

## **Achieving Sustainable Economic Growth from the European Point of View**

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### **Abstract**

This paper discusses the definition for measuring economic growth by Gross Domestic Product (GDP) as a reference indicator in national legislation and the European treaties. For GDP calculation the National Accounts Approach follows the international standards. The European Union has established a gigantic administrative, legal and institutional framework to operate the European Statistics System and to provide an adequate picture of the economy by National Accounts. This framework did neither forecast nor indicate any crisis during 2008-2014. Schumpeter puts the conventional GDP approach to planning economies of the Soviet type. Popper and Friedman criticize the tautological frame and the mismatch of production and governmental and financial services. Morgenstern points on the poor accuracy of official economic data. Finally, the approach neglects the impact of excessive money supply and credit financing on the “real economy”, of the “informal economy” and the “off-shore-hidden money” phenomenon. The paper will discuss the national wealth concept and Piketty’s disparity of property and wealth distribution. Doubts are to be expressed on the adequacy of the GDP-approach for macro-economic politics. New strategies of the EU and the German Government to overcome future crisis and to support new opportunities for growth on microeconomic level seem to be more successful. Millions of companies of the “real economy” in Europe can make use of Rifkin’s concept of the digital revolution and the official Industry 4.0 concept to achieve growth by IT in industrial manufacturing and engineering and in logistics sectors. Growth might as well achieved by renewable energies, “bioeconomy” in agriculture and TTIP with the USA in trade. Threats on growth are to be taken into account in Europe by Cyber war, the refugee and civil wars problem, continuous debt financing, poor public and private investment in public infrastructure and the Ukraine crisis and finally by the “jungle of regulations”.

### **Definition and measurement of Economic growth**

A prior political goal worldwide is to achieve long term and sustainable economic growth, which is measured by the change of present Gross Domestic Product (GDP) against previous year. “The most frequently used measure for the overall size of an economy is Gross Domestic Product (GDP),” EU Eurostat (2009, 2013) points out. GDP is the main reference indicator in national legislation and in the Treaty of Lisbon (2007) of the EU. It is used by politicians to get a picture of the state and development of the economy and of economic welfare for market interventions. Data on the net added value of different sectors like

industries, construction, services, banking and finance, state, trade and logistics, and agriculture and GDP-growth are officially calculated by the National Accounts Approach operated by Statistical and Administrative Offices. This internationally accepted approach should allow international comparisons of economies (ECB, OECD (2015)). The up to date version of the European System of Accounts ESA 2010 has been implemented in the European Statistics System (EU Eurostat (2013)) and refers to the highly standardized System of National Accounts (SNA 2008) of the United Nations.

The data base of National Accounts consists of data from state budgets and business accounts (Morgenstern, 1963). The International Financial Reporting Standards (IFRS) should guarantee “true” and “accurate” accounting and auditing procedures and also the “truth” of the data (Roberts et.al. (2002) pp. 14, pp.149). German S+M companies, however, are obliged to comply with German commercial legislation. Thus doubts are to be expressed on the degree of compliance between the rules and definitions of the SNA 2008, ESA 2010, different National Statistics Systems, the international accounting standards (IFRS), the European Union accounting regulations and different national legislations such as the German commercial law on balancing and bookkeeping procedures obligatory for German enterprises. The bridges between the terms are not yet made transparent (Figure 1)

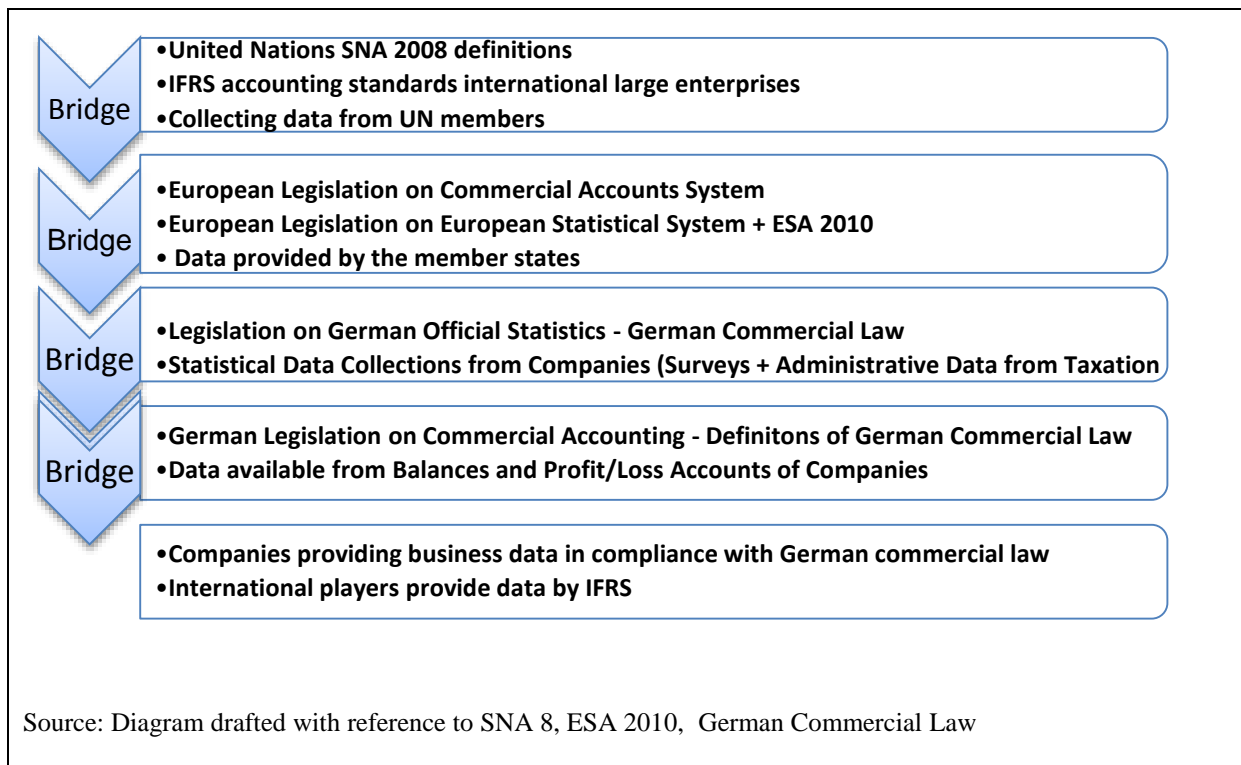
### **Weakness of the National Accounts Approach to identify Economic Growth**

