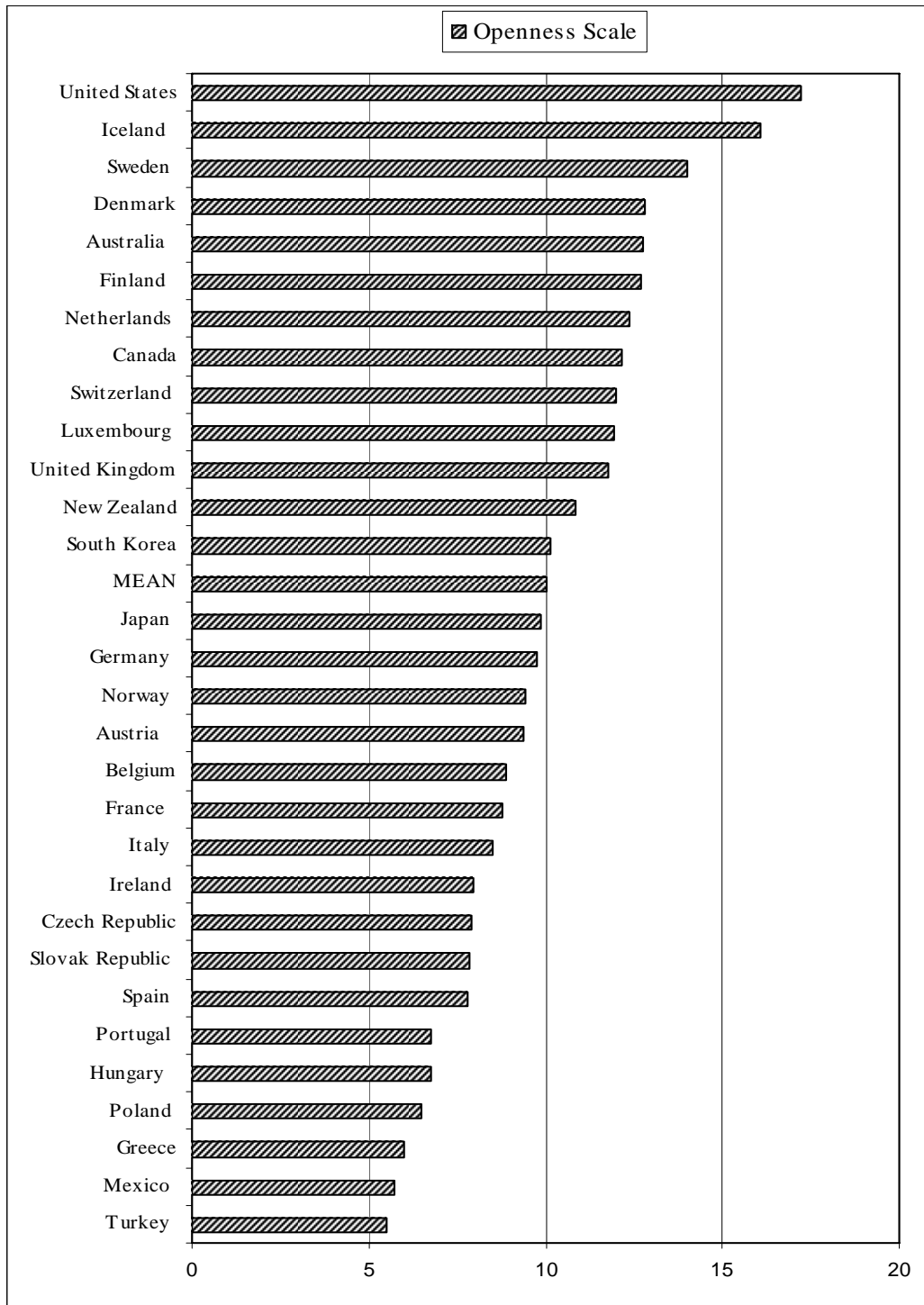
Table 3. Variables comprising of the Openness Scale

| Openness Scale | |
|----------------|---------------------------------------------------------------------------|
| 1 | Investment in ICT as % of gross fixed capital formation |
| 2 | Software Investment as % of non-residential gross fixed capital formation |
| 3 | Secure Servers per 100 000 inhabitants |
| 4 | Internet Hosts per 100 inhabitants |
| 5 | Internet Users per 100 inhabitants |
| 6 | Personal Computers per 100 inhabitants |

The Figure below presents the scores on the Openness Scale for all the OECD countries.³²⁶ The countries which are the highest on the Openness Scale are the United States, Iceland, Sweden, Denmark and Australia, while the lowest are Turkey, Mexico, Greece, Poland and Hungary.

³²⁶ For the reason of comparability, and in order to avoid negative values, the two scales have been standardized so that the mean equals 10 and standard deviation equals 3.

Figure 2. Openness Scale



15.1c. Innovation Factor Analysis

Since the dissertation argues that Creativity and Openness are the composites of a broader concept of Innovation, we would like to check whether there is a common factor among the Creativity and Openness Variables. If there is a common factor, then we could combine some of the Creativity and Openness variables, those which exhibit a common variance pattern, into a single scale called Innovation.

There are fifteen variables related to Creativity and six variables related to Openness. A Principal Components Factor Analysis that was performed on those variables has revealed that there are two meaningful underlying factors among the variables. The two common factors have been determined based on the Eigenvalues, scree chart, percent of variance explained, factor loadings, content validity and alpha reliability. A detailed summary of the correlations and the factor analysis is presented in *Annex D*. The table below shows the list of variables comprising of the Factor 1 and Factor 2 for the Innovation factor analysis.

Table 4. Innovation - variables comprising of Factor 1 and Factor 2

| Factor 1 | | Factor 2 | |
|----------|-----------------|----------|-----------------|
| 1 | sC_citat_scien | 1 | sC_triadic |
| 2 | sC_BT_EPO | 2 | sC_EPO |
| 3 | sC_BT_USPTO | 3 | sC_ICT_EPO |
| 4 | sC_serv_know | 4 | sC_ICT_USPTO |
| 5 | sC_serv_contrib | 5 | sC_manuf_hmtech |
| 6 | sC_serv_va | 6 | sC_manuf_va |
| 7 | sC_techbal | | |
| 8 | sC_ICT_contrib | | |
| 9 | sO_Inv_ICT | | |
| 10 | sO_Inv_Soft | | |
| 11 | sO_SecServ | | |
| 12 | sO_Hosts | | |
| 13 | sO_Users | | |
| 14 | sO_PCs | | |

When examining the content of the two factors we notice that all of the variables that are listed under Factor 1 are the variables that compose the Modern Creativity Scale³²⁷ and the Openness Scale. On the other hand, all of the variables listed under Factor 2 are the variables that compose the Traditional Creativity Scale. Such a turnout is consistent with our theory which states that Creativity and Openness are both part of a broader concept of Innovation. It is also consistent with our previous assertion that the Modern Creativity Scale, rather than the Traditional Creativity Scale, is a more appropriate measure of Creativity.

The turnout of the Innovation factor analysis supports our previous claim that the true spirit of creating novel ideas is better captured by the Modern Creativity Scale rather than by the Traditional Creativity Scale. The variables that compose the Modern Creativity Scale are better indicators of creativity because they relate to a more fore-front, novel and modern creativity than the variables comprising of the Traditional Creativity Scale. The factor analysis conducted on both the Creativity and Openness Variables has shown that the data supports such an assertion because there is indeed a strong underlying factor for all the Modern Creativity and Openness variables, while the Traditional Creativity variables are clustered under a separate factor.

The purpose of running the Innovation factor analysis was to see whether we can create an Innovation Scale which would combine some of the Creativity and Openness variables together. We have discovered that, not only some, but even all of the Modern Creativity and Openness Variables, share a common pattern of variance. Therefore, we can create a scale that combines all of the variables of the Modern Creativity Scale and the

³²⁷ There is one variable, sC_serv_contrib (Services contribution to productivity), which is not part of the Modern Creativity Scale, but it is a part of the Factor 1. The sC_serv_contrib variable was also on the list when we were conducting the factor analysis distinctively for the Creativity Variables. However, then the loading on that variable was too low to include it with the Factor which was later transformed into the Modern Creativity Scale. Now, when we conduct the analysis of both Creativity and Openness Variables together the sC_serv_contrib loads 0.5 on the first factor, which is just enough to include it with Factor 1. Also the alpha reliability score supports it.

Openness Scale together. We will name the scale an Innovation Scale.³²⁸ The following table presents the list of variables included in the Innovation Scale.

Table 5. Variables comprising of the Innovation Scale

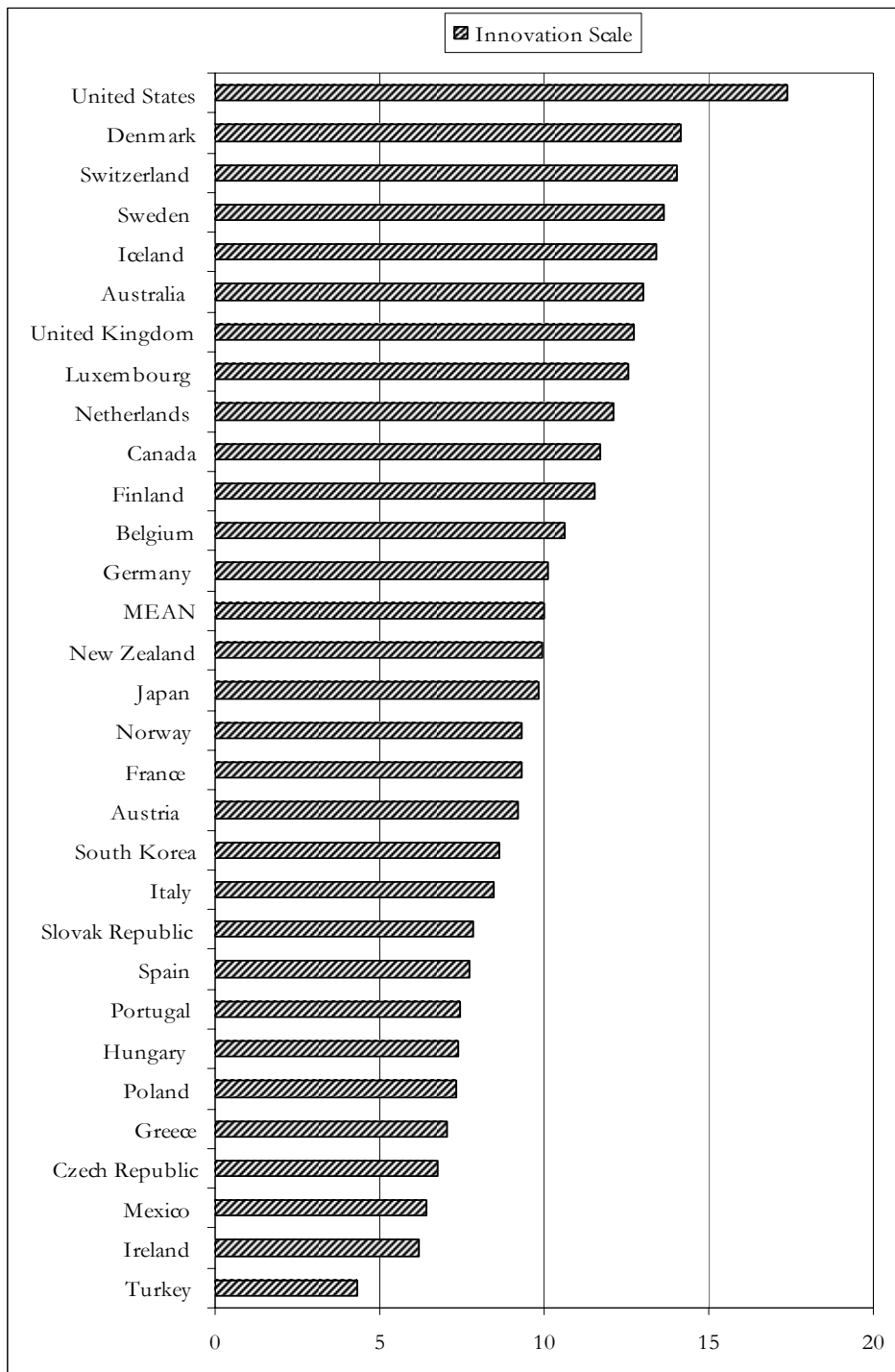
| Innovation Scale | |
|------------------|---------------------------------------------------------------------------|
| 1 | Relative prominence of cited scientific literature |
| 2 | Biotech patents EPO per population |
| 3 | Biotech patents USPTO per population |
| 4 | Share of knowledge-intensive "market" services in total value added |
| 5 | Contribution of the services sector to productivity growth |
| 6 | Share of services in total value added |
| 7 | Technology balance of payments as % of GDP |
| 8 | Contribution of ICT capital to GDP growth |
| 9 | Investment in ICT as % of gross fixed capital formation |
| 10 | Software Investment as % of non-residential gross fixed capital formation |
| 11 | Secure Servers per 100 000 inhabitants |
| 12 | Internet Hosts per 100 inhabitants |
| 13 | Internet Users per 100 inhabitants |
| 14 | Personal Computers per 100 inhabitants |

The Figure below presents the scores on the Innovation Scale for all the OECD countries.³²⁹ The countries which are the highest on the Innovation Scale are the United States, Denmark, Switzerland, Sweden and Iceland. The countries with the lowest scores on the Innovation scale are Turkey, Ireland, Mexico, the Czech Republic and Greece.

³²⁸ We will not create any scale out of the Factor 2 because, apart from one variable, all the variables are the same as in the Traditional Creativity Scale. Thus, creating a new scale would not add any explanatory value to our analysis.

³²⁹ For the reason of comparability, and in order to avoid negative values, the two scales have been standardized so that the mean equals 10 and standard deviation equals 3.

Figure 3. Innovation Scale



15.2. Creating Scales for Independent Variables

15.2a. Diversity Factor Analysis

Having constructed the scales for the Dependent variables, we turn our focus to the Independent variables, to see whether it is possible to construct scales for the Diversity variables. The list of the Diversity variables consists of seven variables. A correlation matrix has revealed that there are many high correlations between the variables indicating that there could be some underlying factors present within the variables.

A Principal Components Factor Analysis was performed on the Diversity variables. The examination of the Eigenvalues, scree chart, percent of variance explained, factor loadings, content validity and alpha reliability has revealed that there are two underlying factors among the variables. A detailed summary of the correlations and the factor analysis is presented in *Annex E*. The Table below shows the list of variables comprising the Factor 1 and Factor 2 for the Diversity factor analysis.

Table 6. Diversity - variables comprising of Factor 1 and Factor 2

| Factor 1 | Factor 2 |
|------------------------|--------------|
| 1 IMM_fborn_stock | 1 ELF |
| 2 IMM_noncitizens | 2 A_ethnic |
| 3 IMM_laborforce_stock | 3 A_language |
| | 4 A_religion |

When examining the content of the two lists of variables, Factor 1 contains the variables related to Immigration, while Factor 2 contains the variables related to endogenous diversity stemming from the existence of Old Minorities. Therefore, based on the Diversity factor analysis, the dissertation will create two separate scales. One of the scales will be the

Immigration Diversity Scale and the other one will be the Old Minorities Diversity Scale. The Immigration Diversity Scale indicates a country's immigration level, and thus, the level of diversity coming from recent immigration. The Old Minorities Diversity Scale, on the other hand, indicates a country's degree of cultural (ethnolinguistic and religious) fractionalization coming from the Old Minorities present in the country. The Table below presents the two Diversity scales and the list of variables comprising of each of the scales.

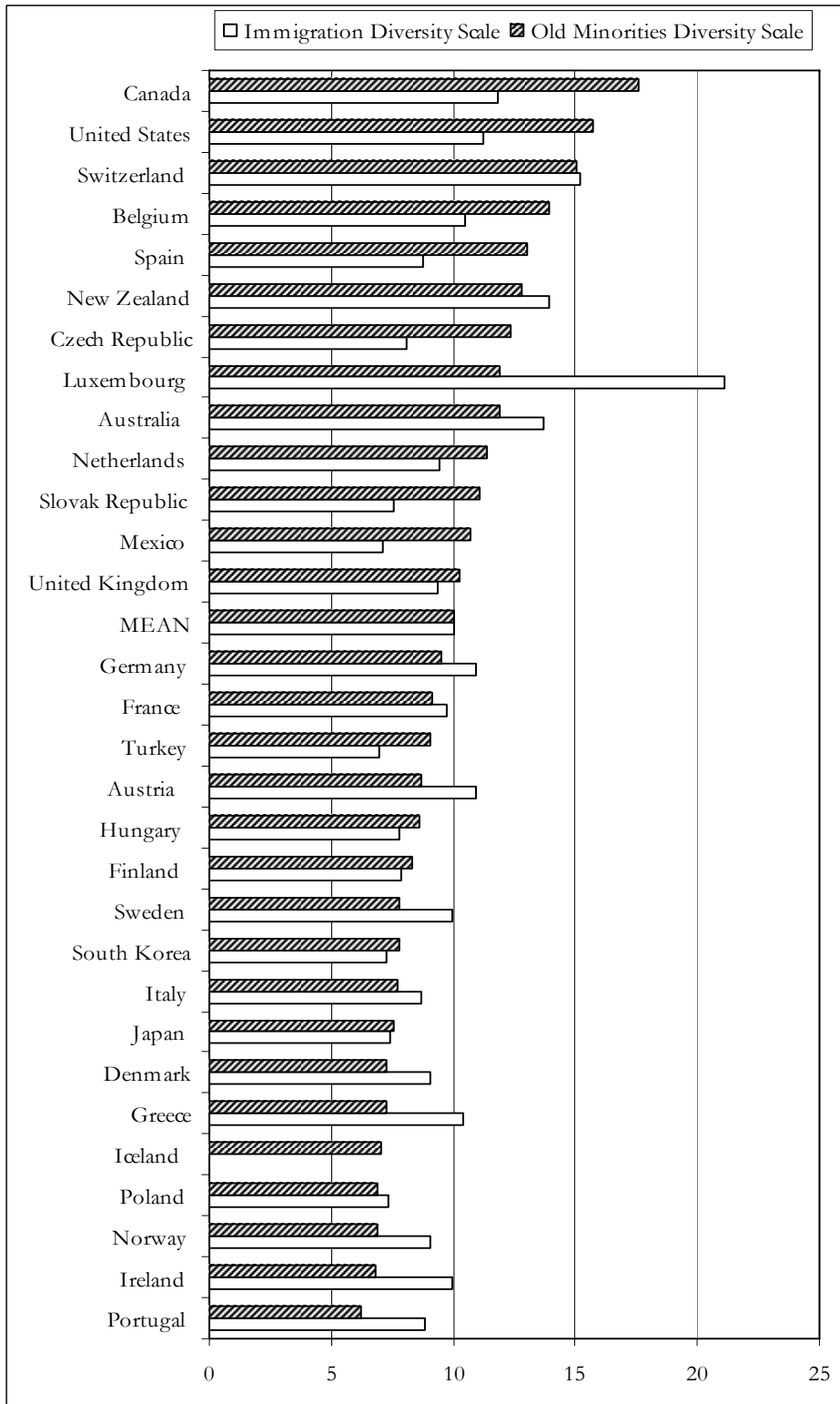
Table 7. Variables comprising of the Immigration Diversity Scale and Old Minorities Diversity Scale

| Immigration Diversity Scale | | Old Minorities Diversity Scale | |
|-----------------------------|-------------------------------------------------------------------------|--------------------------------|----------------------------------------------|
| 1 | Stocks of foreign-born population as % of total population | 1 | ELF Ethnolinguistic Fractionalization Index |
| 2 | Non-citizens as % of total population | 2 | Alesina's Ethnic Fractionalization Index |
| 3 | Stocks of foreign or foreign-born labor force as % of total labor force | 3 | Alesina's Linguistic Fractionalization Index |
| | | 4 | Alesina's Religious Fractionalization Index |

The Figure below presents the scores on the Old Minorities Diversity Scale and the Immigration Diversity Scale for all the OECD countries.³³⁰ The countries which are the highest on the Old Minorities Diversity Scale are Canada, USA, Switzerland, Belgium and Spain. And the countries with the highest scores on the Immigration Diversity Scale are Luxemburg, Switzerland, New Zealand, Australia and Canada.

³³⁰ For the reason of comparability, and in order to avoid negative values, the two scales have been standardized so that the mean equals 10 and standard deviation equals 3.

Figure 4. Old Minorities Diversity Scale and Immigration Diversity Scale



15.3. Creating Scales for Intervening Variables

15.3a. Right Context Factor Analysis

Having constructed the scales for the Independent and Dependent variables, we turn our focus to the Intervening variables, to see whether it is possible to construct scales for the Right Context variables. The list of the Right Context variables is composed of thirteen variables. A correlation matrix has revealed that there are many high correlations between the variables indicating that there could be some underlying factors present within those variables.

However, the correlation matrix has also revealed that there are too many missing values in the data set, to the extent that we can only retain 14 out of 30 observations for our Factor Analysis. Such a low number cannot be considered representative of the whole sample because it constitutes of less than half of the observations in the sample. Therefore, we decided to increase the number of observations in our analysis at least to 20 observations, which would constitute 2/3 of our sample, and thus, could be considered representative for the whole sample. In order to do so we decided to drop those variables from our analysis that have the highest number of missing values.

In result, we dropped four variables which had eight or more missing values. By dropping those variables we reached our goal of increasing the number of observations. We retained 21 out of 30 observations for our analysis, which constitutes more than 2/3 of the sample, and thus can be considered representative of the whole sample. Those dropped variables include: the Naturalization/Acquisition of Nationality as a percentage of Foreign Population, Percentage of Foreign-born with the citizenship of country of residence, Low

percentage of Foreign-born Unemployment rate, Small percentage Gap in Unemployment between Foreign-born and Natives.

After dropping four variables, we have nine Right Context variables left in our analysis. Those variables include: Percentage of Highly-Skilled Foreign-born, Low percentage of Low-Skilled Foreign-born, Foreign-born Labor Participation rate, and Small percentage Gap in Labor Participation Rate between Foreign-born and Natives, Low Economic regulations in business, Low Administrative regulations in business, Low Barriers to Entrepreneurship, Low Level of Employment Protection Legislation (EPL), and R&D Expenditure as % of GDP (GERD).

Having identified the final list of variables that will be used for the Right Context factor analysis, we conducted a Principal Factor Components Analysis to determine if there are any common factors among those variables. A detailed summary of the correlations and the factor analysis is presented in *Annex F*.

The rotated factor loadings indicated the existence of two factors. However, the alpha reliability score for the second factor was too low to create a reliable scale based on that factor.³³¹ Furthermore, there was a problem of too little variables loading on the second factor. There were only two variables that loaded on the second factor: Foreign-born Labor Participation Rate and Small percentage Gap in Labor Participation Rate between Foreign-born and Natives. This provided an additional reason why the second factor cannot be used as a scale in the analysis. Consequently, we had to drop the variables comprising of the second factor from further analysis.

In result, based on the Eigenvalues, scree chart, percent of variance explained, factor loadings, content validity and alpha reliability, we have identified one reliable common factor

³³¹ The alpha reliability score for the second factor was 0.73, while the required threshold is 0.8.

among the Right Context variables. The second factor had to be disregarded due to insufficient alpha reliability score. The table below shows the list of variables comprising of the first Factor.

Table 8. Right Context - variables comprising of Factor 1

| Factor 1 | |
|----------|--------------------|
| 1 | RC_HS_fb |
| 2 | RC_low_LS |
| 3 | RC_low_econ_busreg |
| 4 | RC_low_adm_busreg |
| 5 | RC_low_barr_entr |
| 6 | RC_low_ELP |

When examining the content of the list of variables comprising of Factor 1, most of the variables relate to the Growth Focused Strategy. There are two variables on the list of Factor 1, however, that have been categorized before as the indicators of perceiving Diversity as a Value. Those variables include: the Percentage of Highly-Skilled Foreign-born and a Low percentage of Low-Skilled Foreign-born. If the two variables have fallen into the same group with the Growth Focused Strategy Variables it means that they exhibit a common variation pattern. Therefore, we should consider if there is a way of looking at those variables as Growth Focused Strategy variables. We could actually argue that countries which invite more High-skilled immigrants and less Low-skilled immigrants are more growth- or competitiveness-focused because they invite highly skilled, talented foreigners to compete with the highly-skilled natives, and to contribute to the growth of the economy. Thus, welcoming high-skilled immigration does not only indicate that a country perceives diversity as a value, as it has been previously noted, but it also means that a country follows a Growth Focused Strategy in relation to its immigration policy. Therefore, we can consider

the two variables also as indicators of the Growth-Focused Strategy. Therefore, we can combine the variables comprising of factor one into a single scale and call it a Growth Focused Strategy Scale.

It is important to notice that there was one variable that did not load positively on any of the factors and that is the variable that indicates the levels of R&D Expenditure as % of GDP. This variable has been identified by the dissertation as an indicator of the Innovation-Focused Strategy. We would have expected it to show a common pattern of variance with the indicators of the Growth-Focused Strategy, but it did not. The factor analysis has revealed that the R&D Expenditure variable has a distinct character and that it captures different dimensions of the Right Context than the Growth-Focused Strategy variables. Since, from the theoretical perspective, we would be interested in exploring those distinct dimensions of the Innovation-Focused Strategy, then we would like to include the R&D Expenditure variable in further analysis. We would like to include it as a separate measure which denotes a country's focus on innovation. Thus, we will call it an Innovation Focused Strategy Measure and use it in our regression analysis together with the Scales that were created based on the factor analysis.

