

# Systemic Reconfiguration of Capitalism: Applying Ruggie's Critique of Waltz in Economics

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**Abstract:** This paper identifies changes in the center-periphery structure due to transformations in capitalism since 1970. In its new configuration, capitalism not only altered center-periphery relations but also exerted impact upon peripheral units that affect the system structure itself. This paper aims to apply Ruggie's famous critique of Waltz in International Relations to analyse global capitalism and show how the changes in the center-periphery cleavage is affecting its systemic reconfiguration in the 21<sup>st</sup> century. This research identifies the boomerang effect as a new systemic element, that is, as a byproduct of the interaction of units of the global capitalist system in the 21<sup>st</sup> century.

**Keywords:** capitalism; center-periphery cleavage; boomerang effect; Ruggie's critique; economics.

## Introduction

The systemic transformations of capitalism by consent of the central countries since 1970 have struck the center-periphery and generated impacts on the periphery that affect the structuring of the system. The aims of this paper are to show the impact of the periphery in the systemic reconfiguration of capitalism and to present the boomerang effect from a structuralist perspective of the center-periphery cleavage as the rebound effect on the center of changes at the periphery, which occurred at the beginning of the 21<sup>st</sup> century.<sup>1</sup>

To this end, this text is organised in six parts. Firstly, it reveals Ruggie's critique of Waltz's systemic analysis. The second part presents the theoretical framework to conceive the global capitalist system and introduce the boomerang effect. Thirdly, the article shows the role of the periphery in the increase of the dynamic density of the system in the 21<sup>st</sup> century. Next, it seeks to point to elements that indicate the presence of the boomerang effect in the center-periphery relations on the eve of this century. The fifth section turns to the analysis of the structural changes provoked by the periphery through the participation in the increase of dynamic density by means of the boomerang effect. The final section presents conclusions.

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## Theoretical framework and Ruggie's critique of Waltz

This paper assumes capitalism is a dynamic process that modifies itself over time by a continuous process of technical revolution. It also assumes that its evolution occurs through a center-periphery systemic structure defined by the role of technological progress at the international diffusion and distribution of innovation benefits, as stressed by the Structuralism approach.<sup>2</sup> The co-constitution between the center and the periphery on the global capitalist system is also assumed. Therefore, the center-periphery cleavage is affected by transformations in capitalism and changes at the cleavage affect the systemic configuration of capitalism.

Assuming capitalism is a dynamic and evolutionary system, the center-periphery cleavage that articulates it on a global scale also finds itself in constant change. Social, economic and political innovations introduce and diffuse changes that characterise center and periphery as time goes by; yet, despite the continuous transformation of the central and peripheral units, the capitalist system remains structured by the center-periphery over time. The center is defined as a set of developed countries whose economies have an endogenous dynamic as well as technological and social homogeneity. The periphery, in turn, is a set of undeveloped countries whose economies present a dependency relation – technological, cultural and/or financial – with the center, and/or social and technological heterogeneity.

Therefore, 21<sup>st</sup> century capitalism is characterised by the 'globalisation process of economic and financial circuits' (Furtado 2002: 3) – fostered by information and communication technologies (ICT) and by transnational companies – and the center-periphery cleavage is a byproduct of the diffusion of technical progress. Thus capitalism's current stage has implications over the center-periphery dynamics. To understand how the changes in capitalism affect the center-periphery cleavage and bring on systemic shifts, this paper adopts a Durkheimian perspective, in which the system (global capitalism) is composed of a structure (center-periphery cleavage) and of interacting units (central and peripheral countries).

This systemic approach is well known in International Relations. Kenneth Waltz's (1979) neorealist theory, which explains world politics through this approach, has become a milestone in the area. Notwithstanding, Waltz applies a Durkheimian perspective to explain the international (political) system, but he fails to recognise the determinant of change (in world politics) because he drops out of the model the processes of interaction among units. Ruggie's critique of Waltz emphasises the absence of dynamic density in the system (quantity, velocity and diversity of interactions) at his model. Dynamic density according to Durkheim's social theory means a higher complexity of social organisation, since it takes into account specialisation and the division of labour (Durkheim [1893] 1997).