#### **National Accounts a poor instrument of market economies**

A gigantic legal and methodological framework for National Accounting has been set up not only in Europe being operated by a large network of offices and institutions as the European Statistical System (EU Eurostat (2013)). However, this huge official network fails also in Germany to project and indicate the finance crisis 2008, the public debt crisis 2011 and the EURO-crisis in 2013. Positivists like Popper, Friedman (1966) et al. have criticized for long the tautological bookkeeping approach. Schumpeter evaluates the National Accounts

Approach as inadequate for politics in market economies and puts the approach to centrally planned socialist economies of the Soviet type. The “monetary curtain” of Mises is hiding the situation in the “real economy”. Adam Smith might oppose to the economic frame of Samuelson and Keynes as a mismatch of market production and the services of the state, the banks and the finance system. Lippe (2009) has doubts to define costs of companies to be paid for private services and for taxes to the government on the micro level as a value added national surplus on the macro level. The GDP-approach also neglects liquidity aspects at enterprises and banks that led to the financial crisis in 2008 and in 1990 in eastern Germany (Wernicke (2013)).

**Figure 1 : Bridges of Compliance of SNA 8, ESA 2010, German Commercial Law ?**

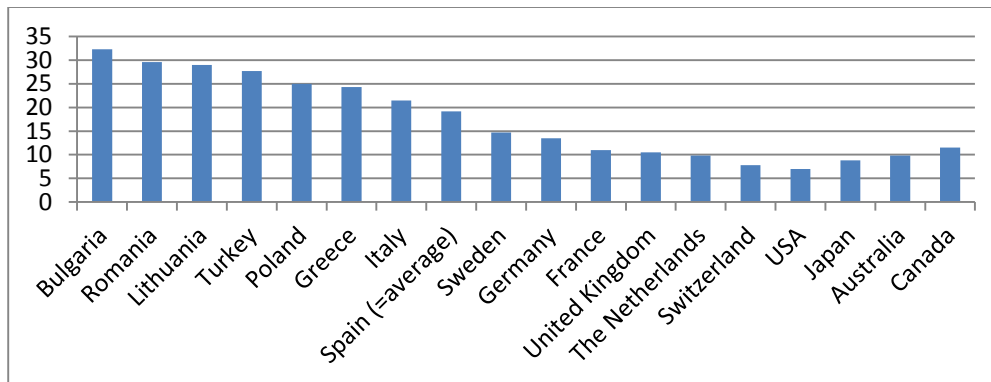


**Poor accuracy of business data, off-shore-hidden money and the informal economy**

The National Accounts approach ignores the bias due to poor business data (Morgenstern 1963) hiding worthless claims in the balances. Investigations of Aydin(2013), Knechel

(2009) et al. reveal the poor “accuracy” of “audited business data”. Wahl (2008) and former US-government adviser Blum (2009) have revealed the distortion of officially collected data being imposed by several trillion US-\$ of “off-shore-hidden money”. The Guardian (2013) estimates “hidden money” as differing between 21-32 trillion US-\$. Also the impact of the informal economy (shadow economy) on official data collections is neglected. Schneider (2013) provides estimates on informal activities in OECD countries including Germany (Figure 2).

**Figure 2 Shadow Economy in selected OECD-countries as percentage of GDP**



Source: Diagram drafted from estimates calculated by Schneider(2013)

## **Sustainable Economic Growth and Wealth**

### **Subjective and ecological indicators on sustainable growth**

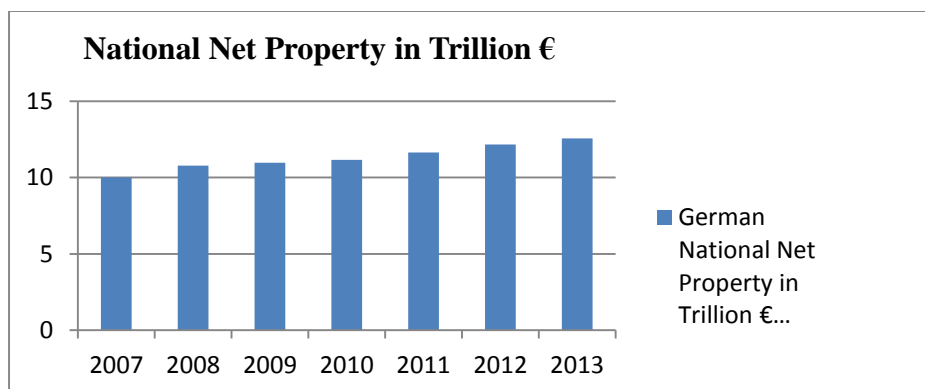
Since decades there are controversial political and scientific discussions on the proper defining and measuring of economic growth. The EU has charged the Stiglitz-Commission for redefining economic growth and for going beyond the internationally agreed upon National Accounts Approach. In the report on the “Measurement of Economic Performance and Social Progress” Cacheux (2009) recommends to supplement the “objective GDP indicators” by “subjective indicators”, like welfare feeling of the people and indicators on distribution of income and property, consumption and living conditions. The EU and the German Government cover this issue by editing reports on living conditions of private households and by Reports on Sustainability including data on ecological issues. Also those reports fail to provide any information on the finance crisis and its impact on the “real economy” and national wealth.

### **Economic growth poorly indicated by national wealth balances**

The EU and the UN request to publish National Wealth Balances covering information on the state and development of national assets, liabilities and wealth for supplementing traditional GDP calculations. Torrisi (2009) investigating public infrastructure as a component of national wealth states “that basic infrastructure facilities are important features related to economic performance.”