To summarize, due to the missing data, low reliability of Factor 2, and the fact that some of the Value in Diversity Variables showed a common variance patterns with the Growth Strategy Variables, we were not able to create a Scale for the Value in Diversity Variables.³³² Due to the missing data, from the outset, we had to drop four variables which

³³² When we tried to use one of the variables associated with Factor 2 separately, we have not achieved any meaningful results. Having examined the variables associated with Factor 2 we have noticed that they are not a good measure of the integration of immigrants to labor markets because they do not correspond to the judgments concerning the integration of immigrants existing in the literature of the subject. According to the RC_labpa_fb the top countries with the best integration practices for immigrants are Portugal, Switzerland and Spain; and according to RC_small_labpa_gap the top countries are Italy, Luxemburg, Greece, Spain and Portugal. On the contrary, the literature of the subject does not regard those countries as being very integrative towards immigrants (Kymlicka, 2003; Zachary, 2000).

were originally on our list. Those variables were the indicators of the Value in Diversity approach, and more specifically, of the Integration-and-Learning perspective on diversity. Unfortunately, those variables had too many missing values to reach a significant number of observations for our analysis. Thus, we had to drop them even though they were important for our analysis from the theoretical point of view. The other Value in Diversity variables, which remained for the analysis, did form a single Value in Diversity Scale because they either grouped together with the Growth-Focused Strategy variables, or they had very low alpha reliability scores. Consequently, we were not able to create a Value in Diversity Scale, which constitutes a drawback of the analysis.

In result, based on the Right Context factor analysis we have created two Measures which will be used in the regression analysis. One of those measures is a Scale created from the group of variables comprising of Factor 1. The scale is called a Growth Focused Strategy Scale and it indicates a country's focus on growth and competitiveness in the economy. The second measure is not a scale but it is an individual variable which measures a country's focus on Innovation, and it is called an Innovation Focused Strategy Measure. The following Table lists all the variables that are part of the two measures created as a result of the factor analysis.

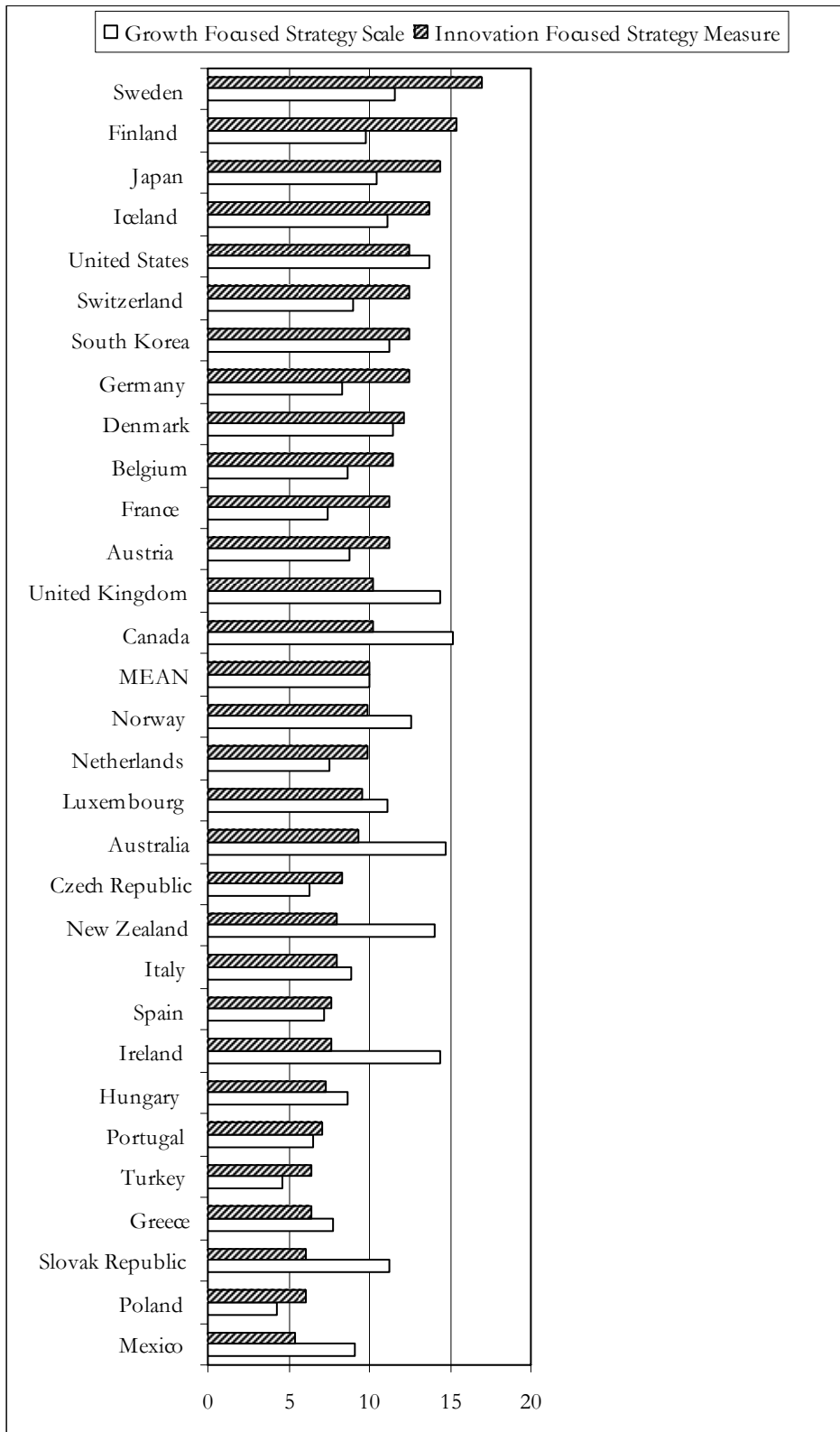
Table 9. Variables comprising of the Growth Focused Strategy Scale and the Innovation Focused Strategy Measure

| Growth Focused Strategy Scale | | Innovation Focused Strategy Measure | |
|-------------------------------|------------------------------------------------|-------------------------------------|-----------------------------|
| 1 | % of Highly-Skilled Foreign-born | 1 | R&D Expenditure as % of GDP |
| 2 | Low % of Low-Skilled Foreign-born | | |
| 3 | Low Economic Regulations in Business | | |
| 4 | Low Administrative Regulations in Business | | |
| 5 | Low Barriers to Entrepreneurship | | |
| 6 | Low Level of Employment Protection Legislation | | |

The Figure below presents the scores on the Innovation Focused Strategy Measure and the Growth Focused Strategy Scale for all the OECD countries.³³³ The countries which are the highest on the Innovation Focused Strategy Measure are Sweden, Finland, Japan, Iceland and the United States. And the countries with the highest scores on the Growth Focused Strategy Scale are Canada, Australia, Ireland, United Kingdom, and New Zealand.

³³³ For the reason of comparability, and in order to avoid negative values, the two scales have been standardized so that the mean equals 10 and standard deviation equals 3.

Figure 5. Innovation Focused Strategy Measure and Growth Focused Strategy Scale



15.4. Results of the Factor Analysis

As intended, the Factor Analysis has led to a significant data reduction and to the creation of single Scales, or Measures, for the Independent, Dependent and Intervening variables. Based on the factor analysis we have created the following Scales: Traditional Creativity Scale, Modern Creativity Scale, Openness Scale, Innovation Scale and Growth Focused Strategy Scale. In addition, we have identified a measure which is not a scale but a separate variable, which is the Innovation Focused Strategy Measure. All of the Scales and the one Measure will be used in the regression analysis.³³⁴ However, they will appear in the regression analysis with abbreviated names.

As for the Independent variables, the Traditional Creativity Scale will be denoted as *T_C* for *Traditional Creativity*, while the Modern Creativity Scale will be denoted as *C* for *Creativity*. The reason why the dissertation denotes the Modern Creativity Scale simply as *Creativity* is because according to the dissertation, it is the Modern Creativity Scale which is the right indicator of creativity. The variables that compose the Modern Creativity Scale are better indicators of creativity because they relate to a more fore-front and novel creativity, with a more modern focus, which is the focus on the services sectors rather than on the manufacturing sector.³³⁵ As for the other Scales related to the Independent variables, the Openness Scale will be denoted as *O* for *Openness*, and the Innovation Scale will be denoted as *I* for *Innovation*.

In relation to the Scales created for the Dependent variables, they will be denoted by the following abbreviations. The Old Minorities Diversity Scale will be represented by the

³³⁴ The Scales and the Measure have been standardized in order to allow for the comparability between them. They all have the mean of 10 and the standard deviation of 3.

³³⁵ This claim has been asserted by the Innovation Factor Analysis, where the Modern Creativity and Openness variables revealed a common pattern of variation, while the Traditional Creativity variables clustered under a separate factor.

abbreviation *Div* for *Diversity*, and the Immigration Diversity Scale will be denoted by the abbreviation *Imm* for *Immigration Diversity*. The reason why the dissertation calls the Old Minorities Diversity Scale simply as Diversity is because it is the Endogenous Diversity that has been used in previous studies to indicate the ethnolinguistic diversity of countries. The Immigration Diversity Scale constitutes an additional measure of ethnolinguistic diversity introduced by the dissertation. Thus, it is the Endogenous Diversity (*Div*) which will be treated by the dissertation as the main measure of diversity, while the Immigration Diversity measure (*Imm*) will be treated as an additional measure of diversity.

As for the Scales related to the Intervening variables, they will be represented in the regression analysis by the names which will have the Right Context (RC) abbreviation in front of the name. Thus, the Growth Focused Strategy will be denoted as *RCg* which means *Right Context - Growth Focused Strategy*, and the Innovation Focused Measure will be denoted as *RCi* which means *Right Context - Innovation Focused Strategy*.

The following Table presents the abbreviated names of the Scales and Measures that will be used in the regression analysis:

Table 10. Abbreviated Names for the Scales and Measures

| | |
|-------------------------------------|------------|
| Traditional Creativity Scale | <i>T_C</i> |
| Modern Creativity Scale | <i>C</i> |
| Openness Scale | <i>O</i> |
| Innovation Scale | <i>I</i> |
| Old Minorities Diversity Scale | <i>Div</i> |
| Immigration Diversity Scale | <i>Imm</i> |
| Growth Focused Strategy Scale | <i>RCg</i> |
| Innovation Focused Strategy Measure | <i>RCi</i> |

16. Regression Analysis - Testing the Hypothesis

Having identified the Scales and Measures that will be used as the Dependent, Independent and the Intervening variables, the dissertation will conduct a Regression Analysis to test the hypothesis posed by the dissertation. The aim of the regression analysis is to test whether indeed the relationship between diversity and innovativeness is a positive function of the right context.

We will use the two-step regression framework to test the hypothesis. The first regression will test the significance of the relationship between diversity and innovativeness without the right context in place. And the second regression, which is the crucial regression for testing the hypothesis, will test the significance of the relationship between diversity and innovativeness, but as a function of the right context.

We will run the regression for each of the Dependent variables which were identified by the factor analysis and which are the following: Traditional Creativity T_C , Creativity C , Openness O and Innovation I . Since we have created two Right Context measures through the factor analysis, we will run the regressions for both of the measures which are the Right Context - Growth Focused Strategy RCg , and the Right Context - Innovation Focused Strategy RCi . First, we will test the hypothesis when diversity is measured by the endogenous Diversity Div , and then when it is measured by the Immigration Diversity Imm . Based on the regression results, we will assess whether the hypothesis holds for any of the right context variables, and whether we can defend the claim that the relationship between diversity and innovativeness depends on the existence of the right context.

16.1. Traditional Creativity – Regression Results

The results of the regressions with the Traditional Creativity T_C as a dependent variable do not provide support for our hypothesis. In the first regression model the Diversity variable Div is not statistically significant (t-stat 0.53). That indicates that there is no significant relationship between Diversity and Traditional Creativity (Regression 1a). That is also true when we use the Immigration variable Imm as a measure of the ethnolinguistic diversity (Regression 1b). The following table presents the results of the first regression model for Traditional Creativity T_C as the Dependent Variable:

Table 11. Relationship between Diversity, Immigration and Traditional Creativity (Dependent Variable: Traditional Creativity T_C)

| Variable | 1a | 1b |
|----------------|----------------|----------------|
| Div | 0.09 (0.53) | |
| Imm | | 0.06 (0.34) |
| No. of observ. | 30 | 29 |
| Adj. R-squared | -0.03 | -0.03 |

Note:(t-stat in parentheses)

Since the results of the first regression have shown that there is no relationship between Diversity and Traditional Creativity, we have no basis for running the second regression, which would test whether the relationship between diversity and creativity is moderated by the existence of the right context. The results of the first regression indicate that there are no foundations in the claim that diversity might have a positive impact on creativity, at least not when creativity is measured by the Traditional Creativity variable.

16.2. Creativity – Regression Results

When we use the Modern Creativity Scale as the Dependent variable, which we simply call *Creativity*, the results of the regressions are diametrically different than the results for the Traditional Creativity variable. The Diversity variable *Div* already shows a positive significance in the first simple regression, which tests the impact of Diversity on Creativity, yet without the existence of the Right Context. The *Div* variable, in the first regression, is significant at the 0.05 significance level and has the anticipated positive sign. However, the model as a whole accounts only for 16% of the variance of Creativity (Adj. R^2 is 0.16), which is not a very satisfying amount. Still, the first regression provides some basis for the argument that ethnic diversity by itself has a positive impact on creativity, but the impact is not highly significant.

Such results of the first regression are in accordance with what we would have expected. As previously argued by the dissertation, due to the choice of the OECD countries as a sample, we should already expect diversity to have a positive and significant impact on creativity. The reason for it is because the OECD countries already fulfill one of the right context requirements, which is the existence of plural democracy. Since all of the countries in the analysis can be considered plural democracies, we would expect the relationship between diversity and creativity to already show some positive significance, as is the case.

Since the results of the first regression provide some basis for the claim that a positive relationship between diversity and creativity exists, we can run the second regression which tests the influence of the right context on that relationship. We start with the Growth Focused Strategy *RCg* as a measure of the Right Context. When the *Div* and *RCg* variables are combined in an interaction term and regressed together with *Div* on Creativity, none of the explanatory variables shows any significance (Table 12, Regression 2g). Similar results are

achieved when the Immigration Diversity *Imm* is used as the Independent variable (Table 13, Regression 2g).

Therefore, based on the results of the second regression, the Growth Focused Strategy, indicated by the *RCg* variable, cannot be considered as having a positive moderating effect on the relationship between diversity and creativity. The regressions conducted with the *RCg* variable do not provide support for our hypothesis that the right context has an enabling impact on the positive relationship between diversity and creativity.

However, the situation is entirely different when we use the Innovation Focused Strategy *RCi* as a measure of the Right Context. The results of the second regression (Table 12, Regression 2i) are striking in their support of our hypothesis. The interaction term of Diversity and the Right Context *DivRCi* has a positive sign and is highly significant ($p < 0.001$). Furthermore, the second regression has a very high coefficient of determination. The adjusted R^2 of the second model is 0.54, which signifies that more than half of the variance of Creativity *C* is explained by the model, which is a highly satisfying amount.

The results of the second regression also show that the regression coefficient on the Diversity variable *Div* is negative and not significant. Those results also support our hypothesis, which implies that Diversity would have either negative or insignificant impact on Creativity when the Right Context is not present. The coefficient on *Div* indicates the impact of Diversity on Creativity when *RCi* equals zero. Since the coefficient on *Div* is not significant and even negative, it means that without the existence of the Right Context, Diversity does not have positive effects on Creativity.

Therefore, the results of the second regression, when the Right Context is measured by the Innovation Focused Strategy *RCi*, provide a strong support for our hypothesis. They show that the higher the Right Context *RCi*, the more important Diversity *Div* becomes.

Furthermore, they indicate that if the Right Context RCi is not present, then Diversity loses its significance and its positive impact on Creativity. Thus, the results of the second regression show that the relationship between Diversity and Creativity is indeed a positive function of the Right Context, and that the relationship is highly significant. The following table presents the regression results for the Creativity variable C and the Diversity variable Div .

**Table 12. Relationship between Diversity and Creativity
(Dependent Variable: Creativity C)**

| Variable | RCg | | RCi |
|----------------|----------------|----------------|------------------|
| | 1 | 2g | 2i |
| Div | 0.43 (2.54) | 0.09 (0.36) | -0.27 (-1.44) |
| DivRCg | | 0.41 (1.48) | |
| DivRCi | | | 0.94 (4.91) |
| No. of observ. | 30 | 30 | 30 |
| Adj. R-squared | 0.16 | 0.19 | 0.54 |

Note:(t-stat in parentheses)

The results of the second regression, but with Immigration Diversity Imm as the Independent variable (Regressions 2i, Table 13), show the same pattern as the results with Diversity Div . The results of the first regression show that the relationship between Immigration Diversity Imm and Creativity C , yet without the right context, is even stronger and more significant than in case of Div . Furthermore, the second regression, with Immigration Diversity Imm as the Independent variable, explains 57% of the variance of Creativity. Finally, the interaction term $ImmRCi$ has the anticipated positive sign and is highly

significant at a 0.001 level. Therefore, the results of the regressions conducted with the *Imm* variable as the Independent variable reinforce the results of the previous regressions conducted with the *Div* variable, and also provide a strong support for our hypothesis. The following table presents the regression results for the Creativity variable *C* and the Immigration Diversity variable *Imm*:

Table 13. Relationship between Immigration Diversity and Creativity (Dependent Variable: Creativity C)

| Variable | RCg | | RCi |
|--------------------|----------------|----------------|------------------|
| | 1 | 2g | 2i |
| Imm | 0.54 (3.31) | 0.34 (1.14) | -0.15 (-0.76) |
| ImmRCg | | 0.24 (0.79) | |
| ImmRCi | | | 0.9 (4.49) |
| No of observations | 29 | 29 | 29 |
| Adj. R-squared | 0.26 | 0.25 | 0.57 |

Note:(t-stat in parentheses)

In conclusion, the regressions conducted with the Creativity variable *C* as the Dependent variable show that there are some strong foundations in the claim that the relationship between Diversity and Creativity is a function of the Right Context. The regression results with the Innovation Focused Strategy variable *RCi*, which is one of the two right context variables identified by the dissertation, provide a strong support for the hypothesis posed by the dissertation. At the same time, the regression results reveal that the Growth Focused Strategy, indicated by the *RCg* variable, cannot be considered as having a positive moderating effect on the relationship between Diversity and Creativity.

The results of the regressions with the Innovation Focused Strategy RCi as the Right Context variable show that increasing the levels of Innovation Focused Strategy significantly strengthens the positive impact of Diversity Div on Creativity C . Furthermore, the results demonstrate that not having the Innovation Focused Strategy nullifies the positive impact of Diversity on Creativity. The results are reinforced in the regressions conducted with Immigration Diversity Imm as the Independent variable. Thus, the regressions conducted with the Creativity variable C as the dependent variable provide a strong support for the hypothesis posed by the dissertation which states that the relationship between Diversity and Creativity is a positive function of the Right Context. The results of the regressions show that only in the presence of the Right Context can Ethnolinguistic Diversity lead to higher levels of Creativity.

16.3. Openness – Regression Results

The regressions conducted with the Openness variable O as the Dependent variable also provide support for our hypothesis. However, as shown in the first regression (Regression 1, Table 14), the relationship between Diversity Div and Openness O , seems to be weaker than the relationship between Div and Creativity C . When Div is a sole explanatory variable for Openness O , it is significant only at a 0.1 level, and the model as a whole accounts only for 6% of the variance of Openness O . Still, the results of the first regression provide some basis for the claim that there is a positive relationship between diversity and openness. Therefore, we run the second regression to test if the relationship is moderated by the existence of the right context variables.

This time, the regression results somewhat support the hypothesis in the case when the Right Context variable is indicated by the Growth Focused Strategy RCg . The interaction term $DivRCg$ has a positive sign, as anticipated by the hypothesis, and it is statistically significant (t-stat is 3.2). However, the overall explanatory power of the model is quite low (Adj. R^2 is 0.29), which means that the model explains less than 30% of the variance of Openness. That makes the results of the regressions with the Growth Focused Strategy pretty weak.

The regression results are much stronger in the case when the Right Context variable is indicated by the Innovation Focused Strategy RCi . The results of the second regression with the Openness variable O provide a strong support for our hypothesis, as it was the case with Creativity. The interaction term of Diversity and the Right Context $DivRCi$ has a positive sign and is highly significant (t-stat is 6.05), as anticipated by the hypothesis. The second model accounts for 59% of the variance (Adj. R^2 is 0.59), which is a very satisfying amount, and which makes the model a good explanation of the variance of Openness.

The second model also shows that when the Right Context variable RCi is at a zero level, then the impact of Diversity on Openness is negative and significant (t-stat equals -2.89). Those results are even stronger in their message, concerning the effect of diversity without the right context variable, than the results of the regressions with Creativity as the Dependent variable. In the regressions with the Creativity variable C , the lack of the Right Context made the Diversity variable simply insignificant. The regression results for the Openness variable, on the other hand, show that the relationship between Diversity and Openness, without the existence of the right context RCi is even negatively significant.

The regression results for both the Creativity and Openness variables are in accordance with the hypothesis posed by the dissertation, and in accordance with the claim

that Diversity may act as a double-edged sword. The implications of the hypothesis are that Diversity, when not accompanied by the Right Context, may have none, or even negative effects on the levels of innovativeness. The results for both Creativity and Openness, as the Dependent variables, demonstrated that there are some sound foundations in the claim that Diversity has a double-edged sword nature, and may have both positive and negative effects on innovativeness, depending on the existence of the Right Context. The following table presents the results for the Openness variable *O* and the Diversity variable *Div*:

**Table 14. Relationship between Diversity and Openness
(Dependent variable: Openness O)**

| Variable | RCg | | RCi |
|----------------|---------------|------------------|------------------|
| | 1 | 2g | 2i |
| Div | 0.3 (1.67) | -0.37 (-1.41) | -0.52 (-2.89) |
| DivRCg | | 0.83 (3.2) | |
| DivRCi | | | 1.09 (6.05) |
| No of observ. | 30 | 30 | 30 |
| Adj. R-squared | 0.06 | 0.29 | 0.59 |

Note:(t-stat in parentheses)

The results of the regressions with Openness *O* as the Dependent variable and *Div* as the Independent variable were reinforced in the regressions conducted with the Immigration Diversity *Imm* as the Independent variable (Table 15). Actually, the positive relationship between Openness *O* and the diversity coming from immigration *Imm* is even stronger and more significant (t-stat 2.5) than in case of Endogenous Diversity *Div*. The coefficient of determination (Adj. R²) for the first regression is also higher in case of *Imm* than in case of

Div and it equals 17% (Regression 1). As for the second regression, the results follow similar patterns as in the case of *Div*, and thus, also provide support for the hypothesis posed by the dissertation. The following table presents the results for the Openness variable *O* and the Immigration Diversity variable *Imm*:

Table 15. Relationship between Immigration Diversity and Openness (Dependent variable: Openness O)

| Variable | RCg | | RCi |
|----------------|----------------|------------------|-----------------|
| | 1 | 2g | 2i |
| Imm | 0.41 (2.58) | -0.22 (-0.86) | -0.34 (-1.9) |
| ImmRCg | | 0.76 (2.94) | |
| ImmRCi | | | 0.97 (5.44) |
| No of observ. | 29 | 29 | 29 |
| Adj. R-squared | 0.17 | 0.35 | 0.59 |

Note:(t-stat in parentheses)

To conclude, the results of the regressions conducted with the Openness variable *O* as the Dependent variable and the Innovation Focused Strategy *RCi* as the Right Context Intervening variable, provide strong support for our hypothesis which states that the relationship between Diversity and Openness is a positive function of the Right Context. The results of the second regression, which is the actual test of the hypothesis, show that Diversity *Div* matters more at higher levels of the Right Context variable. That means that for countries with higher levels of Innovation Focused Strategy *RCi*, Diversity would have a stronger and more significant positive impact on Openness than for countries which have lower levels of Innovation Focused Strategy *RCi*. Furthermore, the results of the second

regression show that Diversity can act as a double-edged sword and that, in the situation when the Right Context *RCi* is not present, Diversity *Div* has a negative effect on Openness, and that effect is significant.

The hypothesis is also somewhat supported in the case when the right context variable is indicated by the Growth Focused Strategy. However, due to the low coefficient of determination ($R^2 = 0.29$) the support is quite weak.

16.4. Innovation – Regression Results

As a final step in our regression analysis, we use the Innovation variable *I* as the Dependent variable, which combines both the Creativity and the Openness variables together and presents them as a single measure of Innovation. The results of the regressions with the Innovation variable *I* also provide support for our analysis. Again, the results point to the Innovation Focused Strategy *RCi* as the strongest moderator of the positive relationship between Diversity and Innovation. The Growth Focused Strategy *RCg* also appears as a moderator of that relationship, but the results are weak because the model with *RCg* explains only 30% of the variance of Innovation *I*.

The sole impact of Diversity *Div* on Innovation *I*, as presented in the first regression (Regression 1, Table 16), has the anticipated positive sign and it is statistically significant with t-statistics of 2.14. The coefficient of determination (Adj. R^2) of the first model, however, is very low and equals 11%. Still, the results of the first regression provide some basis for the claim that there is a positive relationship between diversity and openness. Therefore, we run the second regression to test whether the relationship might be conditioned by the existence of the right context variables.