John Ruggie (1986) argues that a dimension and a determinant of change are missing from Waltz's theory. According to him, changes occur through the process of interactions among units, and dynamic density is the main source of changes in the system (Ruggie 1986). The institutional framework that constrains an actor's behavior is a social construct

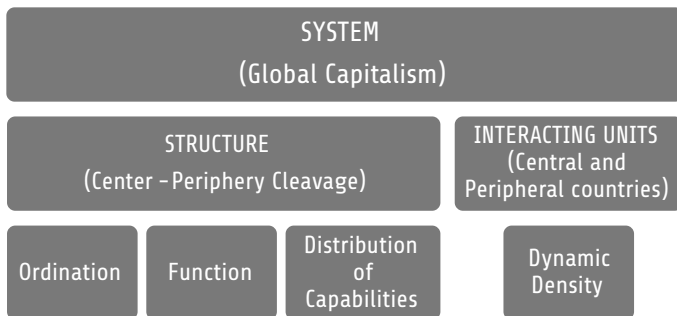
that reinforces itself by habit-formation and by the internalisation of the behavior socially conditioned. For that reason, the process of change occurs through changes of usual behavior, in other words, through new interactions, conducts and practices. Thus, this paper accepts Ruggie's critique and applies it to the Durkheimian approach to explain how the changes of the center-periphery cleavage affect the systemic reconfiguration of capitalism in the 21<sup>st</sup> century.

Changes in capitalism analysed through financial, power and technological dimensions affected the flow among the units in different ways: volume, frequency, direction, variety, etc. These change how units interact, increase dynamic density and bring forth a systemic result, the boomerang effect. Changes of the center-periphery cleavage (structure) and among interacting units help to shape global capitalism's reconfiguration (system). This is new, since, for the first time, dynamic density is impacted by an active peripheral movement and contributes to systemic transformations.

### The periphery in the systemic transformation: the boomerang effect

Despite the continuous transformation of the central and peripheral units, the capitalist system remains structured by the center-periphery as time goes by. From a Durkheimian perspective, the system (global capitalism) is composed of a structure (center-periphery cleavage) and by the interaction of the units (central and peripheral countries), where the sum of the parts is different from the whole (see Figure 1). The systems arise and are shaped in a process by the interaction of the parts, which organises them with a certain degree of autonomy guided by learning, evolution, competition and cooperation processes that make them flexible and dynamic. Thus, there are systemic elements that can only be observed through a holistic approach. The center-periphery relations are determined by the systemic result of the 'continuous gale of creative, or not so creative, destruction in the struggle for the benefits of the worldwide labor division' (Arrighi 1990: 15).

Figure 1 – Global capitalism as a system



Source: Prepared by the author.

The structure is defined by three interconnected axes: by the ordination of the units; by the specification of the functions; and by the distribution of capabilities among the units. The capability of the units to absorb and generate innovation (technological, institu-

tional, etc.), which improves their accumulation and development process, determines the types of functions these units can perform in the international division of labour. In turn, their place within the global division of labour positions countries in better or worse conditions when it comes to incorporating the benefits of specialisation. Therefore, countries self-organise in central or peripheral positions in the global capitalist dynamic.

It is important to point out that this Durkheimian perspective does not conflict with the structuralist perspective of center-periphery cleavage, in which the systemic structure of center-periphery is defined by the role of technological progress in the international dissemination of technology and the distribution of the fruits of technical progress in the world. That is because the second and third axes of the structure (functions performed and distribution of the capabilities of absorbing and generating innovation, respectively) determine the worldwide distribution of the fruits of technical progress and establish central and peripheral cores (hierarchical ordination of the system)

The interaction of the units, in turn, happens through the international flow of export and import of goods, services and capitals.<sup>3</sup> The interaction is influenced by the structure and, at the same time, models it. The structural change is the result of the processes that occurred at the level of the units. Thus, new interactions are sources of structural change. In other words, the new flows and the new interactions among the units (at the center and at the periphery and/or between center and periphery) that result from the transformations undergone by capitalism since 1970, in terms of finance, power and technology, can determine structural change.