National wealth balances are being provided by the German National Statistical Office covering information on assets such as equipment, buildings, real estate and liabilities at the government, private households, the business sector and the financial sector. (Figure 3)

**Figure 3: Germany’s National Wealth from 2007-2013 in Trillion Euro**



Source: Drafted from data of the German Federal Statistical Office (2014) Sektorale und Gesamtwirtschaftliche Vermögensbilanzen 1999-2013, Wiesbaden Germany 2014.

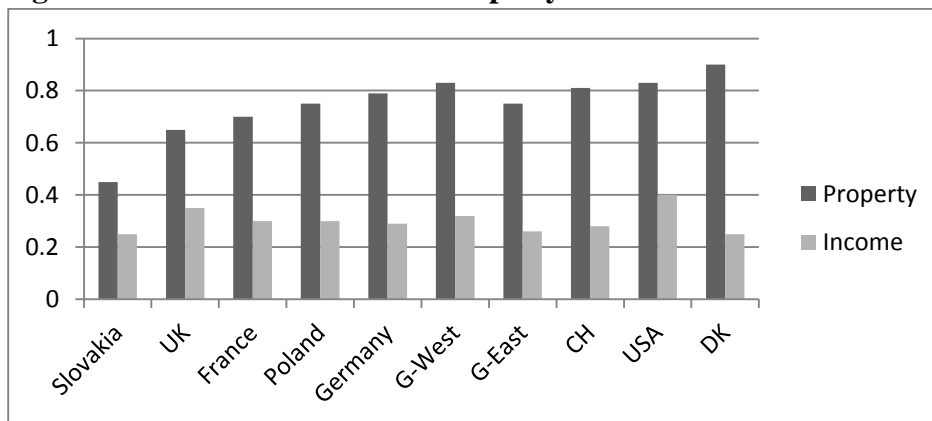
However, only a part of national property is covered by official estimates of stocks. Poor or missing is information on land and forests, and on public infrastructure such as roads, harbors, pipelines, power plant, networks etc. Data on national resources, minerals, energy, food reserves etc. are not covered at all. The Sector Balances of the German National Bank (2009) on the Real Economy, the Finance Sector and the Public Sector mismatch “real property” with “money claims” and neglect the bias due to the increase of asset prices of real estate, buildings, shares that were driven by credit financing and speculation of fund

managers and insurance companies. The utility of official wealth balances seems to be rather poor for politicians. The financial crisis and the negative impact of public debt (Euro2000bn) on the economy and on the state of public infrastructure are not indicated.

### **Inequality of income and wealth distribution**

Trade unions and left wing parties are criticizing and discussing an assumed or existing disproportion between growth of labor force income and growth of income of property holders. Investigations of the OECD and the German Council of Economic Advisers (2014) seem to approve the income and wealth differences. The GINI-coefficients of property data of surveyed private households in Germany confirm a significant inequality of private property. International comparisons of GINI-coefficients conducted by the OECD indicate significant inequalities of the distribution of private household property in Germany, Switzerland, the USA and Denmark. (Figure 4)

**Figure 4: GINI-Coefficients for Property and Income of Private Households 2014**



Source: Diagram drafted from OECD-Data ed. by Council of economic Advisers to the Government Report 2014/15, Wiesbaden 2014.

An increasing inequality of wealth and property distribution is as well indicated by the investigations of the Credit Suisse Research Institute (2013) and by Piketty (2014). Piketty analyses also historical data on property and income. His data seem to confirm a faster growth of income of capital owners compared to wages of employees, too. The results also reveal an increasing disparity between wealthy and less wealthy private households. Critics on his

research procedures focus on the poor information about property hold by wealthier households.

### **Capital stock and economic growth**

Many political advisers argue that those disparities are a precondition of economic progress and growth. Studies of the OECD approve correlations between the slowing down of growth of capital stock, investment and a decrease of GDP. Also the German Council of Economic Advisers confirms the correlation between a declining of GDP growth rates and a decreasing of investment and savings rates in Germany since 1970. However, a study of the OECD (2014) seems to approve a correlation between a downward development of economic growth and a rising inequality of income and property.

### **Growth by the Transformation of Centrally Planned Economies of the Soviet Type Positive economic performance of transition countries in Europe**

The worsening of living conditions and the economic downward development in all centrally planned economies of the Soviet Type was followed by mass demonstrations and the fall of the wall of eastern Germany 1989. The transformation into market economies was launched by new legal and institutional frames enforcing the splitting up, privatizing, restructuring and modernizing of poor performing oversized and overstaffed state owned conglomerates.

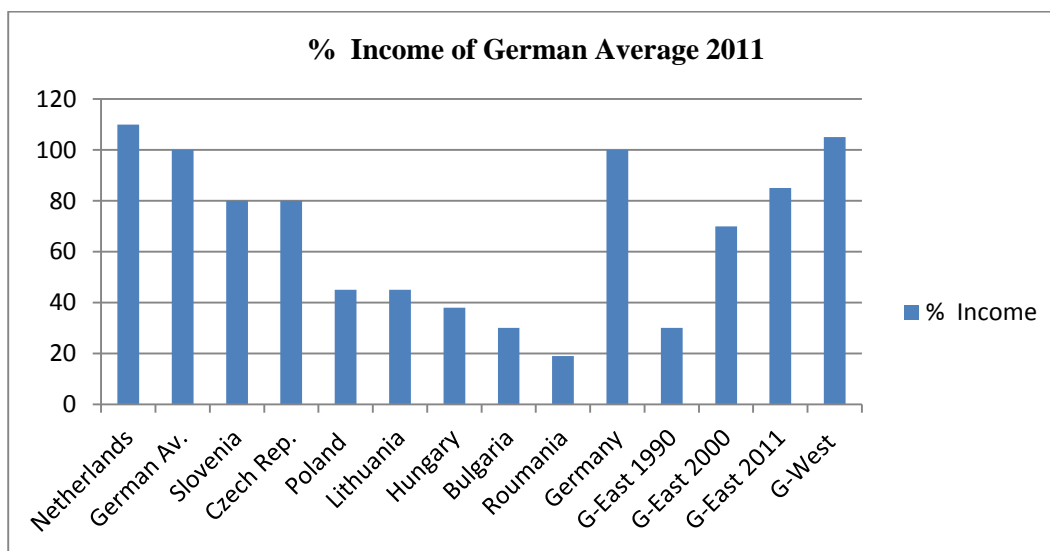
European transition countries have meanwhile achieved economic growth and better living conditions. Most of them have become EU members. The transition countries benefitted from the access to high tech products and know-how from western companies and the financial support program of the EU and the World Bank. In their study Heydemann and Vodicka (2013) indicate an upward development of former centrally planned economies measured by their average income for 2011. In lead is eastern Germany, followed by Slovenia (Figure 5). The transformation to market economies based on private property