The results of the second model, with the Innovation variable I as the Dependent variable, the Diversity variable Div as the Independent variable, and the Growth Focused Strategy variable RCg as the Intervening variable, provide some support for the hypothesis. The interaction term $DivRCg$ is positive and statistically significant (t-stat is 2.69), as anticipated by the hypothesis. However, the overall explanatory power of the model is pretty low (Adj. R2 is 0.27), which means that the model explains only a small portion of the variance of Innovation. Therefore, the results with the Growth Focused Strategy appear pretty weak.

The results of the second model become significantly stronger when the Innovation Focused Strategy RCi is used as the right context variable. In that case, the results provide a very strong support for the hypothesis posed by the dissertation. The coefficient of determination of the model is the highest among all the models that we have conducted in our analysis. The adjusted R^2 is 0.62 which means that the model explains 62% of the variance of Innovation. Furthermore, the statistical significance of the interaction term is very high, with t-statistics of 6.25, which again is the highest among all the models. Finally, the Diversity variable Div in the second regression (2i) has a negative sign and is statistically significant (t-stat is -2.54). That means that, when the Innovation Focused Strategy RCi is not present, then the relationship between Diversity Div and Innovation I is negative and statistically significant, which is in agreement with our hypothesis. The following table presents the results for the Innovation variable I and the Diversity variable Div :

**Table 16. Relationship between Diversity and Innovation
(Dependent variable: Innovation I)**

| Variable | RCg | | RCi |
|----------------|----------------|------------------|------------------|
| | 1 | 2g | 2i |
| Div | 0.37 (2.14) | -0.19 (-0.75) | -0.43 (-2.54) |
| DivRCg | | 0.71 (2.69) | |
| DivRCi | | | 1.08 (6.25) |
| No of observ. | 30 | 30 | 30 |
| Adj. R-squared | 0.11 | 0.27 | 0.62 |

Note:(t-stat in parentheses)

The results of the regressions with Innovation *I* as the Dependent variable and *Div* as the Independent variable are reinforced in the regressions conducted with Immigration Diversity *Imm* as the Independent variable (Table 17). The only difference appears in the second regression with *RCi*, where the Immigration Diversity variable *Imm* still shows a negative impact on Innovation *I*, but the impact is not statistically significant. That suggests that, in the case when the right context variable *RCi* is not present, Immigration Diversity *Imm* has an insignificant, rather than a negative, impact on Innovation *I*. The following table presents the results for the Innovation variable *I* and the Immigration Diversity variable *Imm*:

Table 17. Relationship between Immigration Diversity and Innovation (Dependent variable: Innovation I)

| Variable | RCg | | RCi |
|----------------|---------------|----------------|------------------|
| | 1 | 2g | 2i |
| Imm | 0.49 (3.0) | 0.01 (0.05) | -0.27 (-1.47) |
| ImmRCg | | 0.57 (2.01) | |
| ImmRCi | | | 0.98 (5.35) |
| No of observ. | 30 | 30 | 30 |
| Adj. R-squared | 0.22 | 0.30 | 0.62 |

Note:(t-stat in parentheses)

To conclude, the regression results with the Innovation variable *I* as the Dependent variable, the Diversity variable *Div* as the Independent variable, and the Innovation Focused Strategy *RCi* as the Intervening variable, provide a strong support for our hypothesis, which is in fact the strongest amongst all the regressions conducted by the dissertation. The hypothesis is also somewhat supported in the case of the Growth Focused Strategy *RCg*, but the results are considerably weaker, which makes them less credible.

The strongly significant regression results with the Innovation Focused Strategy *RCi* as the right context variable confirm that the relationship between Diversity and Innovation is indeed a positive function of the Right Context variable. The results show that the positive impact of Diversity on Innovation occurs only in the presence of the Right Context. If the right context is not present, the impact of Diversity is insignificant or even negative. Furthermore, the results of the regressions demonstrated that the positive effect of Diversity on Innovation increases together with the levels of the Right Context; the higher the Right Context, the stronger and more significant the impact of Diversity. Thus, the results show

that Diversity matters more at higher levels of the Innovation Focused Strategy RCi , and those results hold for both the Endogenous Diversity Div and the Immigration Diversity Imm .

17. Robustness of the Results

We have to consider an alternative explanation for our results because it is possible that there could be another influence that is driving our results. There is one obvious alternative influence that could be driving our results and that is the income level of countries.³³⁶ It is very probable that what we are really capturing in our results is not the relationship between innovativeness and diversity, but the relationship between innovativeness and income level. The innovativeness variables, in the way that we have measured them, may be more dependent on the level of per capita income of the country than on diversity, and the expenditure on R&D (our RCi) might be just a proxy for per capita income levels. It is very likely that the level of R&D spending (RCi) is strongly dependent on the level of per capita income. Therefore, the results of our regressions might

³³⁶ We have also empirically checked the impact of the right context variable RCi , as a separate explanatory variable, together with the Div variable, on the level of innovativeness. It was done in order to assess whether the inclusion of the RCi variable does not take away the significance of the Diversity variable. One possible explanation of the results of the second regression with the interaction term is that the RCi variable is so strongly related to the innovativeness variables that, no matter what we would interact it with, the interaction term would still show statistical significance. In order to contest such an explanation we have to show that the Diversity variable possesses a significant explanatory power on its own, which is not related to the RCi variable. If that is the case, then we can argue that the interaction term $DivRCi$ indeed reflects the combined effect of Div and RCi , and not only the overwhelming effect of RCi . The results of the regressions conducted with Div and RCi as the separate explanatory variables have shown that both of the variables constitute significant explanations for the variance of Creativity, Openness and Innovation. The same was in case when the Imm variable was used as a measure of diversity. Therefore, the results of the regressions conducted with RCi as a separate explanatory variable have shown that Div and Imm possess a significant explanatory power on their own, which is independent of the RCi variable. Thus, the results have provided support for the claim that the interaction term $DivRCi$ reflects the combined effects of Div and RCi , and not only the strong effect of RCi , on the level of innovativeness.

be actually capturing the relationship between innovativeness and income, and not between innovativeness and diversity moderated by the R&D spending (*RCi*).

In order to rule out such a possibility we have to control for the level of per capita income in our regressions. We have to test all the regressions that have provided support for the existence of the positive relationship between innovativeness and diversity moderated by the right context. We have to include the measure of per capita income, which we will call the Income variable *Inc*,³³⁷ into the respective regressions and see whether the relation of interest still holds. In order to do so we will apply the following regression model for all the relevant measures of innovativeness and diversity.³³⁸

$$I = \alpha_0 + \alpha_1 \text{Div} + \alpha_2 \text{Div RC} + \alpha_3 \text{Inc}$$

The results of the regressions with the Income variable (Table 18, 19), and the Innovation Focused Strategy (*RCi*), have shown that even when we control for the per capita income levels, the relationship between innovativeness and diversity is still a significant function of the right context variable, which is the Innovation Focused Strategy (*RCi*). The relationship of interest still holds for all the relevant measures of innovativeness, which are Creativity, Openness and Innovation, as well as for the two measures of diversity which are Diversity and Immigration Diversity.

For the regressions with Diversity as the Independent variable and Creativity as the Dependent variable, introducing the Income measure into the regressions decreases the

³³⁷ The Income variable *Inc* will be measured by GDP per capita in the year 2002. The measurement is based on the data from *OECD Factbook* (2005g).

³³⁸ Ideally, we should have also included a separate term for the right context variable RC. However it is not possible due to very high multicollinearity (for the models with the *Div* variable *vif* = 22; for the models with the *Imm* variable *vif* = 35).

significance of the interaction term $DivRCi$; however, the term still remains statistically significant at the 0.05 level. For the regressions with Diversity on one side, and the Openness and Innovation variables on the other side the interaction term $DivRCi$ remains even highly statistically significant at the 0.001 level. The Income variable Inc has a slightly weaker statistical significance than the interaction term $DivRCi$ in the case of the regressions with the Creativity variable, and is considerably weaker in the case of the regressions with the Openness and the Innovation variables. For all the regressions with Diversity, the introduction of the Income variable increases the overall explanatory power of the models in comparison to the previous models which did not include the Inc variable (for Creativity the Adj. R^2 is 0.63; for Openness the Adj. R^2 is 0.64; and for Innovation the Adj. R^2 is 0.69). The results of the regressions with Diversity also show that the Diversity variable, when not accompanied by the right context variable RCi , is either insignificant or negatively significant for the relationship between diversity and innovativeness. Those results are also in line with the previous results which did not include the Income variable. The following table presents the results of the regressions for Diversity as the Independent variable, and Creativity, Openness and Innovation as the Dependent variables:

Table 18. Relationship between Diversity and Innovativeness controlled for Income, with Innovation Focused Strategy RCi (Dependent Variables: Creativity C, Openness O and Innovation I)

| Variable | C | O | I |
|----------------|------------------|------------------|------------------|
| | 2a | 2b | 2c |
| Div | -0.12 (-0.64) | -0.40 (-2.24) | -0.30 (-1.84) |
| DivRCi | 0.61 (2.97) | 0.84 (4.11) | 0.80 (4.24) |
| Inc | 0.39 (2.8) | 0.30 (2.2) | 0.33 (2.57) |
| No. of observ. | 30 | 30 | 30 |
| Adj. R-squared | 0.63 | 0.64 | 0.69 |

Note: (t-stat in parentheses)

The results of the regressions with the Immigration Diversity *Imm* as the Independent variable, and the Innovation Focused Strategy (RCi) as the Intervening variable, also show that the relationship of interest still holds even when we control for the income level. For all of the different measures of innovativeness, the interaction term *ImmRCi* remains statistically significant at considerable levels. The introduction of the Income variable also increases the overall explanatory power of the models. However, what makes the results with the *Imm* variable different from the results with the *Div* variable is that the Income variable does not show statistical significance in the regressions with the Immigration variable. Furthermore, the Immigration variable actually increases its statistical significance in comparison to the previous regressions which do not include the Income variable. The following table presents the regression results for Diversity as the Independent variable, and Creativity, Openness and Innovation as the Dependent variables:

Table 19. Relationship between Immigration and Innovativeness controlled for Income, with Innovation Focused Strategy RCi (Dependent Variables: Creativity C, Openness O and Innovation I)

| Variable | C | O | I |
|----------------|------------------|------------------|------------------|
| | 2a | 2b | 2c |
| Imm | -0.22 (-1.08) | -0.41 (-2.33) | -0.33 (-1.79) |
| ImmRCi | 0.72 (3.10) | 0.78 (3.82) | 0.82 (3.83) |
| Inc | 0.29 (1.41) | 0.34 (1.77) | 0.27 (1.43) |
| No. of observ. | 29 | 29 | 29 |
| Adj. R-squared | 0.58 | 0.63 | 0.63 |

Note:(t-stat in parentheses)

The situation appears differently in the case of the Growth Focused Strategy RC_g as the right context variable. The introduction of the Income variable Inc increases the overall explanatory power of the models, but at the same time, it decreases the statistical significance of the interaction terms $DivRC_g$ and $ImmRC_g$. The Income variable Inc shows statistical significance in all the models, but only the interaction terms in the models with Openness O , as the Dependent variable, remain statistically significant. In the models with Openness O , the statistical significance of the interaction term $DivRC_g$ is just on the border line (t-stat is 1.97), and the statistical significance of the interaction term $ImmRC_g$ slightly decreases (t-stat is 2.24). Thus, in the case of the models with the Growth Focused Strategy RC_g as the right context variable, only the models with the Openness variable withstand the robustness test which controls for the income level. In the case of Innovation as the Dependent variable the models do not pass the robustness test. The following two tables (Table 20, 21) present the regression results for the models with the Growth Focused Strategy RC_g and the Income variable Inc .

Table 20. Relationship between Diversity and Innovativeness controlled for Income, with Growth Focused Strategy RCg (Dependent Variables: Creativity C, Openness O and Innovation I)

| Variable | C | O | I |
|----------------|------------------|------------------|------------------|
| | 2a | 2b | 2c |
| Div | 0.31 (1.41) | -0.19 (-0.87) | -0.01 (-0.04) |
| DivRCg | -0.02 (-0.12) | 0.48 (1.97) | 0.32 (1.35) |
| Inc | 0.63 (4.27) | 0.49 (3.27) | 0.55 (3.73) |
| No. of observ. | 30 | 30 | 30 |
| Adj. R-squared | 0.51 | 0.48 | 0.51 |

Note:(t-stat in parentheses)

Table 21. Relationship between Immigration and Innovativeness controlled for Income, with Innovation Focused Strategy RCg (Dependent Variables: Creativity C, Openness O and Innovation I)

| Variable | C | O | I |
|----------------|------------------|------------------|------------------|
| | 2a | 2b | 2c |
| Imm | 0.11 (0.42) | -0.42 (-1.80) | -0.19 (-0.73) |
| ImmRCg | -0.02 (-0.08) | 0.53 (2.24) | 0.33 (1.25) |
| Inc | 0.63 (2.97) | 0.55 (3.05) | 0.57 (2.83) |
| No. of observ. | 29 | 29 | 29 |
| Adj. R-squared | 0.43 | 0.51 | 0.45 |

Note: (t-stat in parentheses)

To conclude, we have considered the per capita income level as a competitive explanation for our results. We have shown empirically that the relationship of interest still holds in the case of the Innovation Focused Strategy RC_i as the right context variable, but it

does not hold in the case of the Growth Focused Strategy RC_g , except for the Openness variable. The results of the regressions with the Innovation Focused Strategy RC_i and with the Income variable Inc show that, even when we control for the income level, the relationship between diversity and innovativeness still remains a significant function of the right context variable. That is the case for all the different measures of innovativeness, which are Creativity, Openness and Innovation, as well as for the two measures of diversity, which are Diversity and Immigration Diversity.

The situation is different in relation to the Growth Focused Strategy RC_g as the right context variable. There, the introduction of the Income variable Inc decreases the statistical significance of the interaction terms for all the different measures of innovativeness, and only the interaction term in the model with the Openness variable remains statistically significant. Therefore, the results of the regressions with the Growth Focused Strategy RC_g , except for the models with the Openness variable, have not proven to be robust in relation to the per capita income level.

There are some other control variables that could be considered in future research because they might have an impact on the level of innovativeness of countries. The variables should include, for example, the level of education, the availability of finance and the ideological diversity existing in the country. One can easily imagine how those variables might have an impact on the creativity, flexibility and innovativeness of countries. The education level, the availability of finance, and the ideological diversity would most likely increase the level of innovativeness. However, in order to make the scope of the dissertation more manageable, those issues have to be left to further research.

PART FIVE: DISCUSSION OF THE RESULTS

18. Discussion of the Factor Analysis Results

The Factor Analysis has led to a significant data reduction and to the creation of reliable factor scales which were then explored in the regression analysis as the Independent, Dependent and Intervening variables.

The key finding of the Factor Analysis was that the Creativity variables did not form one scale, but they have separated between into two factors and formed two distinct single scales. The factor analysis has revealed that there is an evident divide between the Creativity variables, and one group of variables has a different pattern of variation than the other group of variables. That means that the variables refer to two different types of creativity which are distinct from one another.

The existence of two underlying factors among the Creativity variables has necessitated the creation of two Creativity scales. The examination of the content of the two scales has revealed that one of the scales is related to a more *traditional* type of creativity and the other one refers to a more *modern* type of creativity. The first scale, which was called the Traditional Creativity scale, focuses more on the developments in the 'old' sectors of the economy, while the other scale, which was called the Modern Creativity scale, focuses more on the developments in the 'new' sectors of the economy. The variables that comprise of the Traditional Creativity Scale refer to patents in general and to patents in the ICT sector, as well as to the development of the Manufacturing sector. On the other hand, the variables that compose the Modern Creativity Scale are related to Biotechnology patents, strong ICT

contribution to GDP growth, high Technology Balance of Payments and the development of the Services sector.

Research does not make the distinction between the two types of creativity. It uses mainly the patent counts as the indicators of the inventiveness of the society. However, the factor analysis has revealed that the patents are not very good measures of creativity because they only measure the Traditional creativity. The problem with using patents as the indicators of creativity lies in the fact that the patents do not actually measure the creativity that takes place in the whole economy, but they measure the creativity that takes place mainly in the manufacturing sector. The inventions that take place in the manufacturing sector are more tangible and thus, more easily captured by patents. The inventions in the services sectors, on the other hand, are intangible and disembodied and thus, most of the time, escape the standard measures of innovation. Hence, the patent counts are not good indicators of the inventions that occur in the services sector.

Therefore, the patents are not really a good indicator of the inventive activities that take place in the country because they do not account for the inventions that take place in the services sector, which is the key sector of the knowledge economy. The patents might have been a good indicator of the inventive activities taking place in the countries at the time of the industrial economy, when the manufacturing sector was still the key sector and accounted for a big share of the economy. Now, when the services sector dramatically increase their share in the economy and account for 70% of the economy of the developed countries, the patent counts lose their credibility as a measure of the inventiveness of countries.

Furthermore, the inventions that take place in the manufacturing sector, and which are accounted for by the patents, are not as fore-front and modern oriented as they used to

be when the manufacturing sector was “the” sector of the economy. Now, when the services sector is the “happening” sector of the economy, it is the inventions that take place in the services sector that are more fore-front and modern in orientation. The inventions which relate to more progressive sectors of the economy, which are now services, are more novel in their spirit than the inventions which relate to the older sectors of the economy, which is manufacturing. Therefore, the patent counts, which mainly measure the inventions that take place in the manufacturing sector, cannot be considered as a good indicator of the Creative Spirit of the society.

Therefore, it is the Modern Creativity Scale, rather than the Traditional Creativity Scale, which better captures the creative spirit of the country, and thus can be considered as the proper indicator of the Creativeness of countries. The Modern Creativity Scale measures the inventions that take place in the more progressive sectors of the economy, which are the services rather than the manufacturing. It measures the more fore-front and modern creativity which is related to the new sectors of the economy. Even when it includes the patent counts, the patents relate to the newest and the most recently developed sector of the economy which is the Biotechnology sector.

The validity of the Modern Creativity Scale as the proper measure for the Creativity of countries is also reinforced by the fact that two other measures, which measure the Creativity of countries in an alternative way, also load on the same factor as the other variables comprising the Modern Creativity Scale. Those measures include the Technology Balance of Payments and the ICT contribution to GDP. The Technology Balance of Payments measures the magnitude, and also the value of the new knowledge created in a country by counting the amount of technology that is actually sold to other countries. The ICT contribution to GDP, on the other hand, measures the contribution of the ICT

Investment to the GDP growth and thus, it is a good indicator of how creative the countries are in applying the new technology into productive uses.³³⁹ The fact that the two variables which measure the creativity of countries in an alternative way fall under the Modern Creativity Scale, and not under the Traditional Creativity Scale, further reinforces the validity of the Modern Creativity Scale as the right indicator for the Creativeness of countries.

Since the Modern Creativity Scale has emerged from the Factor Analysis as a more convincing measure of the Creativeness of countries, the dissertation decided to call the Modern Creativity Scale as a *Creativity* variable in the regression analysis, and to call the Traditional Creativity Scale as a *Traditional Creativity* variable in the regression analysis. The distinction between the two types of Creativity has appeared crucial for the analysis because the regression results showed that the hypothesized positive impact of ethnolinguistic diversity is only visible when creativity is measured by the Modern Creativity Scale, and not when it is measured by the Traditional Creativity Scale.

19. Discussion of the Regression Analysis Results

The results of the regression analysis conducted by the dissertation have shown that the alternative view in Political Economy, which regards ethnic diversity as a resource of creativity, is indeed supported by the data. The results have also shown that the findings of the organizational science, which talk about the positive impact of ethnolinguistic diversity on innovativeness in firms, are also valid on the level of countries. The results of the regression analysis have shown that the ethnolinguistic diversity can indeed be a resource of

³³⁹ It has been noticed that, while the investment in and the use of ICT has been widely spread among the OECD countries, some countries were much better in turning the new technology into productive uses than other countries were. The dissertation argues that one of the reasons for it is the difference in creativity potential between countries. Some countries are simply more creative than others in finding productive applications of the new technology, and thus seizing the benefits of the new knowledge.

creativity and innovation for countries. However, the results have also confirmed that the positive potential of diversity can be unleashed only in the presence of the right context.

The positive impact of diversity on innovativeness, moderated by the existence of the right context, has been shown in case of all the Independent variables except for the Traditional Creativity variable. In case of Traditional Creativity, the Diversity variable is not significant. The results of the first regression model show that there is no significant relationship between Diversity and Traditional Creativity. One of the reasons for that is because the Traditional Creativity, as argued before, does not seem to be a good indicator of the creativeness of countries. The Traditional Creativity indicates creativity which is related to the older sectors of the economy and therefore, does not really capture the creative spirit existing in the society. It is the Modern Creativity, denoted in the regression results simply as Creativity, which truly captures the creative spirit of the country. The Creativity variable measures the more fore-front and modern inventions that take place in the progressive sectors of the economy. Therefore, it is the Modern Creativity, denoted in the regressions as Creativity, which is a better indicator of the creativeness of countries. It is one of the reasons why diversity shows the positive impact on the Creativity variable, but not on the Traditional Creativity variable.

Another reason why there exists a significant relationship between Diversity and Creativity, but not between Diversity and Traditional Creativity, could be related to the differences in the innovation process between the services sectors and the manufacturing sectors. As explained before, the Creativity variable refers more to the creativity that takes place in the services sector, while the Traditional Creativity variable measures the inventions that take place in the manufacturing sector. There is a difference in the mechanism of new knowledge creation between the two sectors.

In the services sector human resources play a much more important role in the innovation process than in the manufacturing sector.³⁴⁰ In the services sector a lot of the novel ideas are related to the invention of new services and the improvement in the quality of the existing services and processes. A host of the innovative activities are more organizational and disembodied in nature, and they relate to organizational arrangements, changes in processes, and markets.³⁴¹ Compared to manufacturing, most inventions in services are non-technical and do not require much formal research and development.³⁴² The generation of new ideas in the services sector takes place in a much more informal setting and the human resources are the key element of the innovation efforts in the services sector. The innovation in services is more based on the knowledge of the area and a creative and adaptive approach towards the topic.

In the manufacturing sector, on the other hand, the generation of new ideas takes place in more structured and formal settings, and requires much more conventional research and development than is the case in the services sector. The novel ideas are mainly related to the invention of new products and to the improvement of the existing products and processes. The invention of a new product in the manufacturing sector often requires a specialized scientific knowledge. The new ideas are usually generated not by the different teams working in the company, but by a group of researchers, or even an individual researcher, specialized on the topic.

The fact that the creation of new knowledge in services is more dependent on human resources than it is in manufacturing constitutes an additional explanation why there is a positive and significant relationship between Diversity and the Creativity variable, but

³⁴⁰ Tamura S., Martinez C. & Kergroach S. (2005) p. 133, OECD (2005f) p. 17

³⁴¹ Tamura S., Martinez C. & Kergroach S. (2005) p. 135

³⁴² Tamura S., Martinez C. & Kergroach S. (2005) p. 134

not between Diversity and the Traditional Creativity variable. The dissertation argues that it is the human capital which is the actual channel through which ethnolinguistic diversity increases the level of innovation in the country. The interaction between people with diverse backgrounds stimulates greater creativity and increases the inventiveness of the human capital of the country. The effects of the increased creativity of the human capital then translate into higher levels of innovativeness for the whole economy. Since the services sector relies heavily on the human capital for its innovation process, the impact of ethnolinguistic diversity should then be especially evident in the development of the services sector. This constitutes an additional explanation for the regression results which assert the existence of a positive and significant relationship between Diversity and the Creativity variable, but not between Diversity and the Traditional Creativity variable.

The regression results for the Creativity, Openness and Innovation variables have demonstrated that there is indeed a positive relationship between diversity and innovativeness, but the relationship is only becomes really significant when it is moderated by the existence of the right context. The results of the regressions conducted by the dissertation have shown that ethnolinguistic diversity leads to higher levels of innovativeness only in the presence of the right context. Furthermore, the regression results have shown that if the right context is not present, then the impact of ethnolinguistic diversity is either insignificant or even negative.

It has been already observed by the scholars of the organizational sciences that diversity can have both a positive and negative impact, depending on the context in which it is placed. Based on the research conducted on the level of firms and organization, the scholars have argued that diversity has a double-edged sword nature, and that the effects of diversity are context specific. The results of our regressions have asserted that claim and

showed that, also on the level of countries, diversity exhibits a double-edged sword nature. The results of the cross-country regressions have shown that the Diversity variable accompanied by the Right Context variable has a much stronger positive effect on innovativeness than the Diversity variable just by itself. Furthermore, the regression results of the second regression, which is the actual test of the conditionality argument of the right context, revealed that, when diversity is not accompanied by the right context, it has an insignificant or even a negative effect on the innovativeness of countries.³⁴³

Therefore, the results of the regressions conducted by the dissertation have shown that the conditionality argument of the right context is valid not only on the level of firms, but also on the level of countries. The results of the regressions have persistently shown that, also on the level of countries, diversity has to be accompanied by the right context in order to have a positive impact on innovativeness. Especially the results of the second regression model, which is the actual test of the hypothesis posed by the dissertation, provided a strong support for the conditionality argument of the right context. The results of the second regression for the Creativity, Openness and Innovation variables have consistently shown that the relationship between diversity and innovativeness is a positive function of the right context, and that the relationship is statistically significant.