Furthermore, the propagation of new technological, political, economic and social innovation continuously alters the kinds of inputs, products, production and distribution techniques, allocation in the trade network and resources that provide the States with different capabilities to appropriate the benefits of the global division of labour (Arrighi 1990: 15). Hence, the set of activities performed by countries of the center and the periphery is altered continuously over time.

Therefore, a given country in a determined amount of time can, with a set group of activities (export of manufactures, import of labour-intensive goods, export of capital, etc.), manage to take ownership of a large portion of the benefits which come from the exchange of international flows, while other countries cannot manage to do the same, at the same period; or even the same country may not be able to do it in another period of time (Arrighi 1990: 15).

Like any system, global capitalism presents a dynamic stability, in which the structure remains, despite changes and continuous transformations of its components. Dynamic stability is different from equilibrium. Fluctuations, oscillations, crises and conflicts in the interaction of the parties are necessary and form the basis of the stability of the whole. Unit-level interactions affecting structure in a continuous way is what ensures the dynamic stability of global capitalism. That is, changes occur in the system, but the latter remains. System change only occurs if the changes in the interaction of the units reach a magnitude so great that they break the structure that articulates it. The evolution of the system occurs

through an interaction between adaptation and creation in a permanent process of searching for dynamic stability.

There is no novelty in the fact that the evolution of capitalism since 1970 has brought about important changes in the periphery. However, it is the first time that a change in the periphery has had impacts on the structuring of the system. The articulation of the parties has assumed a new configuration that is affecting the whole in a peculiar way. For the first time, a set of peripheral countries is managing to change its absorption and innovation-generation capacity simultaneously. This has an impact on the roles these countries play in the international division of labour. In turn, this change in the functions performed by these peripheral countries has an effect on systemic ordering. The center-periphery cleavage is, in fact, hierarchical.<sup>4</sup> The center is above the periphery and within each group there is a hierarchy of national states, according to their positions of political and economic power, which changes with the evolution of capitalism. At the center, the United States is now at the top of the system's hierarchy, followed by the other G7 countries<sup>5</sup> and then by the other central countries. In the periphery, following Furtado's nomenclature (Furtado 1986), the so-called complex peripheral economies (of higher level) are above the other peripheral economies (of lower level)<sup>6</sup>. China now occupies the top of the peripheral hierarchy.

For the current movement, the category of complex peripheral economies is expanding, that is, increasing its relative weight in the structure, and not only by the number of countries in this category, but also by the amount, speed and diversity of interactions that complex peripheral economies are performing. In other words, the dynamic density of the system is increased due to interactions made by the peripheral economies among themselves and with the other parts. Until then the dynamic density of the system was tied to the interactions of the central units, but now a portion of the periphery is also important for the magnitude of dynamic density. Since the interaction flows are decisive in the self-organisation of the parts, the rhythm (frequency and velocity) and the variation (diversity) of the interactions play an important role in the dynamic stability of the system, since the growth of quantity, speed, frequency, diversity and quality of interactions is increasing the interdependence of the countries of the complex periphery and of these with the others, which also increases the need to coordinate the parties. Therefore, the change in dynamic density results in a structural change that reconfigures the system.

The shift in the dynamic density of capitalism in the twenty-first century has as an important source the complex peripheral economies and produces a boomerang effect as a systemic result of the interactions between the units. Thus, impacts on the periphery modify the dynamics within the periphery and this rebounds in the center and the center-periphery relationship. This effect of rebounding the peripheral impacts in the center-periphery relationship helps to shape the systemic transformations initiated by central states. In other words, actions of the central units define the interaction structure between center and periphery, but the interaction among the peripheral units and the interaction between these and the central units affect the functioning of the system as a whole. Thus,

a boomerang effect occurs: impacts on the periphery modify the dynamics within the periphery and this rebounds in the center-periphery relationship.