seems to be a success story of economic growth in Central and Eastern Europe especially in Germany.

### Transformation of eastern Germany supported by huge subsidies from the Government

Economic growth in the eastern part of Germany is mainly due to huge subsidies by credit financing and transfers from western Germany. About two thirds of the subsidies were used for consumption and social benefits. Only one third was used for public infrastructure and for the restructuring and modernization of meanwhile privatized state owned companies. Eastern Germany is still lagging behind western Germany and reaches only 80% of the western productivity level (Vodicka and Heydemann (2013) Figure 5).

**Figure 5 Income of Transformation Countries related to the German Average**



Source: Drafted from G. Heydemann; K. Vodicka (2013) Vom Ostblock zur EU, ed. Bundeszentrale für politische Bildung, Germany Bonn p 353

The Christian Science Monitor (2014) criticizes the German type of transformation financed by subsidies and public debt “More than Euro2.000 billion € or Euro2 trillion have been pumped into former GDR”. EU President Juncker and the Government of Greece would be happy to get a small percentage of the German subsidies and grants to former GDR. The



transfers to eastern Germany are setting up the largest part of present public debt, but there is not any hope of a reimbursement of state expenditures to support eastern German demand.

### **Troubles made by introducing a strong currency into a weak country**

Economic experts led by the President of the German National Bank Poehl opposed to Chancellor Kohl's decision to introduce the strong D-Mark into the weak eastern German economy by a "currency union". The head of the National Bank expected a destabilization of the D-Mark threatening western Germany. He demanded first the restructuring and modernization of eastern German economy and to close the large 30% productivity gap. Chancellor Kohl facing his reelection and an invasion of eastern Germans into the western part paved the way for the currency union and later unification. He rejected plans of economic experts to draft a new Marshal Plan for eastern Germany. This very successful plan for western Germany was based on credits at a fixed 1:4 exchange rate between the US\$ and the D-Mark.

On July 1, 1990, troubles appear almost overnight when the D-Mark became the only currency in eastern Germany. Several thousand eastern companies being short in the new western currency faced illiquidity. Thus, transfers were needed urgently to prevent a collapse. A few weeks later companies producing and selling eastern German products had also to face a slump down of turnover and high losses followed by shut downs and unemployment, more support was needed. The access to the DM and western subsidies enabled the eastern German managers, private households and also government authorities to purchase preferred western products instead of eastern products. (Brainard, Perry (1991); Wernicke (1999)).

## **Contribution of the Finance and Banking Sector and the Public Sector to Growth**

### **Poor performance of the banking and the finance sector**

Up to the finance crisis 2008 state authorities, National Banks and the European Central Bank (ECB) tolerated huge budget deficits and a sharp increase of money supply to secure economic growth as it was assumed. Academics like Güvenen and Koyuncugil (2013) express their doubts on the excessive increase of money supply “We observe that the world GDP was \$60 trillion (2008)” and “the amount of financial operations in investment banking and markets were over \$ 600 trillion.” They feared an increasing dysfunction of the Price and the Accounts System and the creation of “Bubble Economies” instead of economic growth. Altmiks et al. (2010) from the German Liberal Institute argue “Money supply M3 in the EURO zone has increased from EURO 4.4 trillion to 9.5 trillion in 2009 due to the purchases of state loans from Greece and other countries by the ECB”. Decades ago Friedman (1966) opposed to excessive credit financing and budget deficits. Strange (1986/1997) and Sinn call it Casino Capitalism, whereas former FED Director Allan Greenspan (2008) stated “In a market economy rising debt goes hand in hand with progress” (p.146). The German Economic Advisers (2014) do not have a clear position and point on the correlation between growth of money and credit and GDP. This crucial issue needs more discussion, as an increase of asset prices (real estate, shares) by credit financing seems to result in GDP growth bubbles.

### **Recapitalization of the finance and banking sector for stabilization and growth**

After the finance crisis 2008 the IMF (2009, 2014) requests from the banks to write down about US-\$1.5trillion, to recapitalize the balances and to build up reserves against risks. The German Economic Advisers (2014) analyze the ongoing reforms: In 2012 the EU has set up the European Stability Mechanism (ESM). The ESM in Luxembourg will provide liquidity credits to EU members and has a maximum lending capacity of €500 billion. For the banks new

regulations such as the “banking union” have been launched by the EU. These regulations are in line with Basel III rules and demand to recapitalize banks and to avoid market illiquidity (EU Capital Requirements Directive IV and Capital Requirements Regulation). Also new Macro and Micro Prudential Instruments have been established “to ensure the stability of the financial system as a whole” and to improve monitoring, controlling and interventions by ECB and the EU. The European Systemic Risk Board (ESRB) is in place for supervision since 2011. The ESRB is charged to identify systemic risks in time (German National Bank (2015)). The Economic Advisers also evaluate the new legal frame of the EU as being too complex, not transparent and hardly to implement. They recommend in their report to the Government “a simple increase of equity by banks and higher reserves at the ECB will do much better”.