The regression results have mainly pointed to the Innovation Focused Strategy as the right context variable which acts as a moderator in the relationship between diversity and innovativeness. The Innovation Focused Strategy has proven consistently throughout the analysis to be the variable which conditions the positive impact of diversity. The conditioning effects of the Innovation Focused Strategy on diversity have been strongly

³⁴³ In relation to the Innovation Focused Strategy RC_i , which passes the robustness tests, the effects of ethnolinguistic diversity were insignificant in case of Creativity as the Independent variable, and negative in case of Openness and Innovation as the Independent variables.

supported by the regression results for all the innovativeness variables which include Creativity, Openness, and Innovation, as well as for both of the diversity variables which include Diversity, and Immigration Diversity.

The Innovation Focused Strategy indicates the extent to which a country emphasizes and focuses on innovation. The measure used by the dissertation to indicate the existence of the Innovation Focused Strategy on the level of countries is the R&D Expenditure. The Innovation Focused Strategy, denoted by the R&D spending, indicates whether a country engages in, and supports new ideas, novelty, experimentation and creative processes that might result in new products, services or technological processes.

The scholars of organizational science have argued that a strategic focus on innovation can allow the firm to exploit the resource of creativity which is embedded in the ethnolinguistic diversity.³⁴⁴ They argued that for a firm to take advantage of its resources, it must be in a position to exploit and benefit from them. According to them, having a strategy that emphasizes innovation can allow a firm to assume such a position and to exploit the benefits of ethnolinguistic diversity. The regressions conducted by the dissertation have shown that the assertion is also valid on the level of countries. The results of the regressions have shown that the more a country pursues an Innovation Focused Strategy, the more it benefits from a diverse workforce. Having a strategy which emphasizes innovation allows the country to orient itself in a way which enables the country to extract the resource of innovation embedded in the ethnolinguistic diversity. Therefore, the results of the regressions have revealed that the claim made by the scholars of organizational science in

³⁴⁴ Richard, McMillan, Chadwick & Dwyer (2003), p. 113

relation to firms,³⁴⁵ is also valid in relation to countries. Simply put, ethnolinguistic diversity is beneficial to innovators.

The other right context element, which, based on the analysis, can be considered as having a positive impact on the relationship between diversity and innovativeness is the plural democracy. The plural democracy has been accounted for in the analysis by the specific choice of the sample which included only those countries which can be considered, more or less, plural democracies. The sample was limited only to the OECD countries, in order to control for plural democracy. Therefore, the results of the regressions can be interpreted as valid only for plural democracies. Thus, the plural democracy emerges as another right context element which is necessary for the positive relationship between diversity and innovativeness to take place.

An additional confirmation for the moderating effect of plural democracy on the relationship between diversity and innovativeness has been provided by the results of the first regressions in the model. The results of the first regressions have shown that the relationship between diversity and innovativeness is already positive and somewhat significant, even when the other right context variables are not yet added to the equation. That means that for countries which are plural democracies diversity already exhibits some positive effects on innovativeness.

However, in order to directly check the conditionality argument of the right context in relation to plural democracy we would have to include into our analysis also those countries which are not plural democracies. We would have to use the democratic pluralism as one of the explanatory variables in the regressions. Then we would have to see whether the results of the second regression, with the democratic pluralism as the right context

³⁴⁵ Richard, McMillan, Chadwick & Dwyer (2003), p. 114

variable, provide any support for the conditionality argument of the right context. However, it is not within the scope of our dissertation and thus, has to be left for the consideration of future research.

The right context variable which, opposite to expectations, did not show a very strong moderating impact on the relationship between diversity and innovativeness is the Growth Focused Strategy. The results for the models with the Growth Focused Strategy variable were much weaker than the results with the Innovation Focused Strategy variable. In the case of the Openness and the Innovation variables, the Growth Focused Strategy showed some moderating effects on the relationship between diversity and innovativeness, but the model as a whole did not exhibit enough significance to make the results very plausible. Furthermore, the results, except the ones relating to the Openness variable, did not pass the robustness test which controlled for the income levels. Still, the results with the Growth Focused Strategy showed some statistical significance and therefore, they should not be completely discarded.

The reason why the Growth Focused Strategy did not show a strong moderating effect on the relationship between diversity and innovativeness might be related to the fact that the dissertation was not able to include the Entrepreneurship variable into the analysis as part of the concept of Innovation. Most of the Growth Focused Strategy variables are actually the facilitators of the good climate for entrepreneurship and they might not be as important for other elements of Innovation such as Creativity and Openness, as they might be for the Entrepreneurship variable. Therefore, the fact that we have not been able to directly account in our analysis for the Entrepreneurship part of Innovation might be the reason why the Growth Focused Strategy does not prove itself to be one of the right context variables in our analysis. The future research should assess whether the significance of the

Growth Focused Strategy as the conditioning right context variable would increase when we add the Entrepreneurship variable into our analysis.

The inclusion of the Entrepreneurship variable into the analysis in the future research would be also important from the perspective of making the analysis more complete. As we have argued in the theoretical part of the dissertation, the Entrepreneurship constitutes an important part of the innovation process. We have not been able to include it directly into our analysis as a separate explanatory variable due to the lack of comparable data. However, whenever the comparable data becomes available, the Entrepreneurship variable should be included into the analysis. Including the Entrepreneurship variable as part of the innovation process would make the analysis of the impact of diversity on innovativeness more comprehensive.

There are also other variables which have been left out from the quantitative analysis and, if possible, should be considered in the future research. The dissertation had to omit many of the right context variables either due to data missingness or the lack of quantitative measures for those variables. The dissertation had to exclude the variables indicating the existence of the Integration- and Learning-Perspective on Diversity because too many observations were missing from the data. The dissertation was also not able to incorporate into the quantitative analysis those elements of the right context which are more qualitative in nature. Those elements include the different aspects of the Value in Diversity approach, and the Interaction between Diverse Individuals. It has to be left for the future research to evaluate, either in a quantitative or qualitative way, the impact of those elements of the right context on the relationship between diversity and innovativeness.

In conclusion, the results of the analysis supported the hypothesis posed by the dissertation which states that in the presence of the right context, the ethnolinguistic

diversity leads to higher levels of innovativeness. The results have shown that ethnolinguistic diversity, accompanied by the right context, leads to higher levels of Creativity, Openness and Innovation. The results have revealed that countries which are more ethnically diverse are more creative and more open to change, and thus more innovative. The results have provided support for the claim that a culturally diverse workforce is more adaptive to changes and it is more likely to produce a variety of ideas and novel approaches and a more exhaustive list of possible alternatives to solve problems.³⁴⁶ The results of the regressions conducted by the dissertation have proven that, not only on the level of firms, but also on the level of countries the ethnolinguistic diversity, when set in the right context, leads to economic benefits which stem from higher creativity, openness, and innovativeness.³⁴⁷

Furthermore, the results of the regressions have shown that the economic benefits of increased innovativeness that come from diversity are related to both endogenous diversity and the diversity which comes from immigration. The results of the regressions with the Immigration as the Independent variable have shown a very similar pattern as the results of the regressions conducted with the Diversity variable. The results have shown that diversity coming from immigration, when set in the right context, also increases the creativity, openness and innovativeness of countries. That implies that the source of ethnolinguistic diversity is not relevant for the positive effects of diversity to take place. It is the fact of having diversity which increases the levels of creativity, openness and innovativeness in the

³⁴⁶ Bantel & Jackson (1989), Carrell et al. (2000)

³⁴⁷ We have considered the per capita income level as a competitive explanation for our results and we have shown empirically that it does not impact our results in the case of the models with the Innovation Focused Strategy RC_i , which provide the main support for our hypothesis. The results of the regressions with the Income variable have shown that, even when we control for the income level, the relationship between diversity and innovativeness still remains a significant function of the right context variable which is the Innovation Focused Strategy RC_i .

countries. Therefore, the results of the regressions conducted by the dissertation have shown that it is not the type of diversity, but the diversity itself which is important for innovation.

20. Implications of Research

The main implication of the research conducted by the dissertation is that countries which fulfill the requirements of plural democracy and an innovation focused strategy will seize economic benefits from ethnolinguistic diversity. For those countries the ethnolinguistic diversity will constitute not just a potential, but a real economic advantage. The economic benefit of ethnolinguistic diversity stems from increased creativity and openness to change, which is stimulated by the interaction between people with different cultural origins. The interaction between people of different cultural background breeds creativity, broadens knowledge and perspectives. That, in turn, increases the openness to new ideas, to change, and to dialogue. The results of the regressions conducted by the dissertation have shown that the hypothesized positive effects of ethnolinguistic diversity become real for countries which are plural democracies and which are focused on innovation.

The results of the analysis also imply that, in the group of countries which are plural democracies, and which have a high spending on innovation, the countries which will be more successful innovators are those which are more ethnolinguistically heterogenous. Thus, at a certain level of development, having ethnolinguistic diversity provides a competitive advantage to countries, and not having it constitutes a disadvantage. Once the countries reach a certain level of development, the more homogenous countries will be disadvantaged towards the more heterogenous countries in terms of innovation. The more homogenous

countries will be in a shortage of the resource for creativity, openness and innovation, which is provided by the ethnolinguistic diversity. Thus, despite the high spending on innovation, they will not be able to reach as good results in innovation as those countries which have a high innovation spending but also have high levels of ethnolinguistic diversity.

A further implication of the results of the analysis is that the countries which are ethnically heterogeneous, but do not have the right context in place will rather not experience the positive effects of diversity. For those countries which do not have the right context in place, diversity may have no significant impact or even a negative one on the levels of innovativeness in the economy. The dissertation argues that the absence of the right context is the reason why many of the cross-country studies point to the negative effects of ethnic diversity on the economy.³⁴⁸ The results of the regressions conducted by the dissertation have shown that, if the right context is added to the equation, ethnic diversity will bring economic benefits to countries which possess it.

At the moment, the positive effects of ethnolinguistic diversity can be realized only in a small number of countries in the world, because still most of the countries do not have the right context in place. However, in the future, as more countries become plural democracies and increase their focus on innovation, the number of countries for which ethnolinguistic diversity will constitute a real economic benefit will increase. Thus, the positive impact of ethnolinguistic diversity, which currently can be observed in the OECD countries, in the future should be observed in a growing number of countries. Therefore, as the countries become more democratized and more focused on innovation, ethnic diversity, as a reservoir of creativity and flexibility, can constitute an important source of economic growth and thus, can contribute to increasing the welfare of the world.

³⁴⁸ Easterly & Levin (1997), La Porta, Lopez de Silanes, Shleifer & Vishny (1999), Alesina & Spolaore (2003), Alesina, Spolaore & Wacziarg (January 2003)

PART SIX: CONCLUSIONS

21. Summary of Research Conclusions

The objective of the dissertation was to examine the proposition put forward by the alternative view in the field of International Political Economy, which states that ethnic diversity can constitute an economic benefit for countries. The dissertation wanted to examine the proposition within the context of the advanced economies and see to what extent the argument is actually supported by the data. In order to meet its objective, the dissertation has conducted a quantitative analysis on the sample of the OECD countries, which concerned the relationship between ethnolinguistic diversity and economic outcomes, and more specifically, the relationship between ethnolinguistic diversity and the level of innovativeness of countries.

The dissertation stated the hypothesis that, in the presence of the right context, ethnolinguistic diversity leads to higher levels of innovativeness and thus, constitutes an economic benefit for countries. The results of the cross-country regressions conducted by the dissertation have supported the hypothesis posed by the dissertation and thus, have provided support for the alternative view in Political Economy, which regards diversity as a benefit. The analyses, conducted on the sample of the OECD countries, have shown that the ethnolinguistic diversity, when accompanied by the right context, indeed leads to higher creativity, openness to change and innovativeness, and thus, constitutes a real economic benefit for countries that possess it.

The right context variable, which emerged from the analysis as a strong moderator of the positive relationship between diversity and innovativeness, was the Innovation Focused

Strategy, denoted by the level of R&D spending. The Innovation Focused Strategy variable indicates the extent to which a country is oriented towards innovation. It indicates whether the country engages in, and supports new ideas, novelty, experimentation and creative processes in the society. The results of the regressions conducted by the dissertation have shown that the Innovation Focused Strategy conditions the positive relationship between the ethnolinguistic diversity on one side, and creativity, openness, and innovation on the other side.

The idea of the Innovation Focused Strategy as a moderator of the positive relationship between ethnolinguistic diversity and economic performance has been derived from the research of the scholars of organizational science.³⁴⁹ According to them, the strategic focus on innovation allows the firm to assume a position in which it can exploit and benefit from cultural diversity. The authors argued that a firm can take advantage of its resources, only if it is in a position to exploit them. They argued that a business strategy focused on innovation allows the firm to assume such a position with respect to the resource of creativity, which is embedded in cultural diversity. The results of the empirical analyses, conducted by them on the level of firms, have supported their assertion and have shown that, indeed, the more a firm pursues an innovation strategy, the more it benefits from a culturally diverse workforce.

The results of the regression analyses conducted by the dissertation, on the level of countries, have shown that the same mechanism applies to countries. The results of the analyses, especially the results of the second regression in the model, have shown that diversity has a stronger and more significant positive impact on innovation when it is accompanied by the Innovation Focused Strategy. The results have also shown that when

³⁴⁹ Richard et al. (2003)

the Innovation Focused Strategy is at a zero level, thus non-existent, then diversity has a negative impact on innovativeness. Therefore, the results of the regressions conducted by the dissertation have shown that the relationship between ethnolinguistic diversity and innovativeness is a positive function of the right context variable, which is the Innovation Focused Strategy.

The other right context element which, based on the theory and the empirical analyses conducted by the dissertation, can be considered as having a positive impact on the relationship between diversity and innovativeness, is democratic pluralism. The idea of democratic pluralism as a moderator of the positive relationship between diversity and innovativeness has been based on the research of organizational and political science. The scholars of organizational science have persistently argued that the most important element of the context in which ethnic diversity can bring positive effects, in terms of increased creativity, is the perception of diversity as a value.³⁵⁰ According to them, valuing diversity provides the right foundation and guidance which is needed to realize the sustained benefits from diversity. The research conducted by the scholars of organizational science have shown that those groups that perceived diversity as a value were able to create the right environment in which the diverse individuals felt valued and respected. That feeling enabled the diverse individuals to openly voice their ideas and thus, contribute to creativity and divergent thinking of the group.

The dissertation argued that, on the level of countries, the perception of diversity as a value is best represented by the system of democratic pluralism. According to the scholars of political science, democratic pluralism is a system which is based on principles that support the cultivation of diverse ethnocultural identities and practices of its citizens within a

³⁵⁰ Cox & Blake (1991), Cox (1994), McLeod, Lobel & Cox (1996), Elsass & Graves (1997), Cox (2001), Ely & Thomas (2001)

single state.³⁵¹ Therefore, democratic pluralism is a system which is appreciative of ethnolinguistic diversity and thus, provides the best basis for valuing diversity, and the best basis for translating the ethnolinguistic diversity into higher creativity and innovativeness.

Democratic pluralism has been accounted for in the empirical analysis, conducted by the dissertation, by the specific choice of the sample. The sample was limited only to the OECD countries, in order to include only those countries which can be considered, more or less, plural democracies. Since the sample was limited to control for the existence of plural democracy, the results of the regressions can be interpreted as valid only for plural democracies. Therefore, plural democracy emerges from the analyses conducted by the dissertation as another right context element which is necessary for the positive relationship between diversity and innovativeness to take place.

In summary, the results of the analysis have shown that, for countries which are plural democracies, the relationship between ethnolinguistic diversity and innovativeness is a positive function of the right context variable which is the Innovation Focused Strategy. It means that diversity leads to higher levels of innovativeness only when it is accompanied by the right context variable. The results have reinforced the claim made by the research conducted on the firm level that diversity is good for innovators. The results have shown that, also on the country level, when the countries are plural democracies, diversity brings positive results to those countries which are oriented towards innovation. Thus, also on the level of countries, diversity is good for innovators.

The results of the regressions have also provided some support for the Growth Focused Strategy as the moderator of the positive relationship between diversity and innovativeness. However, the results were statically weak and, except for the models with the

³⁵¹ Doran (2001)

Openness variable, the results did not pass the robustness test with the Income variable. Still, since the results were somewhat significant, they cannot be discarded.

The dissertation refers to a broader discussion in Political Economy regarding the effect of ethnolinguistic diversity on economic outcomes. In the previous studies, however, economic outcomes have been denoted by economic growth, while in the dissertation, economic outcomes are measured in terms of the level of innovation. The dissertation measures the economic outcomes in terms of the level of innovation because it stands on the view that it is the increase in innovativeness which is the channel through which diversity impacts economic growth. According to the dissertation, the benefits of diversity come from the increases of creativity, entrepreneurship and flexibility, which then turn into higher economic growth. Therefore, instead of measuring the indirect impact of diversity on the economic growth, the dissertation decided to measure the more direct impact of diversity on the levels of creativity, openness and innovation. It is left for further research to assess whether the positive effects of diversity on innovativeness, moderated by the existence of the Innovation Focused Strategy, or the Growth Focused Strategy, are also applicable to the economic growth.

As for the discussion in the field of Political Economy concerning the impact of diversity, most of the studies conducted with economic growth, as a measure of the economic outcome, pointed to the negative effects of ethnolinguistic diversity.³⁵² However, some scholars have contended that view and argued that, under certain circumstances, the negative effects of diversity are mitigated, or even reversed.³⁵³ The circumstances which have been identified, through empirical analyses, as mitigating for the negative effects of diversity

³⁵² Easterly & Levin (1997), La Porta, Lopez de Silanes, Shleifer & Vishny (1999), Alesina & Spolaore (2003), Alesina, Spolaore & Wacziarg (January 2003)

³⁵³ Collier (2001)

were democracy, the level of income and the existence of “good” institutions.³⁵⁴ The scholars have argued that, under those circumstances, the negative impact of diversity is mitigated,³⁵⁵ or even reversed to the point where ethnic diversity actually has a positive impact on economic outcomes.³⁵⁶ The scholars have concluded that channeling diversity towards productive uses may require a particular set of “rules of the game”.³⁵⁷ This dissertation has departed from that point and took upon the endeavor of identifying a more encompassing list of variables which might be the moderators of the positive effects of diversity.

The dissertation based its quest of the moderators of the positive impact of diversity on the research conducted within the organizational sciences. The discussion of the impact of diversity has been long present in the organizational science and therefore, the organizational science has developed an extensive and profound theoretical and empirical base concerning the effects of diversity. The debate over the impact of diversity on the organizational outcomes has led many scholars to a conclusion that, if put in the right context, diversity brings economic benefits to firms that possess it. The economic benefits of diversity were associated with increased creativity, flexibility and innovativeness that are stimulated through the interaction between people with diverse cultural backgrounds. The dissertation used the organizational science research as the theoretical foundations for its analysis and applied it to countries in order to assess whether the same mechanisms hold also on the level of countries.

First, the dissertation has put together a list of the right context elements which have been identified by different scholars of organizational sciences as the moderators of the

³⁵⁴ Collier (2001), Alesina & La Ferrara (2004), Easterly (2001)

³⁵⁵ Easterly (2001)

³⁵⁶ Collier (2001), Alesina & La Ferrara (2004)

³⁵⁷ Alesina & La Ferrara (2004) p. 11

positive relationship between diversity and innovativeness. Then, it has transposed the right context elements into the level of countries. As a second step, the dissertation has conducted a quantitative analysis of the impact of ethnolinguistic diversity on the innovativeness of countries.

The innovativeness of countries was measured in the quantitative analysis by three innovativeness variables: the Creativity variable, the Openness variable and the Innovation variable.³⁵⁸ The innovativeness variables were identified by the dissertation based on the Theory of innovation and entrepreneurial profit developed by Joseph Schumpeter.³⁵⁹ Initially, there was also an Entrepreneurship variable which was identified by the dissertation as one of the innovativeness variables. However, due to the lack of internationally comparable data, the dissertation was not able to include it into the quantitative analysis. It is left to future research to assess the impact of diversity on entrepreneurship whenever more comparable data becomes available.

Besides the Creativity, Openness and the Innovation variable, the dissertation has included one more independent variable into the regression analysis. The variable was not identified by the theoretical part of the dissertation, but it emerged as a distinct variable from the factor analysis of the creativity variables conducted by the dissertation. Based on its content, the variable was called Traditional Creativity. Unlike the other innovativeness variables, the Traditional Creativity variable did not show any positive relationship with diversity. The regression results revealed that ethnolinguistic diversity does not lead to higher levels of Traditional Creativity.

The positive impact of diversity on the economic outcome was supported by results of the regressions with Creativity, Openness and Innovation as the independent variables.

³⁵⁸ The Innovation variable combined together the Creativity and the Openness variables.

³⁵⁹ Schumpeter (1934, 1939)

The regression results have shown that the ethnolinguistic diversity increases the levels of creativity, openness and innovativeness for countries which are plural democracies and which have an Innovation Focused Strategy in place.³⁶⁰ Therefore, the results of the analysis conducted by the dissertation provided an additional voice in the discussion, concerning the effects of diversity, in favor of the argument that ethnolinguistic diversity has a positive impact on economic outcomes.

Furthermore, by choosing innovativeness instead of economic growth as the independent variable, the regressions conducted by the dissertation have shown that the increase in innovation is indeed the channel through which ethnic diversity brings economic benefits for countries. The potential benefits of diversity coming from increased innovation and creativity have already been acknowledged by the researchers of Political Economy. However, until now there has not been a study which would analytically assess the plausibility of that argument. The dissertation has made a first attempt to assess that argument and to find out whether ethnolinguistic diversity can indeed stimulate higher creativity, flexibility and innovation in a society. The results of the regressions have provided support for the argument and have shown that the ethnolinguistic diversity indeed constitutes a resource of creativity, adaptability and innovativeness for countries, however only if it is accompanied by the right context.

In addition, the results of the regressions have shown that diversity is a resource of that type of creativity which is more fore-front and modern oriented, and which takes place in the more progressive sectors of the economy such as services. The factor analysis of the creativity variables have shown that there are two types of creativity, one being more modern focused, and the other one being more traditional. Ethnic diversity, in the regressions

³⁶⁰ The results for the models with the Growth Focused Strategy were much weaker and they were statistically significant and robust only for the Openness variable.

conducted by the dissertation, has exhibited a positive impact only on the modern type of creativity. The traditional type of creativity, which was measured by patents and the development of the manufacturing sector, appeared to be unaffected by the existence of ethnic diversity.

The results of the regressions with the two types of creativity variables provide a caution concerning the measurement of the creativity of countries. The results show that the patents, which are the most commonly used measure of inventiveness of countries, might not be the best measure of creativity because they relate to the more traditional creativity which takes place in the 'old' sectors of the economy. Therefore, they do not capture the real creative spirit existing in a society. It is rather the modern, fore-front type of creativity, which takes place in the 'new' sectors of the economy, which captures the creative spirit of the society. Hence, it is rather the modern type of creativity which should be used as a measure of creativity for countries.

In conclusion, the dissertation has made a first, preliminary assessment of the hypothesis that ethnolinguistic diversity has a positive impact on economic outcomes, in terms of innovativeness, however only when it is accompanied by the right context. The results of the quantitative analysis, conducted by the dissertation on the OECD countries, have provided statistical support for the hypothesis and showed that, indeed, ethnolinguistic diversity, when placed in a right context, leads to higher creativity, openness to change and innovativeness. The main contribution made by the results is the assertion that the positive relationship between diversity and innovativeness is a positive function of the right context and that the relationship is statistically significant.

The suggestions for further analyses include the inclusion of the Entrepreneurship variable into the analysis whenever more internationally comparable data becomes available.

Furthermore, future research should try to incorporate into the quantitative analysis all the right context elements, which have been identified by the theoretical part of the dissertation, but which could not be included into the analysis due to the lack of quantitative data for those variables. Finally, the positive effect of diversity, moderated by the existence of the Innovation Focused Strategy, the Growth Focused Strategy and the plural democracy, should be assessed for a broader range of countries.

22. Implications of Findings for International Political Economy

The results obtained by the dissertation have a direct relevance for the discussions taking place in the field of International Political Economy and concerning the matter of state unity. The issue of the perception of diversity has a direct implication for the question of state unity, as it has been extensively described in the second part of the dissertation (Section 4). In general, those scholars who perceive diversity as a cost to society, such as Alesina, Spolaore and La Ferrara, advocate for secessions and for the breaking-up of multiethnic states into smaller and more homogenous units. On the other hand, the scholars who perceive diversity as a benefit, such as Doran and Collier, advocate against secessions, and are in favor of keeping the multiethnic countries united and heterogenous. The discussion between the two sides can be well depicted by presenting the views of Alesina and Spolaore, on one side, and Doran, on the other side, since they are the ones who have been, most recently, writing extensively on the topic.

Alesina and Spolaore, in the book called *The Size of Nations*,³⁶¹ argue that ethnic diversity constitutes both political and economic costs for countries because it increases the

³⁶¹ Alesina & Spolaore (2003)

heterogeneity in preferences for public goods. That, in turn, leads to disagreements over the basic characteristics of a government such as redistributive schemes, public goods, or foreign trade. According to the authors, the disagreement over public goods and policies leads to higher costs associated with the functioning of the society. Those costs are related to the process of accommodating the different preferences existing in the society and the authors refer to them as “the costs of heterogeneity”.