It is worth mentioning that the boomerang effect, identified at the rise of the 21<sup>st</sup> century, was provoked by the movement of expansion of the complex peripheral economies, or, as Amsden (2004) would say, by the 'rise of the rest.' The effect of complex peripheral economies shaping the systemic structure together is different from the action effect of one or more states catching up. The catching-up movement is conscious, while the impact of the complex peripheries on the structure may or may not be conscious and intentional. China, tracking a singular development model, has become an economic and political world protagonist (Hung 2018; Tooze 2018; Arrighi 2008), presenting elements that challenge American hegemony both in financial and geopolitical terms. Since 2010, China outperformed Japan and occupies the position of second greatest world economy. Chinese economic performance dynamises the Asian region and induces economic growth into its peripheral neighbors, that are heavily integrated into China's productive chain. Others' peripheral performances on the world economy in the rise of the 21<sup>st</sup> century also relate, partly, to China's economic growth, which has demanded imports of raw material from the peripheries and stimulated the rise in price of the country's commodities exports.

After the decrease of international trade due to world crises of 2008, China has become an important capital exporter, specially to other peripheral economies, in the form of foreign aid, borrowings concessions and foreign direct investments. Attached to capital exports are the political and military power projections (Hung 2018). China's geopolitical power expansion toward peripheral economies has made the United States launch an 'Asian pivot' policy in 2012 to reinforce its geopolitical presence in Asia and to rebalance Chinese influence (Hung 2018:21).

For sure the Chinese weight on systemic changes is noticeable, but the boomerang effect does not restrict itself to these changes. As shown by Medeiros (2001), the social nature of interactions among units creates results that, even if with directions, do not obey a single actor's initial plan. In other words, the sum of the impact of each complex peripheral economy (in individual terms) on the structure is different from the systemic impact of the enlargement of the complex periphery. That is, it is not only China that is behind the increase in dynamic density, just as it is not only the increase in the relative weight of the peripheral economies in the world trade of goods that affects the dynamic density. This is affected by the joint operation of several complex peripheral economies, which interact with each other and with other units of the system by international flows of goods, services and capital. In sum, the boomerang effect is triggered by the joint action, intentional or otherwise, of complex peripheral economies in their interactions within the system.

## The role of the periphery in the elevation of dynamic density

The dynamic density of the system is revealed by the quantity, speed and diversity of interactions (flows) between the units. The interactions carried out by complex peripheries since 1970 have affected each one of these elements and produced the boomerang effect (systemic result), which modifies the interaction basis in the center-periphery relation (new power relationships, new forms of dependence, etc.) and impacts the dynamic density. This shift in dynamic density (through the quantitative and qualitative change of flows plus the boomerang effect) affects the structure of the system (ordering, diversifying functions, distribution of capacities) and shapes the reconfiguration of capitalism in the 21<sup>st</sup> century.

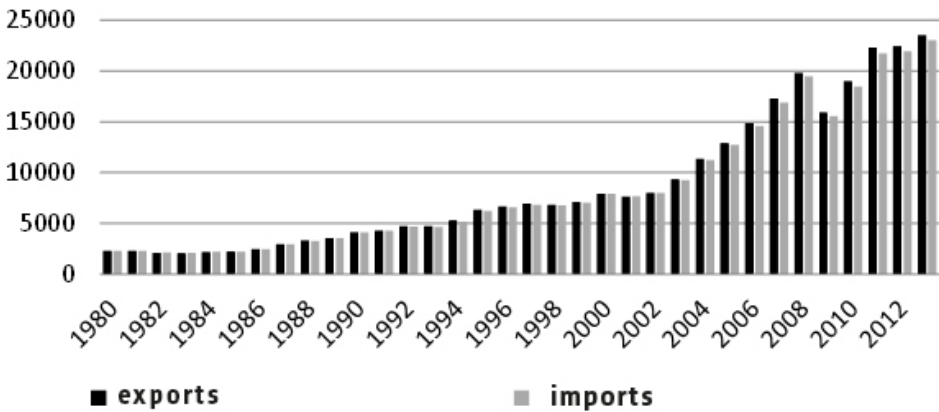
In fact, the dynamic density of the system increased at different points in history and led to the reconfiguration of capitalism. The driving force of this dynamic density increase has always emanated from the central economies, but the novelty is that, at the beginning of the 21<sup>st</sup> century, it also emanated from the periphery. Of course, peripheral economies have always been part of these flows; after all, they are units of the system. However, they participated passively or as receptacles of flows in these interactive processes. At the rise of the 21<sup>st</sup> century they play a more active role and are also sources of irradiation of these flows.