### **Public Sector: EU plan to overcome the crisis and to achieve economic growth**

Germany’s Finance Minister Schaeuble (2015) seems to have successfully reduced former German budget deficits. This policy contributes to the stabilization of the economy and to economic growth and complies with EU resolutions and the Stability Program.

The new EU Commission President Claude Juncker (2014) and the European Investment Bank (EIB, 2015) make efforts to mobilize more than Euro300bn of public and private investment supplementing the regular EU-Budget. Juncker’s plan focuses on “the areas of infrastructure, notably broadband and energy networks, ...transport infrastructure in industrial centers, education, research and innovation; and renewable energy and energy efficiency.“ He is also ready for “less regulation and more flexibility when it comes to the use of public funds.” The European Investment Bank (2015) evaluates the public-private-partnership (ppp) concept as ambitious, as the EIB-budget of 20bn Euro needs a multiplier of 15:  $20bn \times 15 = 300bn$  to mobilize private investment.

Doubts are expressed by UK-politicians (2015), by the German Trade Union Foundation and a minority statement of the Economic Advisers. They recommend the public deficit spending policy of Keynes, they oppose to any type of “austerity policy” and they request more public expenditures for infrastructure investment in Germany, in the EU and in Greece, too. They expect that companies are not encouraged at all to invest in public infrastructure without an adequate return on investment. Juncker’s reaction on the critics is to establish a new European Fund for Strategic Investments for “channeling extra public and private money to viable projects with a real added value for the European social market economy”.

### **Contribution to Economic Growth by “Industry 4.0”**

#### **Rifkin’s 3<sup>rd</sup> digital industrial revolution**

The weakness of the macroeconomic policy for achieving economic growth turns further discussion on the micro economic view. The German Government is aware, that Millions of companies in the industrial sector in Germany evidently contribute to stability and growth especially during the financial crisis. Thus a “re-industrialization” is planned for Europe. The EU Commission (2014) and the German National Government (2015) have set up the concept Industry 4.0 as a component of the EU Strategy 2020 to provide more financial support to S+M companies and to start ups of the industrial sector and the IT sector. Industry 4.0 combines the digital world with the real world of industrial production, engineering and manufacturing being a new microeconomic frame for future economic growth. Public funds encourage scientific institutions and companies to do more research on the implementation of digital innovations into industrial production processes and products. The ideas of Jeremy Rifkin (2015), a former adviser to the German Government and to Chancellor Angela Merkel, are getting realized now. He proposes innovations at enterprises as the decisive key for economic growth “By digital innovations and renewable energy a 3<sup>rd</sup>

digital industrial revolution is on the way in Germany and Europe”. His vision of a future digital world based on renewable energy is getting support by the present technical development in the industrial world.

### **Cyber Physical Systems**

The Industry 4.0 concept was a key topic of the agenda of the International Mechanical Engineering Summit (2014) in Berlin and at the German International Fair on Industries in Hanover (2015). Technological progress in IT-supported industrial production was made evident so far to thousands of managers of S+M companies visiting the summit and the fair. Exhibitions and presentations by successful S+M companies confirm Rifkin’s vision of an industrial revolution “Cyber Physical Systems will become the frame for the use of electronics and IT in industrial production” and “Cyber Physical Systems stand for a demand driven decentralized and intelligent production process which is set up by intelligent machinery including service robots. Single intelligent products will find on smart phone demand the way to their consumers.” Additive Manufacturing as a new IT supported process in industry will enable to use pulverized solid materials and metals for the 3D-Printer-Technology. Demand driven decentralized production sites producing all kind of products (cars, aero-planes) could be set up soon. By technological progress “intelligent factories” for production and for controlling technical and economic efficiency can be built up, too. The use of high-tech-systems and IT-systems in the production process also by the sharing principle will allow the saving of resources and reducing costs of input. Recycled products as well will significantly reduce costs of production and enable higher profits and growth on the company level. However, much is still to be done. Digital innovations have not yet been fully implemented in the industry and logistics sectors in Germany. Discussions between managers of S+M companies of industries and logistics make clear that only less than 10% of S+M companies in Germany have implemented Industry 4.0 in their business.

## **Renewable Energy: a Contribution to Economic Growth Renewables as a new driving force**

Rifkin recommended renewable energy as the driving force of the 3<sup>rd</sup> industrial revolution.

The concept of renewable energies, such as wind, solar, biomass etc. is controversially discussed in the EU and in Germany following the Tschernobyl and the Fokushima nuclear disasters. The European Union's new Strategy 2020 includes an energy mix, an exit strategy for nuclear energy and the turn to renewable energies. The strategy serves to achieve sustainable economic growth, to overcome climate change and to increase energy security.

The dependence on the Russian GAZPROM can be reduced and the EU trade balance can be improved.

The German Energy Agency (2015) has become a platform for German renewable energy industries on the full scope of renewables: wind energy, hydropower, geothermal energy, photovoltaics, solar thermal power plants and storage technology, biogas, biofuels and solid biomass. Most companies are S+M companies and began as start-ups covering IT-, operation- and maintenance-services and the production of small power plants and equipment. **Decentralized or centralized solution**

Controversial debates are taking place on the time schedule for establishing non nuclear energy industries, how to finance and share the transformation costs and if to prefer central or decentralized solutions.

The EU Commission, the German Government and large scale power industries prefer centralized solutions and the construction of long range energy networks in Germany and Europe. Wind craft energy from off-shore suppliers in the North Sea are to be transmitted to users in the South (Bavaria). The Bavarian Government, assisted by many regional and local authorities and the S+M companies of the solar industry prefer decentralized solutions with local networks and power stations and locally operating S+M companies or cooperatives.

Decentralized concepts need further technological progress in smart technologies and

especially in storage techniques for volatile solar and wind energy systems (German Energy Agency (2015)). For improving storage capacities research in engineering and the developing of adequate accumulators are necessary.

At present nuclear power stations seem to be enabled to produce at the lowest energy prices, an advantage for large business (BASF). However, the costs for producing renewable energy and their market prices still lack transparency. Subsidies for producers of energy and high taxes on energy consumption (power, fuel, heating) of households and companies (about 50% of the producer prices) are also far from market driven economies.