According to the authors, due to the costs of heterogeneity it is more beneficial for countries to be homogenous. According to them, the more homogenous polities function more harmoniously. They state that it used to make sense to stay multiethnic because there were some important benefits associated with bigger size related to trade and warfare. However, currently, when the trading system becomes more open, and when the risk of warfare diminishes, the benefits of size fade away and there is no need to stay large and multiethnic, and therefore, incur the costs of heterogeneity. According to the authors, with the increasingly integrated trading system, small countries can specialize in terms of productivity and consumption by trading with the larger world market, so there is no need for them to remain large and heterogenous. According to them, there is no significant economic cost associated with secessions, and a very high cost associated with heterogeneity. Therefore, the authors advocate for the breaking up of the multiethnic states and for the creation of more homogenous states. They argue that the insistence on keeping heterogenous states together, in an increasingly integrated world, is misplaced and unnecessary.³⁶²

³⁶² Alesina & Spolaore (2003) p. 223

An entirely different perception of ethnic diversity and state unity is presented in the book by Doran under the title *Why Canadian Unity Matters and Why Americans Care*.³⁶³ Unlike Alesina and Spolaore, Doran perceives ethnic diversity as a source of economic and political benefits for countries. According to him, the political benefits are associated with the strengthened capacity for honest government. The economic benefits, on the other side, are associated with a greater opportunity for specialization, more innovation and higher productivity, which are coming from the interaction between culturally and ethnically diverse people.³⁶⁴ Therefore, according to Doran, due to the benefits associated with diversity, as well as the benefits associated with a bigger size, it is advantageous for the multiethnic countries to remain united and heterogenous.

Therefore, Doran argues against secessions. He states, that, especially in mature liberal democracies, the tensions created by existence of diverse cultures under single polity should not be resolved by secessions, but should be managed by the institutions developed within democratic pluralism. He argues that the philosophy of separation negates the principles of democratic pluralism and toleration. According to Doran, in liberal democracies, where human rights of individuals and groups are guaranteed, separatist movements occur for the single purpose of refusing to associate politically and communicate intensely in a single state with citizens of differing ethnolinguistic affiliation. According to him, such a refusal to live next to someone culturally or ethnically different is equivalent to the desire to discriminate, and therefore stands against the principles of democratic pluralism and toleration.

Doran states that the adherence to democratic pluralism instead of secessions is especially important in the current times, when the populations within states become

³⁶³ Doran (2001)

³⁶⁴ Doran (2001) pp. 13, 247

increasingly mixed. The increased diversification of populations within states is particularly vivid within the advanced countries due to the increased flows of immigration, emigration and differential growth rates across populations of differing cultural backgrounds. According to Doran, the system of democratic pluralism is vital because it provides effective instruments to manage the tensions arousing in culturally diverse societies and it allows creating an environment in which diverse people can peacefully interact with each other.

The results of the empirical analysis conducted by the dissertation provided support on the side of those scholars who perceive diversity as a value and who advocate against secessions, and for the existence of heterogenous states, especially in advanced countries.³⁶⁵ The results have clearly shown that diversity, when accompanied by the right context, confers a real economic benefit for countries in terms of higher innovativeness. Therefore, the secessionist break-up of states into smaller and more homogenous units would sacrifice the rich cultural, ethnic and social diversity, which has proven to be essential for the creativity of the modern state.

Thus, the findings do not support the theoretical analysis presented by Alesina and Spolaore which state that there are no significant economic costs associated with secessions. According to the findings of the dissertation, secession is not free of economic costs, because it is associated with loosing the resources of diversity which are essential to the creativity and flexibility of societies. Alesina and Spolaore state that small, homogenous countries can profit from integrated and open trade system, as well as the large and

³⁶⁵ Based on the results obtained by the dissertation, we cannot infer however, that the statement discouraging secessions is true for all countries irrespective of their level of economic development. Since the analysis conducted by the dissertation considered only OECD countries, the results of the dissertation can be interpreted as valid only for more advanced countries. Only an analysis using a broader range of countries, both advanced and developing, would be able to assess whether the statement discouraging secessions is also applicable to the countries which are economically less advanced. There is a need for further research on that topic.

heterogenous countries can, therefore there are very little costs associated with secessions. However, the authors do not take into account the cost associated with loosing ethnolinguistic diversity and therefore, loosing the capacity to innovate and to exploit novelty in production. According to the findings of the dissertation, the more homogenous states, created as a result of secessions, would be disadvantaged towards the heterogenous states, because they would not have the resource of innovation which is provided by ethnolinguistic diversity. Therefore, according to the results of the analysis conducted by the dissertation, it is more economically viable, at least for more advanced countries such as the OECD countries, to be heterogenous rather than homogenous. Thus, secessions do not really make economic sense, at least for countries that have a certain level of development. Again, further research is necessary to assess whether that is true also for countries that are at a lower level of development.

Furthermore, the findings of the dissertation appear to vindicate the importance of democratic pluralism for a state, as it has been underlined by Doran. Democratic pluralism has emerged as one of the right context elements which appear to be necessary for turning diversity into higher innovativeness. Democratic pluralism is vital for the right context because it creates the environment in which diverse individuals can feel respected and therefore, can freely demonstrate their different cultural affiliations and voice their different ideas, without being afraid of rejection. In democratic pluralism, the different individuals can be culturally different from the majority, but still be considered as a part of the single state. That allows them to openly voice their, often divergent and out-of-the-line, ideas, and through that, greatly contribute to the divergent thinking and creativity in the society. The existence of democratic pluralism is especially important for the multiethnic states because it allows them to exploit the benefits of diversity which they possess.

It is important to keep in mind that, according to the results obtained by the dissertation, there is another right context element which has a strong influence on turning diversity into higher innovative output.³⁶⁶ It is having a strategy which is oriented towards innovation. This element of the right context has been derived from the organizational sciences, and has not appeared before in the discussions of International Political Economy. Therefore, it is impossible to relate it to the broader theoretical discussion developed in that field, as it was possible in the case of democratic pluralism. Despite that, it is essential to keep in mind that the Innovation Focused Strategy has emerged from the analysis as a strong and crucial right context variable which conditions the impact of ethnolinguistic diversity on innovativeness. In conclusion, the results obtained by the dissertation point to two right context elements which are essential for turning ethnolinguistic diversity into economic benefits in terms of higher innovation. Those elements include democratic pluralism and the strategy oriented towards innovation. The existence of democratic pluralism and strategy oriented to innovation allows multiethnic states to facilitate the generation of the enormous economic and scientific output of which they are capable in the 21st century.

To conclude, the results obtained by the dissertation have provided an extra voice in the discussion concerning the impact of diversity and the unity of the state, on the side of those scholars who perceive diversity as a benefit, and who argue that there is a value in keeping the multiethnic states together. The analysis conducted by the dissertation reinforced the results obtained by Collier (2001) which stated that ethnic diversity can have a positive impact on economic performance. Collier has used different specifications for his

³⁶⁶ The results have pointed also to the Growth Focused Strategy as a moderator of the positive relationship between diversity and innovativeness. However, the results were weak and, except for the model with the Openness variable, they did not pass the robustness test which controlled for the income levels. Even though the results cannot be disregarded, the Growth Focused Strategy cannot be considered as a strong, crucial element of the right context. Therefore, when we write about the vital or crucial elements of the right context we do not always include the Growth Focused Strategy as one of them.

analysis than this dissertation has. He designed his study based on a question whether the effects of ethnic diversity are moderated by the type of diversity, by the type of political regime and by the sector of the economy. The results of his regressions have shown that ethnic diversity exhibits positive results only when it is present in a form of fractionalization, in the context of democracy and in the private sector of the economy. The results obtained by the dissertation do not include the specification on the type of diversity, but they do reinforce the results obtained by Collier in relation to the positive impact of diversity in the context of democracy and private sector. The results obtained by the dissertation have shown that democratic pluralism is indeed one of the right context elements that moderates the positive impact of diversity. Furthermore, even though the dissertation did not differentiate between the public and private sector, still, the variables that describe creativity, openness and innovativeness do refer more to the private sector than to the public sector. Therefore, the results obtained by the dissertation did provide support for the analysis conducted by Collier.

The results obtained by the dissertation, on the other hand, did not provide support for the analysis conducted by Easterly and Levine (1997) and Alesina and La Ferrara (2004) which purport the overall negative effect of diversity on economic growth. Even though the analyses conducted by the dissertation did not assess the impact of diversity on economic growth, it did assess its impact on innovativeness, which, according to Schumpeter, constitutes the basis for economic development. Therefore, the results of the analysis with the innovativeness as a measure for economic performance can be compared to the results which measure the economic performance with economic growth. Since the results of the analysis conducted by the dissertation have shown a positive relationship between ethnic diversity and innovativeness, therefore, the results obtained by this dissertation do not

support the conclusions reached in the analyses conducted by Easterly and Levine, Alesina and La Ferrara which state that diversity has a negative impact on economic performance.

The author of the dissertation argues that the reason why the results of Easterly and Levine, as well as Alesina and La Ferrara, showed negative effects of diversity on economic growth is due to the fact that the analysis did not include the right context elements which are necessary for ethnic diversity to bring positive economic results. Both of the studies did include one of the right context elements which have been identified by the dissertation, and which is democratic pluralism. The studies did not refer it to as democratic pluralism, but simply used a broader term of democracy. For both of the studies, the existence of democratic institutions moderated the negative effects of diversity on economic outcomes, as it has been the case also in our analysis.

However, the authors did not include another crucial right context element which has emerged from the analysis conducted by the dissertation as a vital conditioning variable for the positive relationship between diversity and innovativeness. The results obtained by the dissertation have shown that the relationship between ethnolinguistic diversity and innovativeness is a positive function of the right context variable which is the strategy oriented towards innovation. The results have shown that when the right context variable, which is the Innovation Focused Strategy, is not present, then diversity exhibits a negative impact on economic performance of countries. The author of the dissertation argues that the fact that the analysis conducted by Easterly and Levine, and Alesina and La Ferrara did not include this right context variable might be the explanation why, in their results, ethnic diversity exhibits negative effects. However, in order to truly test if that is the case, there is a need for further research. The further research should assess whether the conditioning effect of Innovation Focused Strategy on the positive relationship between diversity and economic

performance is also true when we use the same range of countries as have been used in the analysis conducted by Easterly and Levine, Alesina and La Ferrara. Currently, the conditioning effect of the Innovation Focused Strategy on the positive relationship between diversity and innovativeness has been only assessed for OECD countries, which all can be considered plural democracies and advanced economies. Therefore, there is a need to check whether the hypothesis posed by the dissertation also holds in a broader range of countries.

In summary, the results obtained by the dissertation have reinforced the analysis of those scholars who claim that ethnic diversity constitutes a value for the economic performance of countries. Furthermore, the results have provided an additional voice in the discussion concerning the unity of multiethnic states. The results of the dissertation have shown that there is leverage in the argument that secessions should be treated with caution, especially in reference to advanced economies. The results have shown that cultural diversity present in multiethnic states, if placed in the right context, which is usually provided by advanced economies, can constitute a great resource of innovation. Therefore, the results have suggested that the existence of heterogeneous states, especially in relation to advanced economies, should be encouraged by the international community because ethnolinguistic diversity, which is present in those states, could benefit the economy. The existence of heterogeneous states could greatly contribute to the generation of innovative output and thus, to the increasing of the welfare of the world economy in the 21st century.

Dependent Variables:**CREATIVITY****Creation of new knowledge**

| Variables | STATA names | Years |
|------------------------------------------------------------------------------|--------------------|--------------|
| <u>Scientific Articles</u> | | |
| Relative prominence of cited scientific literature | C_citat_scienc | 2001 |
| <u>Patents per million population</u> | | |
| Triadic patents per population | C_triadic | Ø1991-2001 |
| EPO patents per population (applications) | C_EPO | Ø1991-2002 |
| USPTO patents per population (granted) | C_USPTO | Ø1991-2001 |
| ICT patents EPO per population | C_ICT_EPO | Ø1991-2001 |
| ICT patents USPTO per population | C_ICT_USPTO | Ø1991-1999 |
| Biotech patents EPO per population | C_BT_EPO | Ø1991-2001 |
| Biotech patents USPTO per population | C_BT_USPTO | Ø1991-1999 |
| <u>Services and Manufacturing</u> | | |
| Share of knowledge-intensive "market" services in total gross value added | C_serv_know | 2002 |
| Share of high and medium-high techn. manufactures in total gross value added | C_manuf_hmtech | 2002 |
| Contribution of the services sector to productivity growth | C_serv_contrib | Ø1990-2001 |
| Share of services in total value added | C_serv_va | 2003 |
| Share of manufacturing in total value added | C_manuf_va | 2003 |
| <u>Other</u> | | |
| Technology balance of payments as % of GDP | C_techbal | 2003 |
| Contribution of ICT capital to GDP growth (in % points) | C_ICT_contrib | Ø1995-2003 |

OPENNESS TO CHANGE

Diffusion of new knowledge

| Variables | STATA names | Years |
|---------------------------------------------------------------------------|-------------|-------|
| <u>ICT Investment</u> | | |
| Investment in ICT as % of gross fixed capital formation | O_Inv_ICT | 2003 |
| Software Investment as % of non-residential gross fixed capital formation | O_Inv_Soft | 2003 |
| <u>Internet and PCs</u> | | |
| OECD Data | | |
| Secure servers per 100 000 inhabitants | O_SecServ | 2004 |
| ITU Data | | |
| Internet Hosts per 100 inhabitants | O_itu_Hosts | 2004 |
| Internet Users per 100 inhabitants | O_itu_Users | 2004 |
| PCs per 100 inhabitants | O_itu_PCs | 2004 |

Independent Variables:

ETHNOLINGUISTIC DIVERSITY

| Variables | STATA names | Years |
|-------------------------------------------------------------------------|----------------------|-------------------------|
| <u>Old Ethnolinguistic Minorities</u> | | |
| ELF (Ethnolinguistic Fractionalization Index) <i>Atlas Narodov Mira</i> | ELF | 1961 |
| Alesina Fractionalization Index - Ethnic | A_ethnic | <i>within</i> 1998~2001 |
| Alesina Fractionalization Index - Language | A_language | <i>within</i> 1998~2001 |
| Alesina Fractionalization Index - Religion | A_religion | <i>within</i> 1998~2001 |
| <u>Immigration</u> | | |
| Stocks of foreign-born population as % of total population | IMM_fborn_stock | 2003 |
| Non-citizens as % of total population | IMM_noncitizens | 2003 |
| Stocks of foreign or foreign-born labor force as % of total labor force | IMM_laborforce_stock | 2003 |

Intervening/Conditioning Variables:

RIGHT CONTEXT

| Variables | STATA names | Years |
|-----------|-------------|-------|
|-----------|-------------|-------|

Value in Diversity (Integration- and Learning-Perspective on Diversity)

Acquisition of Nationality (Naturalization)

| | | |
|----------------------------------------------------------------------|--------------|------------|
| Naturalization/Acquisition of nationality as % of foreign population | RC_naturaliz | 2001 |
| % of Foreign-born with the citizenship of country of residence | RC_fb_citiz | Ø2000-2003 |

High Level of High-Skilled immigration

| | | |
|-----------------------------------|-----------|------------|
| % of Highly-Skilled Foreign-born | RC_HS_fb | Ø2000-2003 |
| Low % of Low-Skilled Foreign-born | RC_low_LS | Ø2000-2003 |

Low Unemployment of Foreign-Born

| | | |
|--------------------------------------------------------------|-------------------|------|
| Low % Foreign-born Unemployment rate | RC_low_unem_fb | 2003 |
| Small % Gap in unemployment between Foreign-born and Natives | RC_small_unem_gap | 2003 |

High Labor Participation Rate of Foreign-Born

| | | |
|--------------------------------------------------------------|--------------------|------|
| % Foreign-born Labor Participation rate | RC_labpa_fb | 2003 |
| Small % Gap in Labor Participation rate btw F-born & Natives | RC_small_labpa_gap | 2003 |

Growth Focused Strategy

Competitive Business Climate

| | | |
|----------------------------------------|--------------------|------|
| Economic regulations in business | RC_low_econ_busreg | 2003 |
| Administrative regulations in business | RC_low_adm_busreg | 2003 |
| Barriers to Entrepreneurship | RC_low_barr_entr | 2003 |

Flexible Labor Markets

| | | |
|-------------------------------------------------------------------------------------------------------------------------------|------------|------|
| Low Level of Employment Protection Legislation (EPL) (Low Restrictiveness of protection legislation on regular employment) | RC_low_EPL | 2003 |
|-------------------------------------------------------------------------------------------------------------------------------|------------|------|

Innovation Focused Strategy

High Expenditure on R&D

| | | |
|---------------------------------------------------------------------------------------------------------|----------|-----------|
| R&D Expenditure as % of GDP (GERD) (GERD - Gross domestic expenditure on R&D as a percentage of GDP) | RC_ExpRD | 2002-2003 |
|---------------------------------------------------------------------------------------------------------|----------|-----------|

Standardization of the Variables

In order to be able to create single scales using different variables, all the variables have been standardized into *normed* variables with a mean equal to 0, and a standard deviation equal to 1. We do not lose any generality by dealing with the *standardized* variables.³⁶⁷ The standardized variables are denoted by a small letter “s” in front of their name. Since the standardized variables are perfectly correlated with the original variables, they can be used interchangeably in the correlation and factor analysis. The following STATA command was used to standardize all the variables (the example here refers to the Creativity variables):

```
. for var C_citat_scien C_triadic C_EPO C_USPTO C_ICT_EPO C_ICT_USPTO C_BT_EPO C_BT_USPTO C_serv_busi
C_serv_know C_manuf_hmtech C_serv_contrib C_serv_va C_manuf_va C_serv_em C_manuf_em C_techbal C_ICT_contrib
C_triadic C_EPO : egen sX=std(X)
```

Creativity Factor Analysis

The list of the Creativity variables composes of fifteen variables. A correlation matrix has revealed that there are many high correlations between the variables indicating that there could be some underlying factors present within the variables.

```
. corr sC_citat_scien sC_triadic sC_EPO sC_USPTO sC_ICT_EPO sC_ICT_USPTO sC_BT_EPO sC_BT_USPTO
sC_serv_know sC_manuf_hmtech sC_serv_contrib sC_serv_va sC_manuf_va sC_techbal sC_ICT_contrib;
(obs=20)
```

| | sC_cit~n | sC_tri~c | sC_EPO | sC_USPTO | sC_IC~PO | sC_IC~TO | sC_BT~PO | sC_BT~TO | sC_ser~w |
|--------------|----------|----------|---------|----------|----------|----------|----------|----------|----------|
| sC_citat_s~n | 1.0000 | | | | | | | | |
| sC_triadic | 0.5691 | 1.0000 | | | | | | | |
| sC_EPO | 0.6666 | 0.9194 | 1.0000 | | | | | | |
| sC_USPTO | 0.4779 | 0.7723 | 0.5419 | 1.0000 | | | | | |
| sC_ICT_EPO | 0.5376 | 0.8954 | 0.8764 | 0.6128 | 1.0000 | | | | |
| sC_ICT_USPTO | 0.2213 | 0.6897 | 0.3933 | 0.9315 | 0.5859 | 1.0000 | | | |
| sC_BT_EPO | 0.7482 | 0.5134 | 0.5898 | 0.4123 | 0.4225 | 0.2076 | 1.0000 | | |
| sC_BT_USPTO | 0.6518 | 0.3938 | 0.3494 | 0.6155 | 0.2724 | 0.4093 | 0.8504 | 1.0000 | |
| sC_serv_know | 0.5604 | 0.2086 | 0.1786 | 0.3436 | 0.1098 | 0.2186 | 0.2927 | 0.2944 | 1.0000 |
| sC_manuf_h~h | 0.1016 | 0.5474 | 0.5389 | 0.4293 | 0.4676 | 0.4460 | 0.1329 | 0.0336 | 0.1402 |
| sC_serv_co~b | 0.0735 | 0.0975 | -0.0117 | 0.2720 | 0.0385 | 0.1913 | 0.1399 | 0.3282 | -0.0110 |
| sC_serv_va | 0.5808 | 0.2862 | 0.2814 | 0.2497 | 0.1659 | 0.0747 | 0.4712 | 0.4661 | 0.5795 |
| sC_manuf_va | -0.1119 | 0.3567 | 0.3498 | 0.2268 | 0.3532 | 0.3156 | -0.0614 | -0.1631 | -0.0327 |
| sC_techbal | 0.5841 | 0.3330 | 0.2850 | 0.3300 | 0.2674 | 0.2114 | 0.5479 | 0.4875 | 0.3545 |
| sC_ICT_con~b | 0.2709 | 0.0673 | -0.1018 | 0.3287 | -0.0345 | 0.2700 | 0.3318 | 0.4863 | 0.3623 |

| | sC_man~h | sC_ser~b | sC_ser~a | sC_man~a | sC_tec~l | sC_ICT~b |
|--------------|----------|----------|----------|----------|----------|----------|
| sC_manuf_h~h | 1.0000 | | | | | |
| sC_serv_co~b | -0.1491 | 1.0000 | | | | |
| sC_serv_va | -0.2047 | -0.0239 | 1.0000 | | | |
| sC_manuf_va | 0.8701 | -0.2386 | -0.3676 | 1.0000 | | |
| sC_techbal | -0.1057 | 0.3529 | 0.5214 | -0.2314 | 1.0000 | |
| sC_ICT_con~b | -0.1562 | 0.5045 | 0.1705 | -0.2374 | 0.3108 | 1.0000 |

³⁶⁷ Kim & Mueller (1978) p. 16

A Principal Components Factor Analysis was performed on those variables³⁶⁸ to determine if there are any underlying relationships that might be used to create factor scales for the Creativity Variables. The results of the factor analysis are as follows:

```
. factor sC_citat_scienc sC_triadic sC_EPO sC_USPTO sC_ICT_EPO sC_ICT_USPTO sC_BT_EPO
sC_BT_USPTO sC_serv_know sC_manuf_hmtech sC_serv_contrib sC_serv_va sC_manuf_va
sC_techbal sC_ICT_contrib, pcf;
```

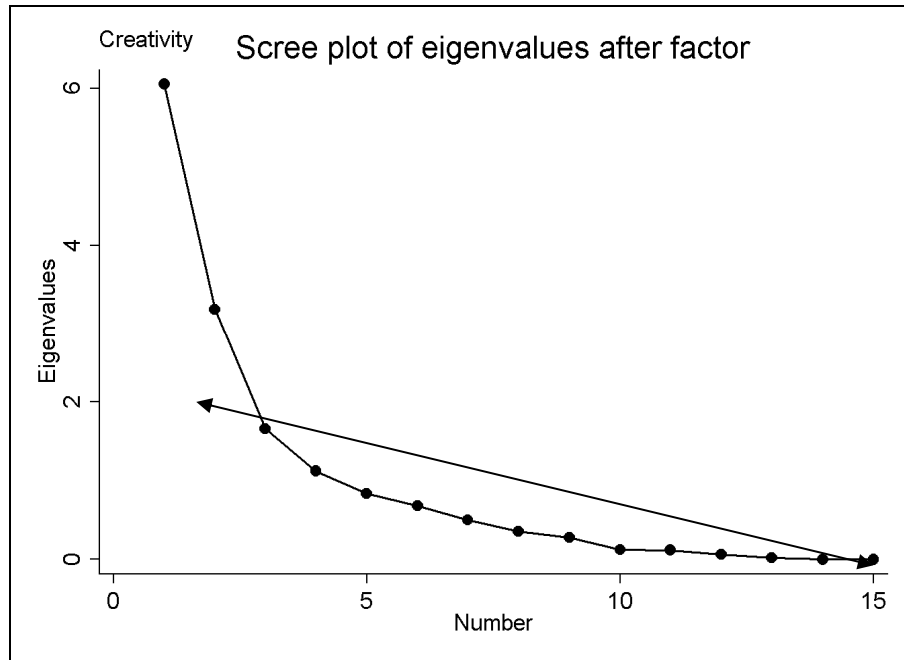
```
Factor analysis/correlation          Number of obs   =      20
Method: principal-component factors
Rotation: (unrotated)
```

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|----------|----------------|------------|------------|---------------|
| Factor1 | 6.05516 | 2.86738 | 0.4037 | 0.4037 |
| Factor2 | 3.18778 | 1.52739 | 0.2125 | 0.6162 |
| Factor3 | 1.66039 | 0.53970 | 0.1107 | 0.7269 |
| Factor4 | 1.12068 | 0.28229 | 0.0747 | 0.8016 |
| Factor5 | 0.83839 | 0.15915 | 0.0559 | 0.8575 |
| Factor6 | 0.67924 | 0.17839 | 0.0453 | 0.9028 |
| Factor7 | 0.50085 | 0.14787 | 0.0334 | 0.9362 |
| Factor8 | 0.35298 | 0.07729 | 0.0235 | 0.9597 |
| Factor9 | 0.27569 | 0.15055 | 0.0184 | 0.9781 |
| Factor10 | 0.12514 | 0.00848 | 0.0083 | 0.9864 |
| Factor11 | 0.11666 | 0.05195 | 0.0078 | 0.9942 |
| Factor12 | 0.06470 | 0.04669 | 0.0043 | 0.9985 |
| Factor13 | 0.01802 | 0.01552 | 0.0012 | 0.9997 |
| Factor14 | 0.00249 | 0.00067 | 0.0002 | 0.9999 |
| Factor15 | 0.00183 | . | 0.0001 | 1.0000 |

Although in this case there are four Eigenvalues that exceed the threshold level of 1.0, the last two are very close to the threshold. This means that the last two factors most probably do not explain much more of the total variance for this list of variables than a single variable does. Therefore, it is most probable that there is a two-factor solution.