During most of the twentieth century (1930/40 – 1980/90), peripheral countries exported only raw materials and commodities. In the second half of the twentieth century, many periphery countries began their import substitution processes by means of industrialisation and began a process of diversification of the periphery. Those that have achieved relative success in these processes have become, according to Furtado (1986), complex or high-level peripheral economies. And it is these economies that, together, dictate part of the rhythm and variety of the dynamic density of the system at the beginning of the 21<sup>st</sup> century. Since the 1990s, international flows of goods, services and capital have changed considerably. Along the analytical dimension of technology, the emergence of information and communication technologies (ICT) has led to shorter distances and lower costs of international transactions, as well as to the emergence of new commercial and financial products, new services, new ways of organising and managing global production and finance, among other things. Along the dimension of power, the norms, rules, practices and customs that make up the world order are dictated by the central countries and that the State plays a crucial role in the internationalisation of capital; therefore, the international institutions that guide the interactions between the units and the liberalisation and deregulation policies adopted by governments and different parts of the world have been instituted to promote the central economies and the accumulation and reproduction of capital. Along the dimension of finance, the productive sphere articulates with the financial sphere in the evolution of capitalism. Thus, productive, institutional, technological and financial innovations are often intrinsically related.

Therefore, from these three analytical dimensions we can point to current changes in the elements that make up the dynamic density of global capitalism (velocity, quantity and diversity). For example, with the emergence of ICT, the flows of interaction between

the units have acquired unprecedented speed; the world trade regime, managed by the World Trade Organisation (WTO), has significantly overturned trade barriers since its implementation; the adoption of liberalising policies and economic and financial deregulation has also contributed to the quantitative and qualitative (diversity) increase in flows of goods, services and capital by removing or reducing cross-border controls in these transactions; technological, productive, institutional and financial innovations have also contributed to the increase in the diversity of international flows that characterise the interactions between the units. Even with the fall in the volume of international flows that characterise the globalisation of economic and financial circuits and the increase of protectionist measures in international transactions after the crisis of 2007 (The Economist 2013), the dynamic density of the system remained high. Although it represents a simplistic measure of the dynamic density, the flow of world trade allows a visualisation of the high level of exchanges realised in the system, as shown in Chart 1.

Chart 1 – World trade in goods and services (in billions of dollars)



Source: IMF (2013).

The current increase in the dynamic density of the system is due, in part, to the international transactions carried out by peripheral economies. The combined gross domestic product of three major peripheral economies - Brazil, China and India - in 2012 was approximately equal to the combined gross domestic product of six traditional economic leaders of the center - Canada, France, Germany, Italy, the United Kingdom and the United States (UNDP 2013: 13). This is an important change on the global stage. For comparison, in 1950, Brazil, China and India together accounted for only 10% of the world economy, while these six core economies accounted for more than 50% (UNDP 2013:13). At the beginning of the 21<sup>st</sup> century, it was the peripheral countries that produced about half the world's wealth (UNDP 2013: 13). Complex peripheral economies export now not only raw materials, but also manufactured goods, services and capital, and account for a significant portion of the world's wealth. Around 50% of the world merchandise flow in 2010 had the periphery as origin, in 1985 it was only 25% (UNDP 2013: 2). Trade involving only peripheral economies has also increased significantly in recent times, jumping from 8.1%



in 1980 to 26.11% of world trade in 2011 (UNDP 2013: 45). Research and development flows are also more intense in the periphery (UNCTAD 2006; Batelle and R&D Magazine 2014), either by the installation of laboratories of the center's multinationals in peripheral economies, or by increased spending on research and development by governments and firms in the periphery.