### **Contribution to Growth by Trade and Logistics**

#### **Balance of payments not balanced**

Trade and logistics are a fundamental part of Germany's economy and contribute to the surplus of the balance of payments. The German Export Champion has been criticized not only by the US-administration but also by the EU-commission. The surplus has a negative impact on the balance of payments and on growth in other EU member states like Greece. It also violates the German Stability and Growth Legislation from 1967. However, the devaluation of the Euro against the US\$ is mainly a result of the ECB interventions boosting exports of German S+M companies "hidden champions".

Growth in trade is slightly disturbed by insufficient results of the negotiations with the WTO and especially by the crisis in the Ukraine and the sanctions against Russia. Thus, official negotiations between the EU Commission (2014) and the USA to establish "The Transatlantic Trade and Investment Partnership (TTIP)" might contribute to more growth in the EU and in the USA. Advantages are to be expected by lowering tariffs and technical trade barriers and by the implementing of common standards for traded products and services. However, the German parliamentary opposition and trade unions disagree to TTIP, as they fear lower standards for food and pharmaceuticals and less influence of

German law courts. The European Centre for Economic Policy Research (2013) estimates an annual GDP growth of 68-119bn Euros in the EU and an annual GDP growth of 50-95bn Euros in the United States by 2027 if TTIP becomes implemented. The EU Commission expects a contribution of Euro120bn to the EU economy, of US\$ 90bn to the U.S. economy and of Euro100bn to the rest of the world.

### **IT used in logistics**

Trade success is dependent on new processes in logistics and in the transportation of goods. Rifkin's digital world is on the way being implemented also in the Logistics World. These digital innovations are also on the agenda of the German Logistics Congress (2014) in Berlin. Logistics managers learn how new digital technologies (hardware and software) are being developed by Industry 4.0: Clouds, sensors, and smart-technologies for containers. IT implementation allows the management a more efficient and cost saving planning, monitoring and controlling of their trucks and stores, their containers and also single intelligent products.

### **The Contribution of Agriculture and Bio Economy to Growth**

#### **Going beyond Common Agricultural Policy of the EU**

Also agriculture might contribute more to economic growth. The EU commission (2014) and the German Government (2014) have set up the new strategic concept of "bioeconomy 2030" for the agricultural sector. The concept should become a key for supplying enough food for an increasing world population. "Bio economy" will use renewable biological resources to satisfy consumers' needs, industry demand and to tackle climate change. This is going beyond the traditional Common Agricultural Policy of the EU. It includes the more familiar concept of "Biotechnology" and involves genes technology, biomass, bioenergy and biotechnology-



applications across sectors in primary production, health and industry. Biomass might become a prior growth factor, as it is usable for the production of food, chemicals, medicines, bioplastics, transport fuels, electricity and heat (OECD (2015)). The EU-commission and the German Government (2015) provide financial support for research on bio-based innovations and on the transformation from an „oil-based to a bio-based industry“.

### **Bioeconomy a new concept for developing countries**

The new concept being useful to support developing countries has been discussed at the International Agriculture Ministers' Summit in Berlin in January 2015. The demand for food, water, energy and industrial products is expected to rise sharply, whereas available land for agricultural production and forestry is expected to decrease by exploitation and devastation (German Agricultural Association,2015). The FAO estimates that about 800 Million people do not have adequate access to food and water at present. The meanwhile finished concept of the Millennium Development Goals of the UN has not yet sufficiently improved the economic situation in developing countries in Africa (FAO).

Germany's Agricultural Minister being aware of the threats on global nutrition points out "agricultural policy must go hand in hand with coherent economic, trade and energy policies." Ministers of around 70 States, the German Government (2015), the FAO (2015), the World Bank and the EU-Commission have agreed to a final resolution to overcome the challenges of an increasing world population of about 9 billion people in 2030 by a closer cooperation on "bio economy".

## **Family farms and agricultural households need support**

Large scale farming might profit from modern high-tech machinery, IT-equipment, and the Geographical Information System (GIS) for yield estimates, as the German Farmers Association (2015) is commenting on bioeconomy. However, family farmers, agricultural households and subsistence farmers oppose to the enlarging of the “jungle of regulations, institutions, and new programs in the EU”. These farmers need support for organizing cooperation and sharing models to make use of Bioeconomy and Industry 4.0. This is a precondition for sustainable growth in agricultural production in less developed countries by the use of IT. Land grabbing, large scale deforestation, subsistence farming and the refugee and civil war problems are threats for a more successful agricultural policy in those countries to achieve more growth in the production of food and to overcome malnutrition.

### **Conclusion**

The paper discusses the weakness to achieve economic growth on the macroeconomic level and to use GDP growth as reference indicator for economic policy. Threats on economic growth in Europe are still to be feared by excessive private and public credit financing and by the speculation on assets (real estate, shares, bonds), by the “jungle” of regulations meanwhile mainly from the EU, by Cyber war and Cyber crime of governmental hackers, civil wars and conflicts due to borders from colonial times and the unsolved refugee problem. On the microeconomic level economic growth might be well achieved by millions of private companies of the “real economy” in industry, energy, trade and logistics, construction and also in agriculture if they are making more use of digital technologies and IT-innovations.