To further examine the Eigenvalues, it is useful to graph them in a scree chart:

³⁶⁸ The Principal Factor Component Analysis for Creativity used 20 observations which corresponds to 2/3 of the whole sample of 30 countries, and thus can be treated as representative for the whole sample. In order to retain at least 20 observations in the factor analysis in four cases we had to replace the missing values with the OECD averages. The guiding principles of the replacement were: to do the replacement for as little countries and variables as possible and only to the point where the number of 20 observations was reached; to fill the missing values with the averages only for countries where there was only one value missing for the whole set of variables (so that there would be no more than one average used for one country). Guided by those principles, we replaced five missing values with the values of the OECD average: three for the Technological Balance (sC_techbal) in reference to the Netherlands, Greece and Sweden (note: the OECD average for technological balance did not include Ireland because it was a very strong outlier); and two for the ICT contribution (sC_ICT_contrib) in reference to Norway and Korea. Since the replacement referred only to 4 data points it did not have any significant impact on the results of the analysis. It allowed however, to increase the number of observations used in the factor analysis to 20.



Again, the scree chart indicates that a two-factor solution is the most appropriate, as the line of Eigenvalues makes a definite turn at the second factor. In addition, factor 3 and beyond appear to lie in a straight line, indicating that they do not individually account for a substantial amount of variance. Besides, a two-factor solution would explain 61% of the total variance (Cumulative 0.6162), which is a very satisfying amount.³⁶⁹

In order to construct factor scales, it is necessary to examine the loadings that each variable in the list has on the retained factors. Maximization of these loadings for each factor can be obtained by rotating for a two-factor solution.

```
. rotate, factors(2);
```

Rotated factor loadings (pattern matrix) and unique variances

| Variable | Factor1 | Factor2 | Uniqueness |
|--------------|---------------|---------------|------------|
| sC_citat_s-n | 0.3915 | 0.7596 | 0.2698 |
| sC_triadic | 0.8908 | 0.3243 | 0.1013 |
| sC_EPO | 0.8346 | 0.2787 | 0.2258 |
| sC_USPTO | 0.7152 | 0.4533 | 0.2830 |
| sC_ICT_EPO | 0.8447 | 0.2142 | 0.2406 |
| sC_ICT_USPTO | 0.6988 | 0.2356 | 0.4561 |
| sC_BT_EPO | 0.3524 | 0.7351 | 0.3355 |
| sC_BT_USPTO | 0.2511 | 0.7987 | 0.2990 |

³⁶⁹ Even though there are two more eigenvalues which exceed the threshold of 1.0 the 3- or 4- factor solution does not seem plausible because adding an extra factor to a two-factor solution would increase the variance explained only by 11%, and adding an extra factor to a three-factor solution would increase the variance explained only by 9%. Both values are very low and indicate that the two additional factors do not individually account for a substantial amount of the variance.

| | | | |
|--------------|---------------|---------------|--------|
| sC_serv_know | 0.1443 | 0.5432 | 0.6841 |
| sC_manuf_h-h | 0.8234 | -0.2831 | 0.2419 |
| sC_serv_co~b | -0.0810 | 0.4153 | 0.8209 |
| sC_serv_va | 0.0085 | 0.7238 | 0.4761 |
| sC_manuf_va | 0.6986 | -0.4984 | 0.2636 |
| sC_techbal | 0.0993 | 0.7428 | 0.4383 |
| sC ICT_con~b | -0.1067 | 0.6062 | 0.6211 |

The rotated loadings indicate that Factor 1 is comprised of the following variables: sC_triadic, sC_EPO, sC_USPTO, sC ICT_EPO, sC ICT_USPTO, sC_manuf_hmtech, sC_manuf_va. Each of these variables has a loading of at least 0.5 on Factor 1, which is the required threshold, and a lower loading on Factor 2.

As for the second factor, the rotated loadings indicate that Factor 2 is composed of the following variables: sC_citat_scien, sC_BT_EPO, sC_BT_USPTO, sC_serv_know, sC_serv_va, sC_techbal, sC ICT_contrib. Again, each of these variables has a loading of at least 0.5 on Factor 2 and a lower loading on Factor 1.

The variable sC_serv_contrib cannot be included with any of the factors because it does not have sufficient loadings that would exceed the 0.5 threshold on any of the factors.³⁷⁰ Therefore, the sC_serv_contrib variable has to be excluded from further analyses.

Before we can combine the above groups of variables into single factor scales we have to test if the factors meet the reliability requirement, which means that their alpha reliabilities have to meet the threshold of 0.8. In case of both factors, the alpha reliability scores exceed the required threshold; the alpha reliability for factor 1 is 0.85, and the alpha reliability for factor 2 is also 0.81. Thus, the variables comprising of both Factor 1 and Factor 2 can be combined into single factor scales.

Factor 1

```
. alpha sC_triadic sC_EPO sC_USPTO sC ICT_EPO sC ICT_USPTO sC_manuf_hmtech sC_manuf_va,
std;
```

```
Test scale = mean(standardized items)
Average interitem correlation: 0.4670
Number of items in the scale: 7
Scale reliability coefficient: 0.8598
```

Factor 2

```
. alpha sC_citat_scien sC_BT_EPO sC_BT_USPTO sC_serv_know sC_serv_va sC_techbal
sC ICT_contrib, std;
```

```
Test scale = mean(standardized items)
Average interitem correlation: 0.3833
Number of items in the scale: 7
Scale reliability coefficient: 0.8131
```

Based on the Eigenvalues, scree chart, percent of variance explained, factor loadings, content validity and alpha reliability, it appears that a two-factor solution is the optimum for

³⁷⁰ The loading of the sC_serv_contrib variable on the second factor is above 0.4, and it does not have a higher loading on the other factor, which could suggest that it could be included with the second factor. However, when the sC_serv_contrib is included to the list of the variables comprising of factor 2 the alpha reliability score for that factor is 0.77 which is below the acceptable threshold of 0.8. Therefore, the sC_serv_contrib cannot be included with Factor 2 and has to be left out from further analyses.

this list of variables. The table below shows the list of variables comprising of the Factor 1 and Factor 2.

| Factor 1 | | Factor 2 | |
|----------|-----------------|----------|----------------|
| 1 | sC_triadic | 1 | sC_citat_scien |
| 2 | sC_EPO | 2 | sC_BT_EPO |
| 3 | sC_USPTO | 3 | sC_BT_USPTO |
| 4 | sC_ICT_EPO | 4 | sC_serv_know |
| 5 | sC_ICT_USPTO | 5 | sC_serv_va |
| 6 | sC_manuf_hmtech | 6 | sC_techbal |
| 7 | sC_manuf_va | 7 | sC_ICT_contrib |

When examining the content of the two lists of variables, Factor 1 contains variables that relate to the patents in general and to the ICT patents, as well as to the manufacturing sector. The factor analysis indicates that all the variables comprising of Factor 1 have similar patterns of variation. That implies that countries which have high levels of patents in general and high levels of patents related to the Internet and the Communication Technology would also have large manufacturing sectors.

Factor 2, on the other hand, is composed of the variables associated with scientific citations, Biotechnology patents, the services sector, technological balance and the contribution of the ICT to productivity. Again, the factor analysis indicates that all those variables have a common pattern of variation. That means that the countries which have high levels of biotechnology patents, relatively positive technology balance and high ICT contribution, also have a large services sector.

Given that the services sector development comes after the manufacturing sector development in the economic progress, thus, the countries with more developed services sectors can be considered as more modern in their development. And thus, the countries which have the manufacturing sector more developed can be considered as more traditional in their development.

At the same time the biotechnology patents are considered much more cutting edge technology than the general or the ICT patents.³⁷¹ Thus, again, the countries which have relatively high levels of biotechnology patents can be considered as more modern in their focus. And the countries which have relatively high levels of general and ICT patents can be considered as relatively more traditional in their focus.

And finally, the countries with a relatively high technology balance and high ICT contribution to the productivity growth can be also considered as more modern in their technological development than the countries which have a low technology balance and where the ICT has a low contribution to the productivity. A high technology balance entails

³⁷¹ The ICT patents were still considered as cutting edge a couple of years ago, however now it is no longer the case because other more advanced technologies, such as biotech and nanotechnology have appeared, and took the cutting edge position away from the ICT. The same applies to the high- and medium-technology manufactures, which once were considered as distinctive of a country's advancement but not anymore because the real cutting edge progress is taking place in different sectors of the economy.

that a country is successful in selling technology that it produces and that its technology is in high demand in other countries. Thus, it means that a country is more advanced in their technology production than the countries that have to buy the technology from it. Thus, it means that such a country is more modern oriented in their technology production than the countries which have to buy that technology.

As for the ICT contribution to the productivity growth, a country where the ICT has a relatively contribution to productivity growth can also be considered more advanced in their creativity than the country where the ICT contribution is relatively lower. Being able to reach a higher productivity growth from ICT means that a country is more creative in using and applying the new knowledge, and such countries can be considered more modern in their approach than the countries for which are not as good in applying the new technology.

For all the reasons presented above, the factor scale created from Factor 1 will be called by the dissertation a Traditional Creativity Scale, and the factor scale created from Factor 2 will be called Modern Creativity Scale. They will be denoted in the quantitative analysis as *Tradit_Creat_Scale* and *Modern_Creat_Scale*, respectively. The scales will be formed by summing all the variables comprising of each factor in respect to every country.³⁷² The following Table presents the two Scales and the variables that comprise each of the scales.

| Traditional Creativity Scale <i>(Tradit_Creat_Scale)</i> | Modern Creativity Scale <i>(Modern_Creat_Scale)</i> |
|-------------------------------------------------------------------------|-----------------------------------------------------------------------|
| 1 Triadic patents per population | 1 Relative prominence of cited scientific literature |
| 2 EPO patents per population | 2 Biotech patents EPO per population |
| 3 USPTO patents per population | 3 Biotech patents USPTO per population |
| 4 ICT patents EPO per population | 4 Share of knowledge-intensive "market" services in total value added |
| 5 ICT patents USPTO per population | 5 Share of services in total value added |
| 6 Share of high-and medium-technology manufactures in total value added | 6 Technology balance of payments as % of GDP |
| 7 Share of manufacturing in total value added | 7 Contribution of ICT capital to GDP growth |

The Table below presents the scores on both Creativity scales for all of the 30 OECD countries. The scales are standardized so that the mean equals 0 and the standard deviation is 1. Thus, all the countries with the scores below zero on both of the Creativity scales are below the average in relation to other countries. However the minus value does

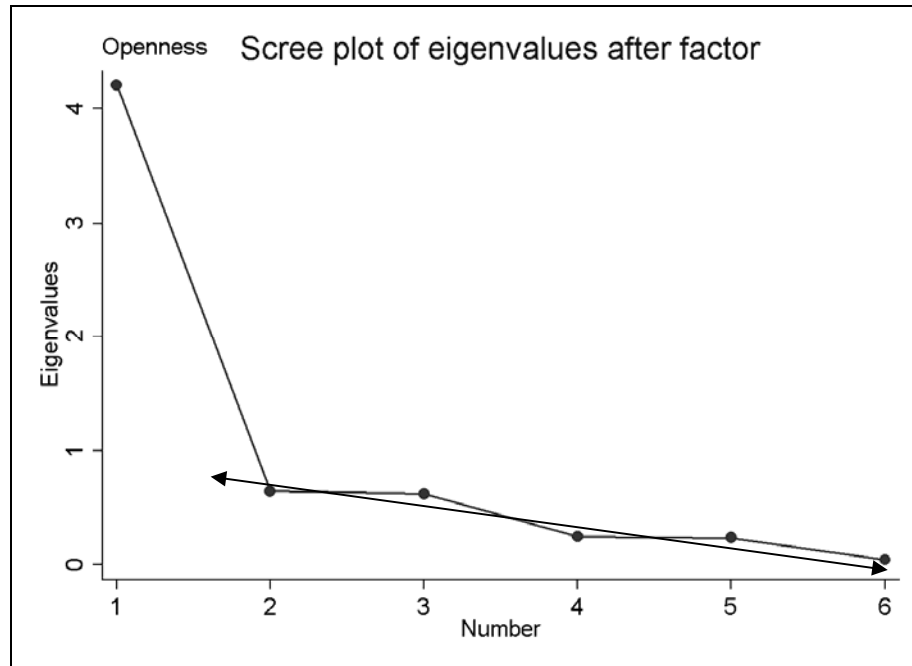
³⁷² The command used in the STATA program for summing the variables for the scales is *rmean*, the command sums the variables by taking an average.

not mean that the countries have negative Creativity, it only means that they are below the mean value on the scale.³⁷³

. list country Tradit_Creat_Scale Modern_Creat_Scale

| | country | Tradit~e | Modern~e |
|-----|-----------------|------------------|------------------|
| 1. | Australia | -.8587102 | .8212423 |
| 2. | Austria | .0607597 | -.1130001 |
| 3. | Belgium | .0663868 | .9157087 |
| 4. | Canada | -.1404294 | .3332053 |
| 5. | Czech Republic | -.3460682 | -1.199009 |
| 6. | Denmark | .0236853 | 1.725698 |
| 7. | Finland | 1.919657 | .0349351 |
| 8. | France | -.0244431 | .3029757 |
| 9. | Germany | 1.362179 | .2159656 |
| 10. | Greece | -1.318565 | -.7647616 |
| 11. | Hungary | -.4890213 | -.6889915 |
| 12. | Iceland | -.5564587 | -.175026 |
| 13. | Ireland | .7329665 | -1.566148 |
| 14. | Italy | -.4118076 | -.2269301 |
| 15. | Japan | 2.003642 | .0687582 |
| 16. | Luxembourg | -.4954347 | 1.168649 |
| 17. | Mexico | -.8650987 | -.765833 |
| 18. | Netherlands | .5205733 | .851833 |
| 19. | New Zealand | -.8319475 | -.1744358 |
| 20. | Norway | -.752692 | -.4088477 |
| 21. | Poland | -.916362 | -.9521215 |
| 22. | Portugal | -1.033989 | -.4721033 |
| 23. | Slovak Republic | -.6775781 | -1.036336 |
| 24. | South Korea | .3756968 | -.8622352 |
| 25. | Spain | -.8868657 | -.3683997 |
| 26. | Sweden | 1.610437 | .8131769 |
| 27. | Switzerland | 2.055137 | 1.657856 |
| 28. | Turkey | -1.240791 | -2.141528 |
| 29. | United Kingdom | -.0616451 | .8955433 |
| 30. | United States | 1.176786 | 2.11016 |

³⁷³ For the Tradit_Creat_Scale the maximum value is 2.05 (Switzerland) and the minimum value is -1.31 (Greece), while for the Modern_Creat_Scale the maximum value is 2.11 (United States) and the minimum value is -2.14 (Turkey).



Again, the scree chart indicates that a one-factor solution is the most appropriate, as the line of Eigenvalues makes a definite turn after the first factor. In addition, a one-factor solution would explain 70% of the total variance (Cumulative 0.70), which is a very satisfying amount.

In order to construct factor scales, it is necessary to examine the loadings that each variable in the list has on the retained factor. Maximization of these loadings for each factor can be obtained by rotating for a one-factor solution. The rotated loadings indicate that Factor 1 is comprised of the following variables: O_Inv_ICT O_Inv_Soft O_SecServ O_Hosts O_Users O_PCs. Each of these variables has a loading of at least 0.4 on Factor 1.

```
. rotate, factors (2);
(varimax rotation)
Rotated factor loadings (pattern matrix) and unique variances
```

| Variable | Factor1 | Uniqueness |
|------------|---------|------------|
| O_Inv_ICT | 0.8623 | 0.2565 |
| O_Inv_Soft | 0.8893 | 0.2091 |
| O_SecServ | 0.8184 | 0.3302 |
| O_Hosts | 0.7881 | 0.3789 |
| O_Users | 0.8020 | 0.3568 |
| O_PCs | 0.8608 | 0.2591 |

Before we can combine the above group of variables into a single factor scale we have to test if the factor meets the reliability requirement, which means that the alpha reliability for the variables comprising of the common factor has to meet the threshold of 0.8. The alpha reliability for the group of variables under consideration is 0.92 and thus, we can combine them into a single factor scale.

Factor 1

```
. alpha O_Inv_ICT O_Inv_Soft O_SecServ O_Hosts O_Users O_PCs, std
```

```
Test scale = mean(standardized items)
Average interitem correlation:    0.6574
Number of items in the scale:    6
Scale reliability coefficient:    0.9201
```

The Eigenvalues, scree chart, percent of variance explained, factor loadings, content validity and alpha reliability reveals that there is one underlying factor for the Openness to Change variables. The table below shows the list of variables comprising of the common Factor.

| Factor 1 | |
|----------|------------|
| 1 | O_Inv_ICT |
| 2 | O_Inv_Soft |
| 3 | O_SecServ |
| 4 | O_Hosts |
| 5 | O_Users |
| 6 | O_PCs |

All the variables comprising of Factor 1 are measures of the Openness to Change. Thus, the factor scale that will be created from those variables will be named an Openness Scale (*Openness_Scale*). The following table lists all the variables that are part of the Openness Scale.

| Openness Scale | |
|-------------------------|---------------------------------------------------------------------------|
| <i>(Openness_Scale)</i> | |
| 1 | Investment in ICT as % of gross fixed capital formation |
| 2 | Software Investment as % of non-residential gross fixed capital formation |
| 3 | Secure Servers |
| 4 | Internet Hosts |
| 5 | Internet Users |
| 6 | Personal Computers |

The Openness Scale was created by summing all the variables comprising of Factor 1 for each country.³⁷⁵ The scale is standardized so that the mean equals 0 and the standard deviation equals 1. Thus, all the countries with the scores below zero on both of the Creativity scales are below the average in relation to other countries. However the minus

³⁷⁵ The command used in the STATA program for summing the variables for the scales is *rmean*, the command sums the variables by taking an average.

value does not mean that the countries have negative Creativity, it only means that they are below the mean value on the scale.³⁷⁶ We have normalized the Openness Scale in order to acquire comparable data with all the other scales and measures that were created through the factor analysis, which are also normalized. One has to remember that the scores below zero do not indicate a negative value of the scale. They simply indicate that a country scores below the average. The Table below presents the scores on the Openness Scale for all of the 30 OECD countries under investigation.

| | country | Openness |
|-----|-----------------|------------------|
| 1. | Australia | .9099237 |
| 2. | Austria | -.2021264 |
| 3. | Belgium | -.3707289 |
| 4. | Canada | .7145699 |
| 5. | Czech Republic | -.7032301 |
| 6. | Denmark | .9286113 |
| 7. | Finland | .908183 |
| 8. | France | -.4012622 |
| 9. | Germany | -.0877217 |
| 10. | Greece | -1.33795 |
| 11. | Hungary | -1.089567 |
| 12. | Iceland | 2.027394 |
| 13. | Ireland | -.6777037 |
| 14. | Italy | -.5054116 |
| 15. | Japan | -.0535039 |
| 16. | Luxembourg | .6461054 |
| 17. | Mexico | -1.422054 |
| 18. | Netherlands | .7878476 |
| 19. | New Zealand | .2831869 |
| 20. | Norway | -.1970822 |
| 21. | Poland | -1.168125 |
| 22. | Portugal | -1.078923 |
| 23. | Slovak Republic | -.7252399 |
| 24. | South Korea | .0423151 |
| 25. | Spain | -.7355864 |
| 26. | Sweden | 1.32955 |
| 27. | Switzerland | .671427 |
| 28. | Turkey | -1.489872 |
| 29. | United Kingdom | .5980528 |
| 30. | United States | 2.398922 |

³⁷⁶ For the Openness_Scale the maximum value is 2.39 (United States) and the minimum value is -1.48 (Turkey).

ANNEX D Innovation Factor Analysis

Since the dissertation argues that the Creativity and Openness are the composites of a broader concept of Innovation, we would like to check whether there is a common factor among the Creativity and Openness Variables. If yes, then we could combine those variables which exhibit a common variance patterns into one scale called Innovation.

There are fifteen variables related to Creativity and six variables related to Openness, which gives twenty variables for the consideration of the analysis. A correlation matrix has revealed that there are many high correlations between the variables indicating that there could be some underlying factors present within the variables.

```
. corr sC_citat_scien sC_triadic sC_EPO sC_USPTO sC_ICT_EPO sC_ICT_USPTO sC_BT_EPO
sC_BT_USPTO sC_serv_know sC_manuf_hmtech sC_serv_contrib sC_serv_va sC_manuf_va
sC_techbal sC_ICT_contrib sO_Inv_ICT sO_Inv_Soft sO_SecServ sO_Hosts sO_Users sO_PC$;
(obs=20)
```

| | sC_cit-n | sC_tri-c | sC_EPO | sC_USPTO | sC_IC-PO | sC_IC-TO | sC_BT-PO | sC_BT-TO | sC_ser-w |
|--------------|----------|----------|---------|----------|----------|----------|----------|----------|----------|
| sC_citat_s-n | 1.0000 | | | | | | | | |
| sC_triadic | 0.5691 | 1.0000 | | | | | | | |
| sC_EPO | 0.6666 | 0.9194 | 1.0000 | | | | | | |
| sC_USPTO | 0.4779 | 0.7723 | 0.5419 | 1.0000 | | | | | |
| sC_ICT_EPO | 0.5376 | 0.8954 | 0.8764 | 0.6128 | 1.0000 | | | | |
| sC_ICT_USPTO | 0.2213 | 0.6897 | 0.3933 | 0.9315 | 0.5859 | 1.0000 | | | |
| sC_BT_EPO | 0.7482 | 0.5134 | 0.5898 | 0.4123 | 0.4225 | 0.2076 | 1.0000 | | |
| sC_BT_USPTO | 0.6518 | 0.3938 | 0.3494 | 0.6155 | 0.2724 | 0.4093 | 0.8504 | 1.0000 | |
| sC_serv_know | 0.5604 | 0.2086 | 0.1786 | 0.3436 | 0.1098 | 0.2186 | 0.2927 | 0.2944 | 1.0000 |
| sC_manuf_h-h | 0.1016 | 0.5474 | 0.5389 | 0.4293 | 0.4676 | 0.4460 | 0.1329 | 0.0336 | 0.1402 |
| sC_serv_co-b | 0.0735 | 0.0975 | -0.0117 | 0.2720 | 0.0385 | 0.1913 | 0.1399 | 0.3282 | -0.0110 |
| sC_serv_va | 0.5808 | 0.2862 | 0.2814 | 0.2497 | 0.1659 | 0.0747 | 0.4712 | 0.4661 | 0.5795 |
| sC_manuf_va | -0.1119 | 0.3567 | 0.3498 | 0.2268 | 0.3532 | 0.3156 | -0.0614 | -0.1631 | -0.0327 |
| sC_techbal | 0.5841 | 0.3330 | 0.2850 | 0.3300 | 0.2674 | 0.2114 | 0.5479 | 0.4875 | 0.3545 |
| sC_ICT_con-b | 0.2709 | 0.0673 | -0.1018 | 0.3287 | -0.0345 | 0.2700 | 0.3318 | 0.4863 | 0.3623 |
| sO_Inv_ICT | 0.6266 | 0.4783 | 0.4004 | 0.6359 | 0.4908 | 0.4879 | 0.5014 | 0.6556 | 0.4876 |
| sO_Inv_Soft | 0.7337 | 0.6577 | 0.6051 | 0.6996 | 0.6594 | 0.5632 | 0.6011 | 0.6674 | 0.4548 |
| sO_SecServ | 0.5808 | 0.2257 | 0.1365 | 0.5419 | 0.1634 | 0.3495 | 0.4427 | 0.6705 | 0.4363 |
| sO_Hosts | 0.5217 | 0.3083 | 0.2241 | 0.6451 | 0.3200 | 0.5304 | 0.4984 | 0.7448 | 0.3474 |
| sO_Users | 0.4497 | 0.3436 | 0.3377 | 0.3707 | 0.3460 | 0.2903 | 0.4318 | 0.4089 | 0.3905 |
| sO_PC\$ | 0.6696 | 0.5197 | 0.4784 | 0.5923 | 0.4363 | 0.4458 | 0.5599 | 0.5612 | 0.4967 |

| | sC_man-h | sC_ser-b | sC_ser-a | sC_man-a | sC_tec-l | sC_ICT-b | sO_Inv-T | sO_Inv-t | sO_Sec-v |
|--------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| sC_manuf_h-h | 1.0000 | | | | | | | | |
| sC_serv_co-b | -0.1491 | 1.0000 | | | | | | | |
| sC_serv_va | -0.2047 | -0.0239 | 1.0000 | | | | | | |
| sC_manuf_va | 0.8701 | -0.2386 | -0.3676 | 1.0000 | | | | | |
| sC_techbal | -0.1057 | 0.3529 | 0.5214 | -0.2314 | 1.0000 | | | | |
| sC_ICT_con-b | -0.1562 | 0.5045 | 0.1705 | -0.2374 | 0.3108 | 1.0000 | | | |
| sO_Inv_ICT | 0.2281 | 0.4776 | 0.3627 | 0.0870 | 0.4242 | 0.6616 | 1.0000 | | |
| sO_Inv_Soft | 0.3963 | 0.3319 | 0.3547 | 0.2020 | 0.4010 | 0.5266 | 0.8951 | 1.0000 | |
| sO_SecServ | -0.1863 | 0.5067 | 0.2260 | -0.2616 | 0.4168 | 0.6437 | 0.6725 | 0.6004 | 1.0000 |
| sO_Hosts | -0.0762 | 0.2774 | 0.2344 | -0.2337 | 0.1615 | 0.4696 | 0.6546 | 0.6028 | 0.7198 |
| sO_Users | 0.2910 | 0.1706 | -0.0679 | 0.2977 | 0.1571 | 0.4842 | 0.5477 | 0.6261 | 0.6408 |
| sO_PC\$ | 0.2736 | 0.3198 | 0.0866 | 0.0323 | 0.2838 | 0.5434 | 0.5966 | 0.7440 | 0.7266 |

| | sO_Hosts | sO_Users | sO_PC\$ |
|----------|----------|----------|---------|
| sO_Hosts | 1.0000 | | |
| sO_Users | 0.4240 | 1.0000 | |
| sO_PC\$ | 0.5735 | 0.7899 | 1.0000 |