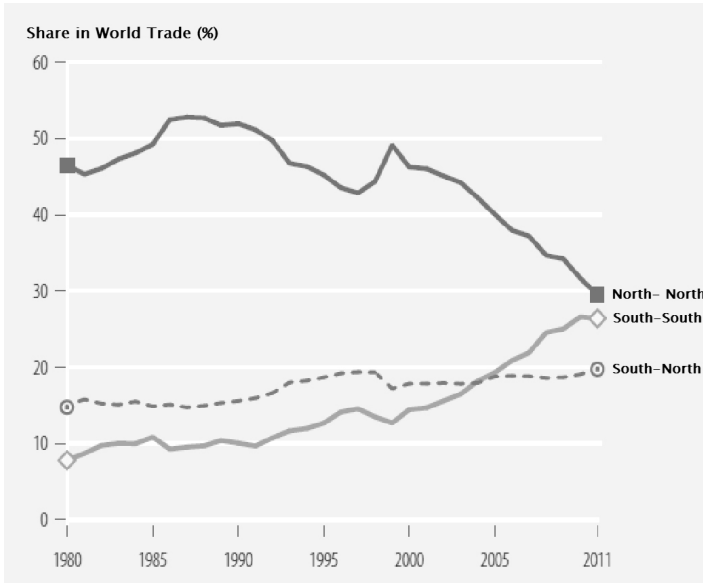
In addition, international flows of private capital to the periphery have increased considerably since 1990. In fact, the net flow of private capital to the periphery countries is recorded at 1.03 trillion dollars in 2007, despite the crisis having deteriorated the results in the second half of the year, while in 1999 this flow was of 209.7 billion dollars (World Bank 2008: 33). The private stream titles to the periphery, in turn, were 69.4 billion in 2000, and in 2007 they amounted to 142.2 billion dollars (World Bank 2008: 41). The share of the periphery in the world's foreign direct investment increased from 20% in 1980 to 50% in 2010 (UNDP 2013: 47). One in four multinational corporations is based in the periphery (UNDP 2013: 47), and they hold one-third of the world's direct foreign investment (UNCTAD 2013).

Therefore, the combination of these factors leads to an increase in the dynamic density of the system by peripheral economies, due, essentially, to the performance of the complex peripheries in the world economy. It is not only the volume of international flows, but also the diversity of interactions they are making. In addition to the increase in dynamic density, these new interactions between the units are provoking the emergence of the boomerang effect in the center-periphery relations.

## The boomerang effect in action

The center-periphery relationship presents a novelty in the rise of 21<sup>st</sup> century: the periphery impacting the center. In fact, the commercial relationship between center and periphery has always generated a certain interdependence, in which an economic crisis in one country provoked reflections in its commercial partners. However, as Chart 2 shows, trade relations between central countries have always been dominated by trade partners of the center. The institutional normative framework set up by central countries since the 1990s, which rewards liberalisation policies and economic and financial deregulation, has accelerated and deepened the insertion of peripheral economies into the world economy. The impact of this on the periphery was greater participation in foreign trade and capital flows. But the relative weight gained by the periphery in the world economy caused the economic performance of the center's economies to be affected by the performance of the periphery, especially the complex peripheral economies, in world trade.

Chart 2 – World trade by directions of flow (1980–2011)



Source: UNDP (2013: 46).

The increase in exports from the complex peripheral economies also led to an unprecedented accumulation of international reserves in these economies. Most of these reserves are in US dollars, which are reinvested in the United States in the form of Treasury bonds or other dollar-denominated assets (Barboza 2011). An unintended consequence of the norms of important international institutions that conduct the international order, such as the World Trade Organisation (WTO), the International Monetary Fund (IMF) and the World Bank, was to make complex peripheral economies such as China, Russia and Brazil important international creditors. The United States, in turn, went from creditor to international debtor in net terms. The growing current account and fiscal deficits of the United States, which were previously financed by private capital flows, started being financed by Central Banks (Roubini and Setser 2004). The data for 2012 reveal that China is the main US creditor country, Brazil the fourth and Russia the sixth (The Guardian 2011). The maintenance of this US financing pattern may in the future lead to a weakening of the dollar as an international currency, because it presses for a devaluation of the US currency (Roubini and Setser 2004). However, by having its foreign debt denominated in domestic currency, the United States can transpose the risk of currency devaluation to international creditors (Roubini and Setser 2004).