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### **References**

- Altmiks P., Schäffler, F. & Tofall, N. (2010) *Währungswettbewerb als Evolutionsverfahren*. in Altmiks, P. (ed.) *Im Schatten der Finanzkrise*. München. Germany.
- Aydin A. D. (2013) *Role of Accounting and Audit in the Recent Financial Crisis*, In: *Technology and Finacial Crisis*, Koyuncugil, A.S., Ozgulbas N. (ed.) publ. USA IGI 2013

- Blum, Jack (2009), adviser to the US-government „*How escape from taxation and regulations by moving „offshore“ ruined world’s economy*“, contribution at conference of Heinrich-Boell-Foundation, June 9, Berlin, Germany.
- Brainard, W.C., Perry G.L., Eastern Germany in from the Cold, *Brooking Papers on Economic Activity*, No. 1, Washington, USA
- Cacheux, J. (2009)*Report by the Commission on the Measurement of Economic Performance and Social Progress, paper presented at Bertelsmann Foundation, Oct. 19, Berlin, Germany.*
- Credit Suisse Research Institute (2013)*Global Wealth Databook Oct 2013, Retrievable from [www.credit-suisse.com/researchinstitute](http://www.credit-suisse.com/researchinstitute)*
- European Union*  
*EU Centre for Economic Policy Research (2013) TTIP, Retrieved March 2015 from [http://trade.ec.europa.eu/doclib/docs/2013/september/tradoc\\_151787.pdf](http://trade.ec.europa.eu/doclib/docs/2013/september/tradoc_151787.pdf)*
- EU Commission (2010) 2020 - A strategy for smart, sustainable and inclusive growth, Retrieved March 2015 from <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do>*
- EU Commission (2014)Where next for the European bioeconomy? Retrieved March 2015 from <http://ec.europa.eu/research/bioeconomy>*
- EU Commission(2014) Juncker, J.C., President of the European Commission, An Investment Plan for Europe, presented in the European Parliament on 15 July 2014) p 3 Retrieved in March 2015 from <http://eur-lex.europa.eu/legal-content/EN/TXT>*
- EU Commission (2014) Mainstreaming of Industrial Competitiveness - retrieved from [http://www.consilium.europa.eu/uedocs/cms\\_data/docs/press\\_data/en/intm/144927](http://www.consilium.europa.eu/uedocs/cms_data/docs/press_data/en/intm/144927)*
- EU Eurostat (2013) European System of National Accounts (ESA 2010), retrieved in May 2015 from <http://ec.europa.eu/eurostat/documents/3859598/5925693/KS-02-13-269-EN.PDF>*
- EU Eurostat (2015). International trade in goods in 2014. Newsrelease, 55/2015, 27March 2015, Retrieved Apr. 2015 from website. <http://www.ec.europa.eu/eurostat>*
- European Investment Bank (2015) press releases on investment plan, retrieved from website <http://www.eib.org/infocentre/press/releases/all/2015/eib-exceeded-lending-targets>*
- Treaty of Lisbon of the European Community 2007 retrieved 2015 from website <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2007:306:FULL:EN:PDF>*
- The Lisbon Council (2014) Economic Growth in the European Union, Retrieved in March 2015 from <http://www.lisboncouncil.net/growth/>*

FAO (Food and Agricultural Organization): *The State of Food Insecurity in the World 2014*, retrievable from <http://www.fao.org/publications/sofi/en/march 2015>

Friedman, M. (1966) *Essays in Positive Economics*, 5th ed. Chicago US- London UK

German Council of Economic Advisers to the Government (2007) *Annual Economic Report 2007/8*, Retrieved from <http://www.sachverstaendigenrat-wirtschaft.de/jahresgutachten-2007/8>

German Council of Economic Advisers to the Government (2014) *Annual Economic Report 2014, Chapter six: The German current account — Actionism is inappropriate* - retrieved from <http://www.sachverstaendigenrat-wirtschaft.de/jahresgutachten-2014-2015.html?&L=1>

German Energy Agency (2013/14) *Renewables made in Germany* retrievable from [www.renewables-made-in-germany.com](http://www.renewables-made-in-germany.com)

German Agricultural Association (2015) *Conference and press papers* retrievable from website [http://www.dlg.org/home-en.html?&no\\_cache=1&L=51](http://www.dlg.org/home-en.html?&no_cache=1&L=51)

German Farmers' Association (2015) *Conference and press papers* retrievable from website <http://www.bauernverband.de/information-english>

German Federal Government  
Ministry of Education and Research (2011) *National Research Strategy BioEconomy 2030*, Retrieved from <http://www.bmbf.de>

Ministry of Education and Research (2014) "Bioeconomy international 2014" retrieved from [http://www.bmbf.de/pub/bioeconomy\\_2030.pdf](http://www.bmbf.de/pub/bioeconomy_2030.pdf)

Ministry for Economic Affairs and Energy (2015) *Joint Industry 4.0 platform launched*, Retrieved Apr. 2015 from <http://www.bmwi.de/en/press>

Ministry for Economic Affairs and Energy (2015) *The Energy of the Future First "Energy Transition" Progress Report*, retr. from <http://www.bmwi.de/English/Redaktion/Pdf/>

Ministry for Economic Affairs and Energy (2015) *Annual Economic Report 2015, Investing in Germany's and Europe's future* Retrieved from [JWB2015@bmwi.bund.de](mailto:JWB2015@bmwi.bund.de)

Ministry of Finance (2015) *Fiscal and budgetary policy Germany's general government budget is sustainably balanced* retrieved Apr. 2015 from website [www.bundesfinanzministerium.de/](http://www.bundesfinanzministerium.de/)

Ministry of Food and Agriculture (2015) *International Agriculture Ministers' Summit in Berlin. Press release no.24 from 17.01.2015* Retrieved from <http://www.bmel.de/SharedDocs/Pressemitteilungen/EN/2015/024-SC-GFFA>

*Ministry of Food and Agriculture, TTIP: Safeguarding economic prospects and consumer protection, Press rel. 257, 17.10.14, relieved from*  
<http://www.bmel.de/SharedDocs/Pressemitteilungen/EN/2014/257-SC-TTIP>

*Federal Statistical Office (2010) Wealth Balances 1992-2010, Retrieved Dec 2011 from website* <http://www.destatis.de/>

*German National Bank (2015) Monthly Reports (Feb.March) retrieved Apr. 2015 from website*  
[http://www.bundesbank.de/Navigation/EN/Publications/Monthly\\_reports/monthly\\_reports.html](http://www.bundesbank.de/Navigation/EN/Publications/Monthly_reports/monthly_reports.html)