A Principal Components Factor Analysis was performed on those variables³⁷⁷ to determine if there are any underlying relationships that might be used to create a single factor scale for Innovation, which would include both the Creativity and the Openness variables. The results of the factor analysis are as follows:

```
. factor sC_citat_scienc sC_triadic sC_EPO sC_USPTO sC_ICT_EPO sC_ICT_USPTO sC_BT_EPO
sC_BT_USPTO sC_serv_know sC_manuf_hmtech sC_serv_contrib sC_serv_va sC_manuf_va
sC_techbal sC_ICT_contrib sO_Inv_ICT sO_Inv_Soft sO_SecServ sO_Hosts sO_Users sO_PCs,
pcf;
```

```
Factor analysis/correlation          Number of obs   =      20
Method: principal-component factors
```

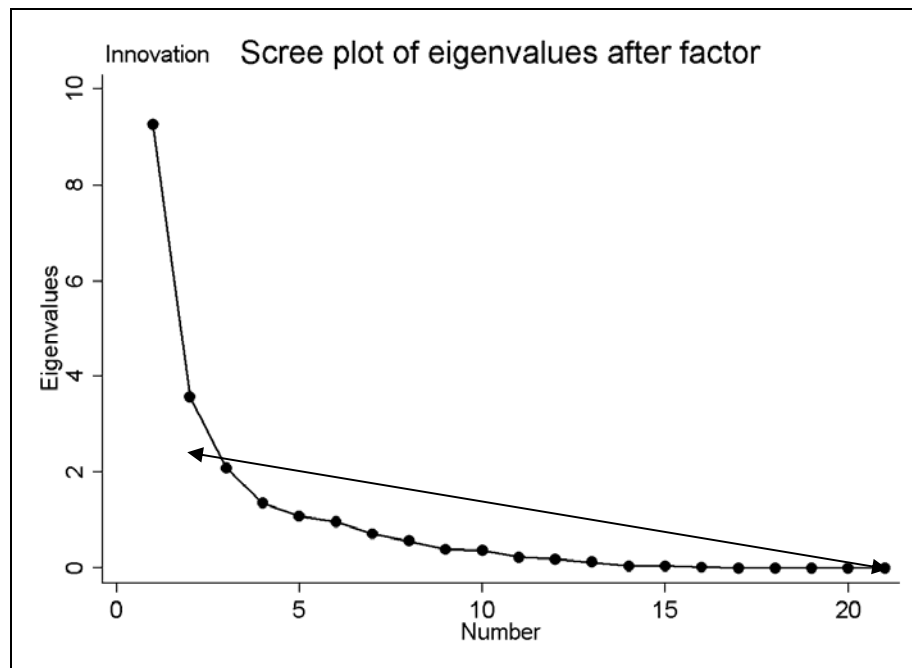
| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|----------|----------------|------------|------------|---------------|
| Factor1 | 9.26884 | 5.70286 | 0.4414 | 0.4414 |
| Factor2 | 3.56598 | 1.47915 | 0.1698 | 0.6112 |
| Factor3 | 2.08682 | 0.73117 | 0.0994 | 0.7106 |
| Factor4 | 1.35566 | 0.27926 | 0.0646 | 0.7751 |
| Factor5 | 1.07640 | 0.11055 | 0.0513 | 0.8264 |
| Factor6 | 0.96585 | 0.25173 | 0.0460 | 0.8724 |
| Factor7 | 0.71412 | 0.15319 | 0.0340 | 0.9064 |
| Factor8 | 0.56093 | 0.17476 | 0.0267 | 0.9331 |
| Factor9 | 0.38617 | 0.02403 | 0.0184 | 0.9515 |
| Factor10 | 0.36213 | 0.12740 | 0.0172 | 0.9687 |
| Factor11 | 0.23473 | 0.05531 | 0.0112 | 0.9799 |
| Factor12 | 0.17942 | 0.05353 | 0.0085 | 0.9884 |
| Factor13 | 0.12588 | 0.07605 | 0.0060 | 0.9944 |
| Factor14 | 0.04983 | 0.00900 | 0.0024 | 0.9968 |
| Factor15 | 0.04083 | 0.02060 | 0.0019 | 0.9987 |
| Factor16 | 0.02023 | 0.01495 | 0.0010 | 0.9997 |
| Factor17 | 0.00528 | 0.00477 | 0.0003 | 1.0000 |
| Factor18 | 0.00052 | 0.00012 | 0.0000 | 1.0000 |
| Factor19 | 0.00039 | 0.00039 | 0.0000 | 1.0000 |
| Factor20 | 0.00000 | 0.00000 | 0.0000 | 1.0000 |
| Factor21 | -0.00000 | . | -0.0000 | 1.0000 |

Although in this case there are five Eigenvalues that exceed the threshold level of 1.0, the last three are pretty close to the threshold. This means that the last three factors most probably do not explain much more of the total variance for this list of variables than a single variable does. The third eigenvalue is slightly above 2 however, a three-factor solution does not seem plausible because adding an extra factor to a two-factor solution would increase the explained variance only by 10%, which is very low and not satisfying. Such low

³⁷⁷ The Principal Factor Component Analysis for Innovation used 20 observations which corresponds to 2/3 of the whole sample of 30 countries, and thus can be treated as representative for the whole sample. In order to retain at least 20 observations in the factor analysis in four cases we had to replace the missing values with the OECD averages. The guiding principles of the replacement were: to do the replacement for as little countries and variables as possible and only to the point where the number of 20 observations was reached; to fill the missing values with the averages only for countries where there was only one value missing for the whole set of variables (so that there would be no more than one average used for one country). Guided by those principles, we replaced five missing values with the values of the OECD average: three for the Technological Balance (sC_techbal) in reference to the Netherlands, Greece and Sweden (note: the OECD average for technological balance did not include Ireland because it was a very strong outlier); and two for the ICT contribution (sC_ICT_contrib) in reference to Norway and Korea. Since the replacement referred only to 4 data points it did not have any significant impact on the results of the analysis. It allowed however, to increase number of observations used in the factor analysis to 20.

percentage of additional variance explained indicates that the additional factor does not individually account for a substantial amount of the variance.

To further examine the Eigenvalues and make the decision about the number of meaningful factors existing among the variables under consideration, it is useful to graph the Eigenvalues in a scree chart:



Again, the scree chart indicates that a two-factor solution is the most appropriate, as the line of Eigenvalues makes a definite turn after the second factor. In addition, factor 3 and beyond appear to lie in a straight line, indicating that they do not individually account for a substantial amount of variance. Besides, a two-factor solution would explain 61% of the total variance (Cumulative 0.6112), which is a very satisfying amount.

In order to construct single factor scales, it is necessary to examine the loadings that each variable in the list has on the retained factors. Maximization of these loadings for each factor can be obtained by rotating for a two-factor solution.

```
. rotate, factors(2);
```

Rotated factor loadings (pattern matrix) and unique variances

| Variable | Factor1 | Factor2 | Uniqueness |
|--------------|---------------|---------------|------------|
| sC_citat_s~n | 0.7457 | 0.3348 | 0.3319 |
| sC_triadic | 0.3509 | 0.8475 | 0.1586 |
| sC_EPO | 0.2745 | 0.8174 | 0.2565 |
| sC_USPTO | 0.5766 | 0.6225 | 0.2801 |
| sC_ICT_EPO | 0.2710 | 0.8225 | 0.2501 |
| sC_ICT_USPTO | 0.3719 | 0.6246 | 0.4716 |
| sC_BT_EPO | 0.6868 | 0.2911 | 0.4436 |
| sC_BT_USPTO | 0.8316 | 0.1531 | 0.2851 |
| sC_serv_know | 0.5566 | 0.1082 | 0.6784 |
| sC_manuf_h~h | -0.1653 | 0.8605 | 0.2322 |
| sC_serv_co~b | 0.5000 | -0.1482 | 0.7280 |
| sC_serv_va | 0.5268 | -0.0456 | 0.7204 |
| sC_manuf_va | -0.3609 | 0.7561 | 0.2981 |
| sC_techbal | 0.6070 | 0.0305 | 0.6307 |
| sC_ICT_con~b | 0.7287 | -0.1702 | 0.4401 |
| sO_Inv_ICT | 0.7954 | 0.3289 | 0.2592 |
| sO_Inv_Soft | 0.7426 | 0.5473 | 0.1489 |
| sO_SecServ | 0.8746 | -0.0384 | 0.2335 |
| sO_Hosts | 0.7628 | 0.1181 | 0.4043 |
| sO_Users | 0.5360 | 0.3634 | 0.5807 |
| sO_PCs | 0.7220 | 0.3815 | 0.3332 |

The rotated loadings indicate that Factor 1 is comprised of the following variables: sC_citat_scienc, sC_BT_EPO, sC_BT_USPTO, sC_serv_know, sC_serv_contrib, sC_serv_va, sC_techbal, sC_ICT_contrib, sO_Inv_Soft, sO_SecServ, sO_Hosts, sO_Users, sO_PCs. Each of these variables has a loading of at least 0.5 on the first factor, which is the required threshold, and a lower loading on the second factor.³⁷⁸

As for the second factor, the rotated loadings indicate that it is composed of the following variables: sC_triadic, sC_EPO, sC_ICT_EPO, sC_ICT_USPTO, sC_manuf_hmtech, sC_manuf_va. Again, each of these variables has a loading of at least 0.5 on Factor 2 and a lower loading on Factor 1.

The variable sC_USPTO cannot be included with any of the factors because it is split between the two factors. It loads 0.57 on the first factor and 0.62 on the second factor. The difference between the two loadings is too small (less than 10%) to include it with any of the factors. Therefore, the sC_USPTO variable has to be excluded from the factor scales created through the factor analysis.

Before we can combine the group of variables into single factor scales we have to test if the factors meet the reliability requirement, which means that their alpha reliabilities have to meet the threshold of 0.8. In case of both factors, the alpha reliability scores exceed the required threshold. The alpha reliability for factor 1 is 0.91, and the alpha reliability for factor 2 is 0.82. Thus, the variables comprising of both Factor 1 and Factor 2 can be combined into single factor scales.

³⁷⁸ The variable sC_Inv_Soft loads highly on Factor 1 (0.76) but its loading on the second factor also slightly exceeds the 0.5 threshold. However, since the loading on the second factor is just slightly above the threshold level, and since the loading on the first factor is more than 0.2 higher than on the second one, we can include the variable sC_Inv_Soft with Factor 1 (its content and alpha reliability of Factor 1 also support that idea).

Factor 1

```
. alpha sC_citat_scien sC_BT_EPO sC_BT_USPTO sC_serv_know sC_serv_contrib sC_serv_va
sC_techbal sC_ICT_contrib sO_Inv_ICT sO_Inv_Soft sO_SecServ sO_Hosts sO_Users sO_PCs,
std;
```

```
Test scale = mean(standardized items)
Average interitem correlation:      0.4240
Number of items in the scale:      14
Scale reliability coefficient:      0.9115
```

Factor 2

```
. alpha sC_triadic sC_EPO sC_ICT_EPO sC_ICT_USPTO sC_manuf_hmtech sC_manuf_va, std;
```

```
Test scale = mean(standardized items)
Average interitem correlation:      0.4316
Number of items in the scale:      6
Scale reliability coefficient:      0.8200
```

Based on the Eigenvalues, scree chart, percent of variance explained, factor loadings, content validity and alpha reliability, it appears that there are two meaningful factors among the variables. The table below shows the list of variables comprising of the Factor 1 and Factor 2.

| Factor 1 | | Factor 2 | |
|----------|-----------------|----------|-----------------|
| 1 | sC_citat_scien | 1 | sC_triadic |
| 2 | sC_BT_EPO | 2 | sC_EPO |
| 3 | sC_BT_USPTO | 3 | sC_ICT_EPO |
| 4 | sC_serv_know | 4 | sC_ICT_USPTO |
| 5 | sC_serv_contrib | 5 | sC_manuf_hmtech |
| 6 | sC_serv_va | 6 | sC_manuf_va |
| 7 | sC_techbal | | |
| 8 | sC_ICT_contrib | | |
| 9 | sO_Inv_ICT | | |
| 10 | sO_Inv_Soft | | |
| 11 | sO_SecServ | | |
| 12 | sO_Hosts | | |
| 13 | sO_Users | | |
| 14 | sO_PCs | | |

When examining the content of the two factors we notice that all of the variables that are listed with Factor 1 are the variables that compose the Modern Creativity Scale³⁷⁹ and the Openness Scale. On the other hand, all of the variables listed with Factor 2 are the

³⁷⁹ There is one variable, sC_serv_contrib (Services contribution to productivity), which is not part of the Modern Creativity Scale but is a part of the Factor 1. The sC_serv_contrib variable was also on the list when we were conducting the factor analysis distinctively for the Creativity Variables. However, then the loading on that variable was too low to include it with the Factor which was later transformed into the Modern Creativity Scale. Now, when we conduct the analysis of both Creativity and Openness Variables together the sC_serv_contrib loads 0.5 on the first factor, which is just enough to include it with Factor 1. Also the alpha reliability score supports it.

variables that compose the Traditional Creativity Scale. Such a turnout is consistent with our theory which states that Creativity and Openness are both part of a broader concept of Innovation.

Furthermore, such a turnout also supports our previous claim that the true spirit of creating novel ideas is better captured by the Modern Creativity Scale than by the Traditional Creativity Scale. The variables that compose the Modern Creativity Scale are better indicators of real creativity because they relate to a more forefront, new and cutting-edge ideas than the variables comprising of the Traditional Creativity Scale. The factor analysis conducted on both the Creativity and Openness Variables has shown that the data supports such an assertion because there is indeed a strong underlying factor for all the Modern Creativity and Openness variables, while the Traditional Creativity variables have clustered under a separate factor.

The purpose of running the current factor analysis was to see whether we can create an Innovation Scale which would combine some of the Creativity and Openness variables together. We have discovered that not only some but even all of the Creativity and Openness Variables share a common pattern of variance. Thus, we can create a scale which combines both the Modern Creativity Scale and the Openness Scale together and which will be called an Innovation Scale.³⁸⁰ It will be denoted in the statistical analysis with capital letters as an INNOVATION_Scale because it combines two other scales together. The following table presents the list of variables pertaining of the Innovation Scale.

| Innovation Scale | |
|---------------------------|---------------------------------------------------------------------------|
| <i>(INNOVATION_Scale)</i> | |
| 1 | Relative prominence of cited scientific literature |
| 2 | Biotech patents EPO per population |
| 3 | Biotech patents USPTO per population |
| 4 | Share of knowledge-intensive "market" services in total value added |
| 5 | Contribution of the services sector to productivity growth |
| 6 | Share of services in total value added |
| 7 | Technology balance of payments as % of GDP |
| 8 | Contribution of ICT capital to GDP growth |
| 9 | Investment in ICT as % of gross fixed capital formation |
| 10 | Software Investment as % of non-residential gross fixed capital formation |
| 11 | Secure Servers per 100 000 inhabitants |
| 12 | Internet Hosts per 100 inhabitants |
| 13 | Internet Users per 100 inhabitants |
| 14 | Personal Computers per 100 inhabitants |

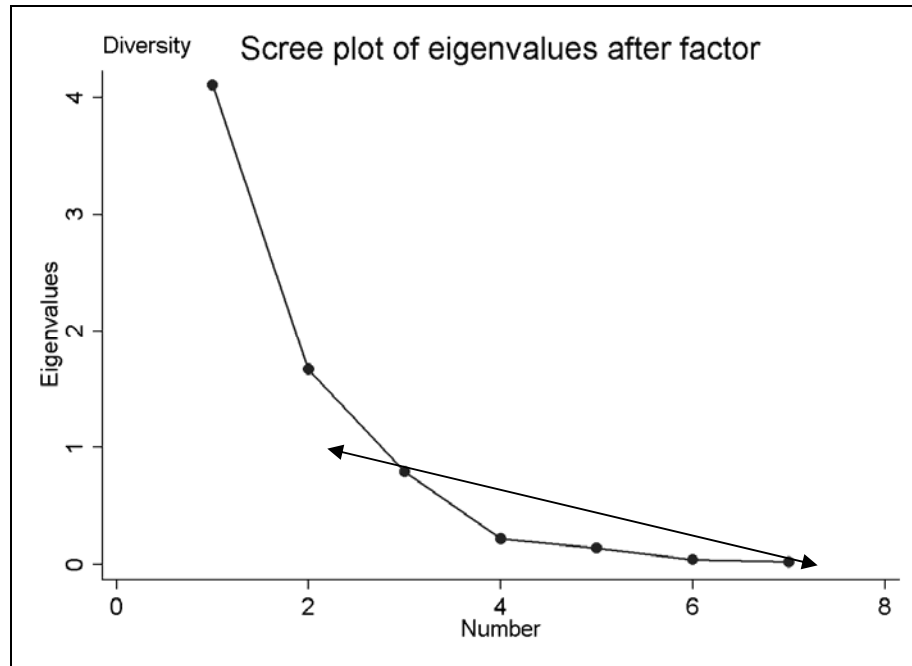
³⁸⁰ We will not create any scale out of the Factor 2 because, apart from one variable, all the variables are the same as in the Traditional Creativity Scale. Thus, creating a new scale would not add any explanatory value to our analysis.

The Table below presents the scores on the Innovation Scale for all of the 30 OECD countries. The scales are standardized so that the mean equals 0 and the standard deviation is 1. Thus, all the countries with the scores below zero on the scale are below the average in relation to other countries. However the minus value does not mean that the countries have negative Innovation, it only means that they are below the mean value on the scale.³⁸¹

. list country INNOVATION_Scale

| | country | INNOVATION_Scale |
|-----|-----------------|------------------|
| 1. | Australia | 1.000001 |
| 2. | Austria | -.2735682 |
| 3. | Belgium | .2006718 |
| 4. | Canada | .5706401 |
| 5. | Czech Republic | -1.086125 |
| 6. | Denmark | 1.379172 |
| 7. | Finland | .5097174 |
| 8. | France | -.2266015 |
| 9. | Germany | .0368684 |
| 10. | Greece | -.9827402 |
| 11. | Hungary | -.8795222 |
| 12. | Iceland | 1.13973 |
| 13. | Ireland | -1.268663 |
| 14. | Italy | -.5032342 |
| 15. | Japan | -.0527783 |
| 16. | Luxembourg | .849126 |
| 17. | Mexico | -1.18887 |
| 18. | Netherlands | .6959242 |
| 19. | New Zealand | -.027331 |
| 20. | Norway | -.2225483 |
| 21. | Poland | -.8942611 |
| 22. | Portugal | -.8535671 |
| 23. | Slovak Republic | -.7286234 |
| 24. | South Korea | -.4544559 |
| 25. | Spain | -.7546859 |
| 26. | Sweden | 1.213426 |
| 27. | Switzerland | 1.339555 |
| 28. | Turkey | -1.902752 |
| 29. | United Kingdom | .9061267 |
| 30. | United States | 2.459368 |

³⁸¹ For the INNOVATION_Scale the maximum value is 2.45 (United States) and the minimum value is -1.9 (Turkey).



Again, the scree chart indicates that a two-factor solution is the most appropriate, as the line of Eigenvalues makes a turn after the second factor. In addition, a two-factor solution would explain 82% of the total variance (Cumulative 0.8249), which is a very satisfying amount.

In order to construct factor scales, it is necessary to examine the loadings that each variable in the list has on the retained factors. Maximization of these loadings for each factor can be obtained by rotating for a two-factor solution.

```
. rotate, factors (2);
```

Rotated factor loadings (pattern matrix) and unique variances

| Variable | Factor1 | Factor2 | Uniqueness |
|--------------|---------------|---------------|------------|
| sELF | 0.1050 | 0.9172 | 0.1476 |
| sA_ethnic | 0.4904 | 0.7553 | 0.1891 |
| sA_language | 0.5260 | 0.7656 | 0.1372 |
| sA_religion | -0.3810 | 0.5976 | 0.4977 |
| sIMM_fborm-k | 0.9171 | 0.2035 | 0.1176 |
| sIMM_nonci~s | 0.9673 | 0.1281 | 0.0479 |
| sIMM_labor-k | 0.9328 | 0.2025 | 0.0889 |

The rotated loadings indicate that Factor 1 is comprised of the following four variables: IMM_fborm_stock, IMM_noncitizens, IMM_laborforce_stock. Each of these variables has a loading of at least 0.5 on Factor 1 and a lower loading on Factor 2.

Further examination of the rotated loadings indicates that Factor 2 consists of the remaining four variables: ELF, A_ethnic, A_language, A_religion. Two of the variables: A_ethnic, A_language have also high loadings on Factor 1 (around 0.5), however their loadings on Factor 2 are significantly higher (around 0.75), and thus they can be included with Factor 2, especially that their content validity also supports that decision.

Before we can combine the above groups of variables into single factor scales we have to test if the factors meet the reliability requirement, which means that their alpha reliabilities have to meet the threshold of 0.8. In case of both factors, the alpha reliability scores exceed the required threshold; the alpha reliability for factor one is 0.96, and the alpha reliability for factor two is also 0.81. Thus, the variables comprising of both Factor 1 and Factor 2 can be combined into single factor scales.

Factor 1

```
. alpha IMM_fborn_stock IMM_noncitizens IMM_laborforce_stock, std;

Test scale = mean(standardized items)
Average interitem correlation:    0.9118
Number of items in the scale:    3
Scale reliability coefficient:    0.9687
```

Factor 2

```
. alpha ELF A_ethnic A_language A_religion, std;

Test scale = mean(standardized items)
Average interitem correlation:    0.5222
Number of items in the scale:    4
Scale reliability coefficient:    0.8138
```

The Eigenvalues, scree chart, percent of variance explained, factor loadings, content validity and alpha reliability reveals that there are two underlying factors for the Diversity variables. The Table below shows the list of variables comprising of the Factor 1 and Factor 2.

| Factor 1 | | Factor 2 | |
|----------|----------------------|----------|------------|
| 1 | IMM_fborn_stock | 1 | ELF |
| 2 | IMM_noncitizens | 2 | A_ethnic |
| 3 | IMM_laborforce_stock | 3 | A_language |
| | | 4 | A_religion |

When examining the content of the two lists of variables, Factor 1 contains the variables related to Immigration, while Factor 2 contains the variables related to Diversity based on the Old Minorities. That is why the dissertation decided that, from the content perspective, the variables A_ethnic and A_language should be included with Factor 2. Both of those variables are measures of ethnolinguistic/cultural fractionalization and not of the immigration per se.

However, since the data for those variables was collected in the period of 1981-2001 they might include some of the impacts of the previous waves of immigration and that is why those two variables have also high loadings on Factor 1 which refers to Immigration. The ELF variable, even though constructed to measure the same aspects of diversity as A_ethnic and A_language, is not highly loaded on Factor 1 because the data for ELF was collected before 1961, so it does not include the effects of immigration after that period.

There were two scales created based on the factor analysis of the Diversity Variables. The two scales are the Immigration Diversity Scale and the Old Minorities Diversity Scale denoted in the statistical analysis as Imm_Divers_Scale and Old_Minor_Divers_Scale. The Imm_Divers_Scale indicates a country's immigration level, and thus, the level of diversity coming from recent immigration. The Old_Minor_Divers_Scale, on the other hand indicates a country's degree of cultural (ethnolinguistic and religious) fractionalization coming from the Old Minorities present in the country.

The Imm_Divers_Scale refers to what could be understood as the “new diversity”, while the Old_Minor_Divers_Scale refers to what could be understood as the “old diversity”. The old diversity is usually more integrated and assimilated to the society than the “new diversity”, which consists of the freshly arriving immigrants. The Table below presents the two Diversity scales and the list of variables comprising of each of the scales.

| Immigration Diversity Scale <i>(Imm_Divers_Scale)</i> | Old Minorities Diversity Scale <i>(Old_Minor_Divers_Scale)</i> |
|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| 1 Stocks of foreign-born population as % of total population | 1 ELF Ethnolinguistic Fractionalization Index |
| 2 Non-citizens as % of total population | 2 Alesina's Ethnic Fractionalization Index |
| 3 Stocks of foreign or foreign-born labor force as % of total labor force | 3 Alesina's Linguistic Fractionalization Index |
| | 4 Alesina's Religious Fractionalization Index |

The Immigration Diversity Scale and the Old Minorities Diversity Scale were created by summing all the variables comprising of Factor 1 and Factor 2 for each country respectively.³⁸³ The scales are standardized (mean 0, standard deviation 1) in order to assure comparability with all the other scales that were created through the factor analysis, which are also normalized. When examining the scores one has to remember that the scores below zero do not indicate a negative value on the Diversity Scales. They simply indicate that a country scores below the average on a given scale.³⁸⁴ The next Table presents the scores on both Diversity scales for all of the 30 OECD countries.