Despite this new form of financial dependence, in which the periphery has changed its profile of external indebtedness, complex peripheral economies are able to affect the central economies by becoming international creditors to a certain extent and for now represent a channel of contagion for a financial crisis. The deeper integration of the financial markets, from the 1990s onwards, made room for the contagion to begin to operate in two directions: from the center to the periphery and from the periphery to the center.

Until then, the crisis spread was always from the center to the periphery. Crises in the periphery were unable to cause very deep impact on the economies of the center as a whole and/or bring out a systemic crisis. They would, at most, affect one central economy or another and in particular circumstances. The Mexican crisis of 1994 marks the beginning of this change. The 'tequila effect' of investor panic behavior frightened financial markets in the periphery and in the center, such as Tokyo, London and New York (Panitch and Gindin 2012: 251). In response to the possible damage that the crisis in Mexico could bring to the global financial system set up by the central countries under US leadership, the United States Treasury injected 40 billion dollars to rescue the Mexican economy from the abyss, an amount six times higher than that which was mobilised in 1982 in the Mexican debt crisis (Panitch and Gindin 2012: 252). The Mexican crisis of 1994 was not an isolated case; in order not to shake the structures of the financial system created by the New Financial Architecture from the 1990s, the US Treasury and the IMF ultimately acted as lenders to stem the spreading crisis in Thailand in 1997, Russia in 1998 and in Brazil in 1999, for example (Panitch and Gindin 2012: 250-271).

Following the beginning of 21<sup>st</sup> century, complex peripheral economies not only became potential sources of instability, but also necessary in the management of systemic crises and in the conduct of world order. Before that, the periphery countries participated in the conduct of the world order only when it was in the interests of the central countries, in terms of geopolitical strategic motivations. But now the periphery's participation in global governance is a prerequisite for the stability of the system. Given that the set of complex peripheral economies became thicker, increasing heterogeneity in the periphery; the center-periphery cleavage becomes more fragmented in the sense that there are more 'subsystems' of peripheral units. Consequently, there is a greater need to coordinate central and peripheral units for the maintenance of systemic stability. The complex peripheries are necessary for the resolution of global problems in areas that go beyond geopolitics and include the economic domain – an area whose access was hitherto restricted to core countries. Notwithstanding the increased participation of representatives of complex peripheral economies in international institutions that are crucial to global financial governance, for example, international decision-making, standards and conduct have not changed significantly. Thus, there is an institutional mismatch between the relative weight of complex peripheral economies and the decision-making capacity they enjoy. In fact, the conduct of the world order tends to be controlled by the central countries under the leadership of the hegemonic state; however, the participation of complex peripheral economies in the formation of the consensus that sustains the order tends to be increased and extended to different domains of action, especially the economic one.

Another impact of the periphery on the center with effects on the cleavage can be identified in movements of offshoring and outsourcing that sustain the global chains of value. The overall decentralised production process has created a global labour market. According to Richard Freeman (2007), the insertion of China, India and Russia into the capitalist system, the accelerated growth of higher education in peripheral countries, and the transfer of modern technology to some peripheral countries have boosted the forma-

tion of the global labour market, generating impacts on the labour markets of the central economies. If, on the one hand, the countries of the center take advantage of the 'doubling' of the number of people in the world labour market with offshoring and outsourcing activities, on the other, the comparative advantages they enjoy in high technology intensive goods is being reduced by the growing number of skilled workers in the periphery and by the technology transfers that occur in these activities (Freeman 2007). In addition, according to Freeman (2007), shifting production to low-wage, populous foreign markets and workers with higher education affects the US labour market both for skilled workers with higher education and for unskilled workers. In general, offshoring activities tend to leave workers in the core economies in the most precarious positions (Freeman 2007; Mann 2007; Milberg et al. 2007; Burke and Epstein 2007). In political terms, Martin (2007) points out that the impact of offshore outsourcing on the European labour market reaches a crucial foundation of welfare states, which may make it difficult to legitimise the democratic process of the European Union as a whole.