*German National Bank Financial Stability Review/2014 retrieved from website*  
[http://www.bundesbank.de/Redaktion/EN/Downloads/Publications/Financial\\_Stability\\_Review/2014](http://www.bundesbank.de/Redaktion/EN/Downloads/Publications/Financial_Stability_Review/2014)

*Heydemann, G., Vodicka K. (2013) Systemtransformationen 1990-2012 im Vergleich, ed. Bundeszentrale für politische Bildung, Bonn.*

*International Monetary Fund. IMF (2009) Global Financial Stability Report, Washington DC, USA. Retrieved from website* <http://www.imf.org/external/pubind.htm>

*International Monetary Fund. IMF (2014) Global Financial Stability Report 2014, Retrieved in April 2014 from website* <http://www.imf.org/external/pubind.htm>

*Greenspan, A. (2008) The age of turbulence, New York USA*

*Güvenen, O. (2013) 2008-2011 World Economic Crisis, new paradigms, science methodology, information systems, and decision systems, Koyuncugil A.S. and Ozgulbas N. (ed.) Technology and Financial crisis, publ. IGI-Global Hershey PA USA*

*International Fair on Industries Hanover (2015) Press statements, conference papers retrievable from*  
*Retrieved Apr 2015 from* <http://www.hannovermesse.de/en/info/for-exhibitors/trade-fair-line-up/digital-factory/>

*International Mechanical Engineering Summit Berlin (2014) conference papers Retrievable from website* <http://ps.vdma.org/en/article/-/articleview/4160391> and [www.vdma.org/documents/105628/900795/VDMA+Forum+Industrie+4.0.pdf](http://www.vdma.org/documents/105628/900795/VDMA+Forum+Industrie+4.0.pdf)

*Knechel, R. (2009) Audit Lessons from the Economic Crisis: Rethinking Audit Quality Inaugural Lecture Delivered in English Maastricht University*

*Lippe, P.v.d. (2009) National Accounts. Retrieved from website.* <http://von-der-lippe.org/impressum.php>

*Morgenstern, O. (1963) On the Accuracy of Economic Observations. Princeton University Press. Princeton USA*

- OECD (2002) *Organization for Economic Cooperation and Development, Measuring the Non-Observed Economy. Handbook. Paris F*, retrievable from website <http://www.oecd.org>
- OECD (2014) *Glossary of Statistical Terms* retrieved in April 2014 from <https://stats.oecd.org/glossary/detail.asp?ID=1726>
- OECD (2015) *Gross Domestic Product /National Accounts* retrieved 2015 from website <https://data.oecd.org/gdp/gross-domestic-product>
- OECD (2015) *The Bioeconomy to 2030: designing a policy agenda* p. 15 retrieved April 2015 from <http://www.oecd.org/futures/bioeconomy/2030>
- OECD (2015) *National Accounts at a Glance*, Retrieved in March 2015 from <http://www.oecd-ilibrary.org/sites/9789264067981-en>
- Piketty, T. (2014) *Capital in the twenty-first century*, transl. from *Capital au XXIe siècle*(2013) Harvard University Press Cambridge, Massachusetts, London, England 2014
- Rifkin J. (2015) Retrieved from [http://www.huffingtonpost.com/todd-r-miller/the-architect-of-germanys\\_b\\_5979468.html](http://www.huffingtonpost.com/todd-r-miller/the-architect-of-germanys_b_5979468.html) April 2015
- Rifkin J. (2015) *The Industrial Revolution*, Retrieved in March 2015 from <http://thethirdindustrialrevolution.com/>
- Roberts C., Weetman, P., Gordon P. (2002) *International Financial Accounting A comparative approach*, 2<sup>nd</sup> ed. Financial Times Prentice Hall London-Harlow UK
- Schneider F. (2013) *Size and Development of the Shadow Economy of 31 European and 5 other OECD Countries from 2003 to 2013: A Further Decline* 2013
- Smith, A. (1776). *Of the Accumulation of Capital, or of Productive and Unproductive Labour. Book II, Chapter 3. In Inquiry Nature and Causes of the Wealth of Nations* London, UK
- Strange, S. (1986/1997) *Casino Capitalism*, Manchester University Press Manchester UK
- Strategy& (2015) *Industry 4.0: Opportunities and challenges of the industrial internet* January 2015, Retrieved from <http://www.strategyand.pwc.com/media/file/Industry>
- The Christian Science Monitor (2014), *25 years later, western Germany is still pumping money to the east*, retrieved on April 19, 2014 from <http://www.csmonitor.com/>
- The Guardian, (2013, April 4) *Comment on Secrets Offshore Hideaways Laid Bare*, retrieved April 2014 from website <http://www.theguardian.com/uk/2013/apr/04/secrets-offshore-hideaways-laid-bare>

*Torrisi, G. (2009) Public infrastructure: definition, classification and measurement issues, retrieved in May 2015 from [http://mpa.ub.uni-muenchen.de/12990/1/survey\\_infra\\_def.pdf](http://mpa.ub.uni-muenchen.de/12990/1/survey_infra_def.pdf)*

*United Nations Economic Commission for Europe (2008) Non-observed Economy in International Accounts. Retr. Sept. 2013 from <http://unstats.un.org/unsd/default.htm>*

*United Nations (2009) SNA 2008 Retrieved in May 2015 from <http://unstats.un.org/unsd/default.htm>*

*Wahl, P. (2008) Does Money rule the World, HB-Foundation, April, Berlin, Germany.*

*Wernicke, I. H. (2013) Financial Crisis reveals Systemic Crisis of Official Statistics, Koyuncugil A.S. and Ozgulbas N. (ed.) Technology and Financial Crisis, publ. IGI-Global Hershey PA USA*

*Wernicke, I.H. (1999) Statistically unrecorded Causes of Unemployment and Poverty in Countries in Transition, in: Elsner, E. Statistics and Planning / Poverty and Unemployment, Berlin, Germany*

*World Bank (2015) Glossary, Economic Growth, Retrieved in March 2015 from <http://www.worldbank.org/depweb/english/beyond/global/glossary.html>*



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