³⁸³ The command used in the STATA program for summing the variables for the scales is *rmean*, the command sums the variables by taking an average.

³⁸⁴ For the Imm_Divers_Scale the maximum value is 3.71 (Luxemburg) and the minimum value is -1.0 (Turkey), while for the Old_Minor_Divers_Scale the maximum value is 2.53 (Canada) and the minimum value is -1.25 (Portugal).

. list country Imm_Divers_Scale Old_Minor_Divers_Scale

| | country | Imm_Div~e | Old_Min~e |
|-----|-----------------|------------------|------------------|
| 1. | Australia | 1.241874 | .6267686 |
| 2. | Austria | .3139437 | -.43277 |
| 3. | Belgium | .1559391 | 1.309381 |
| 4. | Canada | .6068355 | 2.533146 |
| 5. | Czech Republic | -.6457642 | .7755327 |
| 6. | Denmark | -.3025227 | -.9082707 |
| 7. | Finland | -.710447 | -.566134 |
| 8. | France | -.079806 | -.2988617 |
| 9. | Germany | .3115939 | -.174901 |
| 10. | Greece | .1458918 | -.9098474 |
| 11. | Hungary | -.750208 | -.4690668 |
| 12. | Iceland | . | -.9887516 |
| 13. | Ireland | -.0036651 | -1.056728 |
| 14. | Italy | -.4421562 | -.775208 |
| 15. | Japan | -.8529758 | -.8246047 |
| 16. | Luxembourg | 3.713814 | .627732 |
| 17. | Mexico | -.964711 | .2326185 |
| 18. | Netherlands | -.1877402 | .461873 |
| 19. | New Zealand | 1.308439 | .9332165 |
| 20. | Norway | -.3125996 | -1.039485 |
| 21. | Poland | -.8917512 | -1.029313 |
| 22. | Portugal | -.3934394 | -1.255216 |
| 23. | Slovak Republic | -.813627 | .3486507 |
| 24. | South Korea | -.9051849 | -.7394558 |
| 25. | Spain | -.4194731 | 1.006405 |
| 26. | Sweden | -.0267374 | -.7359285 |
| 27. | Switzerland | 1.720263 | 1.675464 |
| 28. | Turkey | -1.001741 | -.3067824 |
| 29. | United Kingdom | -.2124216 | .0777549 |
| 30. | United States | .3983772 | 1.902781 |

The list of the Right Context variables composes of thirteen variables. A correlation matrix has revealed that there are many high correlations between the variables indicating that there could be some underlying factors present within those variables.

```
. corr RC_naturaliz RC_fb_citiz RC_HS_fb RC_low_LS RC_low_unem_fb RC_small_unem_gap
RC_labpa_fb RC_small_labpa_gap RC_ExpRD RC_low_econ_busreg RC_low_adm_busreg
RC_low_barr_entr RC_low_EPL
(obs=14)
```

| | RC_nat~z | RC_fb~z | RC_HS_fb | RC_low~S | RC_low~b | RC~m_gap | RC_lab~b | RC~a_gap | RC_ExpRD |
|---------------|----------|---------|----------|----------|----------|----------|----------|----------|----------|
| RC_naturaliz | 1.0000 | | | | | | | | |
| RC_fb_citiz | 0.2953 | 1.0000 | | | | | | | |
| RC_HS_fb | 0.5175 | 0.2060 | 1.0000 | | | | | | |
| RC_low_LS | 0.4452 | 0.2719 | 0.4766 | 1.0000 | | | | | |
| RC_low_une~b | 0.1248 | 0.2608 | 0.3470 | 0.4501 | 1.0000 | | | | |
| RC_small_u~p | -0.1128 | 0.2739 | 0.4037 | 0.2599 | 0.7696 | 1.0000 | | | |
| RC_labpa_fb | -0.3579 | -0.0401 | 0.1131 | 0.2257 | 0.3017 | 0.5006 | 1.0000 | | |
| RC_small_l~p | -0.4923 | -0.1043 | -0.1643 | -0.1236 | -0.0592 | 0.3336 | 0.7505 | 1.0000 | |
| RC_ExpRD | 0.2980 | -0.2729 | -0.0141 | 0.1810 | -0.2789 | -0.4635 | -0.1590 | -0.4227 | 1.0000 |
| RC_low_econ~g | 0.4677 | 0.2055 | 0.4364 | 0.0766 | 0.3888 | 0.3741 | -0.3155 | -0.4134 | 0.2087 |
| RC_low_adm~g | 0.5116 | 0.1824 | 0.6739 | 0.4236 | 0.2496 | 0.2868 | 0.0243 | -0.3037 | 0.2919 |
| RC_low_bar~r | 0.5139 | 0.2241 | 0.6244 | 0.4152 | 0.1244 | 0.2197 | 0.1288 | -0.1594 | 0.2616 |
| RC_low_EPL | 0.3697 | -0.3616 | 0.4981 | 0.2502 | 0.2017 | 0.1246 | -0.1533 | -0.3373 | 0.3826 |

| | R~econ~g | R~adm~g | RC_low~r | RC_low~L |
|---------------|----------|---------|----------|----------|
| RC_low_econ~g | 1.0000 | | | |
| RC_low_adm~g | 0.4544 | 1.0000 | | |
| RC_low_bar~r | 0.2982 | 0.9657 | 1.0000 | |
| RC_low_EPL | 0.5623 | 0.3847 | 0.2258 | 1.0000 |

The correlation matrix has also revealed however, that there are too many missing values in the data set, to the extent that we only retain 14 out of 30 observations when conducting the analysis. Such low number cannot be considered representative of the whole sample because it constitutes of less than half of the observations in the sample. We decided to drop as many variables as necessary, up to the point when we would reach at least 20 observations in our analysis, which would constitute 2/3rd of our sample, and thus could be considered representative for the whole sample.

Thus, we dropped four variables which had the highest number of missing values (8 missing values or more). Those dropped variables include: RC_naturaliz, RC_fb_citiz, RC_low_unem_fb, RC_small_unem_gap. We kept nine variables for our analysis and those variables include: RC_HS_fb, RC_low_LS, RC_labpa_fb, RC_small_labpa_gap, RC_ExpRD, RC_low_econ_busreg, RC_low_adm_busreg, RC_low_barr_entr, RC_low_EPL. As a result, we retained 21 out of 30 observations for our analysis, which is an acceptable number, since it constitutes above 2/3rd of the whole sample.

As a next step we conducted a Principal Factor Components Analysis on those nine variables to determine if there are any underlying relationships that might be used to create factor scales for the Right Context Variables. The results of the factor analysis are as follows:

```

. factor SRC_HS_fb SRC_low_LS SRC_labpa_fb SRC_small_labpa_gap SRC_ExpRD
SRC_low_econ_busreg SRC_low_adm_busreg SRC_low_barr_entr SRC_low_EPL, pcf

```

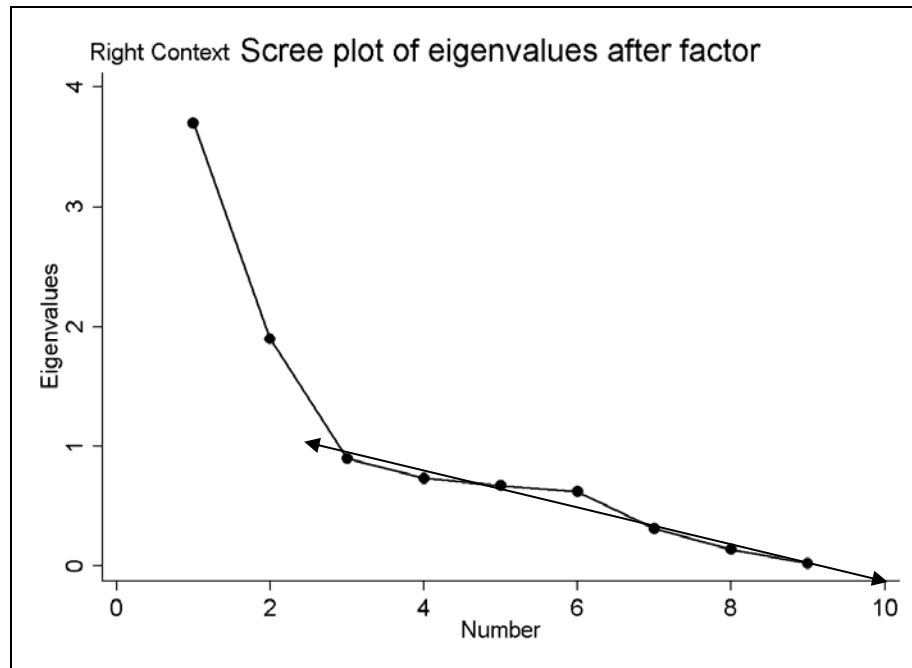
```

Factor analysis/correlation          Number of obs =      21
Method: principal-component factors   Retained factors =    2
Rotation: (unrotated)                 Number of params =   17

```

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---------|----------------|------------|------------|---------------|
| Factor1 | 3.70313 | 1.80566 | 0.4115 | 0.4115 |
| Factor2 | 1.89746 | 0.99838 | 0.2108 | 0.6223 |
| Factor3 | 0.89909 | 0.16712 | 0.0999 | 0.7222 |
| Factor4 | 0.73197 | 0.05995 | 0.0813 | 0.8035 |
| Factor5 | 0.67202 | 0.05029 | 0.0747 | 0.8782 |
| Factor6 | 0.62173 | 0.30935 | 0.0691 | 0.9473 |
| Factor7 | 0.31238 | 0.17491 | 0.0347 | 0.9820 |
| Factor8 | 0.13747 | 0.11273 | 0.0153 | 0.9973 |
| Factor9 | 0.02474 | . | 0.0027 | 1.0000 |

There are two Eigenvalues that exceed the threshold level of 1.0, which indicates a two-factor solution. In order to further examine the Eigenvalues, it is useful to graph them in a scree chart:



Again, the scree chart indicates that a two-factor solution is the most appropriate, as the line of Eigenvalues makes a definite turn after the second factor. In addition, a two-factor solution explains 62% of the total variance (Cumulative 0.6223), which is a very satisfying amount.

In order to construct factor scales, it is necessary to examine the loadings that each variable in the list has on the retained factors. Maximization of these loadings for each factor can be obtained by rotating for a two-factor solution.

```
. rotate, factor (2)
Rotated factor loadings (pattern matrix) and unique variances
```

| Variable | Factor1 | Factor2 | Uniqueness |
|--------------|---------------|---------------|------------|
| sRC_HS_fb | 0.8531 | -0.0424 | 0.2704 |
| sRC_low_LS | 0.6564 | 0.1908 | 0.5327 |
| sRC_labpa_fb | 0.1660 | 0.7456 | 0.4166 |
| sRC_sm~a_gap | -0.1975 | 0.9009 | 0.1494 |
| sRC_ExprD | 0.0733 | -0.6393 | 0.5859 |
| sRC_low_ec~g | 0.5443 | -0.3847 | 0.5557 |
| sRC_low_ad~g | 0.8982 | -0.1669 | 0.1654 |
| sRC_low_ba~r | 0.8994 | -0.0220 | 0.1906 |
| sRC_low_EPL | 0.5728 | -0.3730 | 0.5328 |

The rotated loadings indicate that Factor 1 comprises of the following variables: sRC_HS_fb, sRC_low_LS, sRC_low_econ_busreg, sRC_low_adm_busreg, sRC_low_barr_entr, sRC_low_EPL. Each of these variables has a loading of at least 0.5 on Factor 1, which is the required threshold, and a lower loading on Factor 2.

As for the second factor, the rotated loadings indicate that Factor 2 is composed of the following variables: sRC_labpa_fb, sRC small_labpa_gap. Again, each of these variables has a loading of at least 0.5 on Factor 2 and a lower loading on Factor 1.

The variable sRC_ExprD cannot be included with any of the factors because its loading on the second factor is negative, and the dissertation is interested, from the theoretical point of view, only in the positive loadings of the Right Context variables. Usually, the factor loadings are considered by their absolute value. However, for the clarity of the theoretical argument made by the dissertation, in relation to the Right Context, only the positive loadings can be considered when allocating the variables between the factors.

The dissertation argues that the Right Context has an enabling, positive effect on the relationship between Diversity and Innovativeness. Thus, the dissertation is interested in analyzing whether the higher levels of the Right Context would lead to the strengthening of the positive relationship between Diversity and Innovativeness. For that reason the factor loadings concerning the Right Context variables should be considered only by their positive value, and thus, the sRC_ExprD cannot be included with any of the factors. If we would consider the negative value of the loadings when allocating the variables, it would make the interpretation of the factor scales much more complex than desirable. Since we want the factor solution to have a clear interpretation we have to disregard the negative loadings.

However, even though the sRC_ExprD cannot be part of the factor scales it still will be considered for the further analysis because it is an essential variable for the theoretical argument posed by the dissertation. It will be treated as a separate variable in the regressions

and its individual impact on the relationship between Diversity and Innovativeness will be assessed in the further analysis.

Turning our attention back to the variables that have positive and significant loadings on the factors, the next step of our analysis is to combine the two groups of variables created through the factor analysis into single factor scales. However, before we are able to do that we have to test if the factors meet the reliability requirement, which means that their alpha reliabilities have to meet the threshold of 0.8.

Factor 1

```
. alpha SRC_HS_fb SRC_low_LS SRC_low_econ_busreg SRC_low_adm_busreg SRC_low_barr_entr
SRC_low_EPL, std
```

```
Test scale = mean(standardized items)
Average interitem correlation:      0.4551
Number of items in the scale:      6
Scale reliability coefficient:      0.8336
```

Factor 2

```
. alpha RC_labpa_fb RC_small_labpa_gap, std;
```

```
Test scale = mean(standardized items)
Average interitem correlation:      0.5781
Number of items in the scale:      2
Scale reliability coefficient:      0.7326
```

In case of the first factor, the alpha reliability score exceeds the required threshold, with the alpha reliability for Factor 1 being 0.83. It means that we can combine the variables comprising of Factor 1 into single factor scales and use them in our further analysis.

That is not the case with the second factor, where the alpha reliability is below the required threshold with the score of only 0.73. Therefore, we cannot create a single factor scale out of the variables comprising of Factor 2. Furthermore, there is a problem of too little variables loading on the second factor which gives an extra argument for dropping Factor 2 and not using it in further analysis.

To conclude, based on the Eigenvalues, scree chart, percent of variance explained, factor loadings, content validity and alpha reliability, it appears that there could be one factor scale created in the result of the factor analysis conducted on the Right Context variables. The second factor has to be disregarded due to an insufficient alpha reliability score. The table below shows the list of variables comprising of Factor 1.

| Factor 1 | |
|----------|--------------------|
| 1 | RC_HS_fb |
| 2 | RC_low_LS |
| 3 | RC_low_econ_busreg |
| 4 | RC_low_adm_busreg |
| 5 | RC_low_barr_entr |
| 6 | RC_low_ELP |

When examining the content of the list of variables comprising of Factor 1 most of the variables relate to the Growth Focused Strategy. There are two variables on the list of Factor 1, however, that have been categorized before as indicators of perceiving Diversity as a Value. Those variables which were not originally associated with the Growth Focused Strategy include: a high level of high-skilled foreign-borns (RC_HS_fb) and a low level of low-skilled foreign borns (RC_low_LS). However, since they have fallen into the same pool with the Growth Focused Strategy Variables it means that they tend to vary together with those variables. We would have to consider if there is a way of looking at those variables as Growth Focused Strategy variables. We could actually say that countries which invite more high-skilled immigrants and less low-skilled immigrants are more growth- or competitiveness-focused because they take in highly skilled, talented foreigners in order to have them contribute to the growth of the economy. So welcoming high-skilled immigration does not only indicate that a country perceives diversity as a value, as it has been previously noted, but it also means that a country follows a Growth Focused Strategy in relation to their immigration policy. Therefore, we can name Factor 1 a Growth Focused Strategy Scale (Growth_Focus_Strat_Scale).

The factor analysis did not prescribe the R&D Expenditure (RC_RDExp) to any of the factors. Unlike from what we would expect, the R&D expenditure, which has been categorized as an indicator of an Innovation Focused Strategy, did not form a common factor with the Growth Focused Strategy Variables. It means that the R&D expenditure variable has a variation which is distinct from the Growth Focused Strategy Variables. Therefore, we will consider it as a separate measure in our analysis which denotes a country's focus on innovation. We will call it an Innovation Focused Strategy Measure (Innov_Focus_Strat) and use it in our regression analysis as an individual indicator.

The Growth Focused Strategy Scale is a more broad measure than the Innovation Focused Strategy. The latter is a clean, direct indicator of a country's focus on Innovation. The former indicates a country's focus on growth in a more general sense, including the focus on competitiveness in regard to the business sector, the labor markets, as well as the immigration policy.

It is important to notice, that due to the data missingness, low alpha reliability for the Factor 2, and the fact that the Value in Diversity Variables showed common variance patterns with the Growth Strategy Variables, we were not able to create a Scale for the Value in Diversity Variables.³⁸⁵ Due to the data missingness, from the outright of the factor analysis we had to drop four variables which were originally on our list. Those variables were measuring the naturalization and the unemployment rates among Foreign-Born (RC_naturaliz RC_fb_citiz RC_low_unem_fb RC_small_unem_gap). They had too little values to reach a significant number of observations for our analysis, and thus we had to drop them even though they were important from the theoretical point of view. The other two reasons which unable us to create a Scale for the Value in Diversity Variables have been already explained (above).

³⁸⁵ When we tried to use one of the variables associated with Factor 2 separately, we have not achieved any meaningful results. Having examined the variables associated with Factor 2 we have noticed that they are not a good measure of the integration of immigrants to labor markets because they do not correspond to the judgments concerning the integration of immigrants existing in the literature of the subject. According to the RC_labpa_fb the top countries with the best integration practices for immigrants are Portugal, Switzerland and Spain; and according to RC_small_labpa_gap the top countries are Italy, Luxemburg, Greece, Spain and Portugal. On the contrary, the literature of the subject does not regard those countries as being very integrative towards immigrants (Kymlicka, 2003; Zachary, 2000).

Thus, in result of the factor analysis we have created two measures which will be used as distinct regression variables in our further analysis. One of those measures is a Scale created from the group of variables comprising of Factor 1 which indicates a country's focus on Growth. The second measure is not a scale but an individual variable which is a direct indicator of a country's focus on Innovation. In order to systematize the two measures we called the first one a Growth Focused Strategy Scale and the second one an Innovation Focused Strategy Measure. The following Table lists all the variables that are part of the two measures created as a result of the factor analysis.

| Growth Focused Strategy Scale <i>(Growth_Focus_Strat_Scale)</i> | Innovation Focused Strategy <i>(Innov_Focus_Strat)</i> |
|---------------------------------------------------------------------------|------------------------------------------------------------------|
| 1 % of Highly-Skilled Foreign-born | 1 R&D Expenditure as % of GDP |
| 2 Low % of Low-Skilled Foreign-born | |
| 3 Low Economic Regulations in Business | |
| 4 Low Administrative Regulations in Business | |
| 5 Low Barriers to Entrepreneurship | |
| 6 Low Level of Employment Protection Legislation | |

The Growth Focused Strategy Scale was created by summing all the variables comprising of Factor 1 for each country.³⁸⁶ The Innovation Focused Strategy Measure is just a standardized value of the R&D Expenditure Variable where the mean is 0 and the standard deviation is 1.³⁸⁷ We have normalized the Innovation Focused Strategy Measure in order to acquire comparable data with the Growth Focused Strategy Scale, and with all the other scales that were created through the factor analysis, which are also normalized. When examining the scores one has to remember that the scores below zero do not indicate a negative value on a given measure. They simply indicate that a country scores below the average. The Table below presents the scores on both the Growth Focused Strategy Scale and the Innovation Focused Strategy Measure for all of the 30 OECD countries under investigation.

³⁸⁶ The command used in the STATA program for summing the variables for the scales is *rmean*, the command sums the variables by taking an average.

³⁸⁷ For the Growth_Focus_Strat_Scale the maximum value is 1.73 (Canada) and the minimum value is -1.91 (Poland), while for the Innov_Focus_Strat the maximum value is 2.31 (Sweden) and the minimum value is -1.52 (Mexico).

. list country Growth_Focus_Strat_Scale Innov_Focus_Strat

| | country | Growth_~e | Innov_F~t |
|-----|-----------------|-----------------|------------------|
| 1. | Australia | 1.56633 | -.2419183 |
| 2. | Austria | -.4036231 | .3984538 |
| 3. | Belgium | -.4331998 | .5051824 |
| 4. | Canada | 1.732346 | .0782677 |
| 5. | Czech Republic | -1.236366 | -.5621045 |
| 6. | Denmark | .469489 | .7186399 |
| 7. | Finland | -.0722408 | 1.785927 |
| 8. | France | -.8622049 | .3984538 |
| 9. | Germany | -.5782581 | .8253685 |
| 10. | Greece | -.7581918 | -1.202477 |
| 11. | Hungary | -.450718 | -.8822905 |
| 12. | Iceland | .368834 | 1.252283 |
| 13. | Ireland | 1.473509 | -.7755617 |
| 14. | Italy | -.3679283 | -.6688331 |
| 15. | Japan | .1540423 | 1.465741 |
| 16. | Luxembourg | .3860897 | -.1351896 |
| 17. | Mexico | -.3155684 | -1.522663 |
| 18. | Netherlands | -.8283322 | -.028461 |
| 19. | New Zealand | 1.350289 | -.6688331 |
| 20. | Norway | .8780782 | -.028461 |
| 21. | Poland | -1.91228 | -1.309205 |
| 22. | Portugal | -1.162859 | -.9890192 |
| 23. | Slovak Republic | .4181251 | -1.309205 |
| 24. | South Korea | .4200454 | .8253685 |
| 25. | Spain | -.9264266 | -.7755617 |
| 26. | Sweden | .5173472 | 2.31957 |
| 27. | Switzerland | -.3374236 | .8253685 |
| 28. | Turkey | -1.807458 | -1.202477 |
| 29. | United Kingdom | 1.476068 | .0782677 |
| 30. | United States | 1.242483 | .8253685 |

ANNEX G

Correlations and Summary Statistics

Independent Variables:

Diversity (Old Minorities) Div
 Immigration Diversity Imm

Dependent Variables:

Traditional Creativity T_C
 Creativity C
 Openness O
 Innovation I

Right Context Conditioning Variables:

Right Context Growth Focused Strategy RCg
 Right Context Innovation Focused Strategy RCi

. corr Div Imm T_C C O I RCg RCi Inc
 (obs=29)

| Inc | Div | Imm | T_C | C | O | I | RCg | RCi |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|
| Div | 1.0000 | | | | | | | |
| Imm | 0.4533 | 1.0000 | | | | | | |
| T_C | 0.0813 | 0.0660 | 1.0000 | | | | | |
| C | 0.4340 | 0.5376 | 0.4643 | 1.0000 | | | | |
| O | 0.4111 | 0.4441 | 0.5876 | 0.8254 | 1.0000 | | | |
| I | 0.4325 | 0.4994 | 0.5390 | 0.9497 | 0.9497 | 1.0000 | | |
| RCg | 0.2836 | 0.3612 | 0.2061 | 0.3832 | 0.6121 | 0.5292 | 1.0000 | |
| RCi | 0.0422 | 0.1361 | 0.8436 | 0.6008 | 0.7210 | 0.6755 | 0.2851 | 1.0000 |
| Inc | 0.2384 | 0.7020 | 0.4044 | 0.6941 | 0.6854 | 0.6898 | 0.5339 | 0.5117 |

. sum Div Imm T_C C O I RCg RCi Inc DivRCg ImmRCg DivRCi ImmRCi

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|----------|-----|------|-----------|----------|----------|
| Div | 30 | 10 | 3 | 6.234351 | 17.59944 |
| Imm | 29 | 10 | 3 | 6.994776 | 21.14144 |
| T_C | 30 | 10 | 3 | 6.044306 | 16.16541 |
| C | 30 | 10 | 3 | 3.575416 | 16.33048 |
| O | 30 | 10 | 3 | 5.530383 | 17.19677 |
| I | 30 | 10 | 3 | 4.291743 | 17.3781 |
| RCg | 30 | 10 | 3 | 4.26316 | 15.19704 |
| RCi | 30 | 10 | 3 | 5.432012 | 16.95871 |
| Inc | 30 | 10 | 3 | 3.966486 | 18.12771 |
| DivRCg | 30 | 10 | 3 | 5.817247 | 19.48419 |
| ImmRCg | 29 | 10 | 3 | 5.807812 | 17.79524 |
| DivRCi | 30 | 10 | 3 | 5.805481 | 16.94432 |
| ImmRCi | 29 | 10 | 3 | 5.65595 | 17.29972 |

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Curriculum Vitae

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