In addition to the impacts on the center's job markets, offshoring and outsourcing activities affect international flows of technology. At the same time that offshoring causes innovation-inducing spillovers in peripheral firms, core countries are forced to upgrade and diversify their research and development activities to keep the innovation process under control (Jefferson 2007). Thus, the intensification of research and development activities in China, for example, and the spreading of the research and development laboratories of the central multinationals into complex peripheral economies can be understood as two sides of the same coin (Jefferson 2007: 213). As a result of the establishment of global value chains, research and development flows are more intense in the periphery; associated with higher flows of science and technology – such as scientific production and training of engineers and scientists – complex peripheries are becoming more prominent in the generation of innovations and patent registration. The competition faced by the center's multinationals encounters new challenges and the search for survival leads to more decentralisation of research and development processes, reinforcing the initial dynamics. As a result, there is a geographical shift in global investments in R&D and production of science and technology for Southeast Asia.

Yet if, on the one hand, these new configurations that take shape in the periphery in the 21<sup>st</sup> century draw new power relations, on the other, new forms of dependence are established with the intensification of the integration promoted by the deepening of globalisation. In the twenty-first century, the periphery's relations of dependence with the center take on new contours, although they remain in essence.<sup>7</sup> In brief terms, financial, technological and cultural dependencies become more intense and profound in the 21<sup>st</sup> century: the new profile of external financing of the periphery, with a strong participation of portfolio investments, presents serious obstacles to development (Chang and Grabel 2004; Chesnais 2005). The demonstration effect is enhanced by the rapid access to information, which awakens almost in real time the desire for imitation in peripheral societies whose economies have the technological inadequacy to reproduce such living standards. Besides, the absence of an endogenous technological core means that the innovative ef-

forts of the periphery are translated into the acquisition, domination and improvement of existing technology and not the change of the frontier of knowledge, maintaining the technological gap between the center and the periphery.

## The change in structure

The increase in the dynamic density of the system and the action of the boomerang effect altered the structure of the global capitalist system. The new flows of interaction between units allowed new arrangements and settings in the relations of power and dependence between the center and the periphery to form. In addition, research investments in science and technology as well as better articulation in the national innovation system (NIS) in some peripheral economies have allowed an improvement in the capacity to absorb and generate innovations in these countries.

With this, the diffusion of technical progress by the system assumed new configurations, entering distinctively in different peripheral economies. Although some peripheral economies have managed to complexify their productive structures, they still remain peripheral. The relations of cultural, technological and financial dependence still apply, even if in other terms and formats. The national innovation systems (NIS) of these complex peripheral economies attempt to build an endogenous technological core that is capable of creating technological and social homogenisation. If they do, the peripheral country will move to the center of the system, but for now, the change is in the distribution, in terms of the capability to absorb and generate innovation by the units of the system.

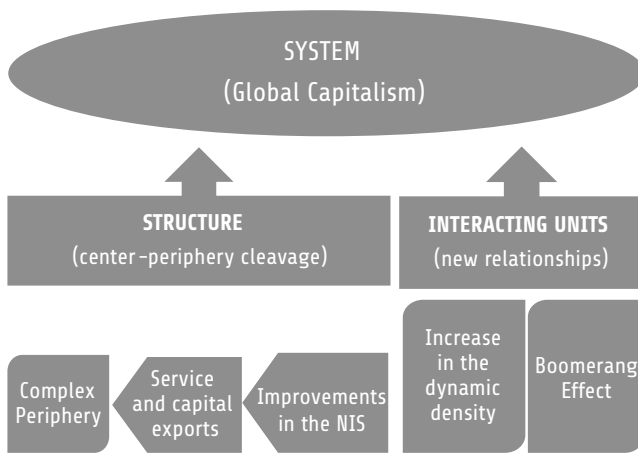
With greater capacity for technological learning, the complex peripheral economies were able to change their productive structures and export patterns. The new relative importance of the periphery in the world economy and the emergence of multinational companies from the periphery are reflections of this new arrangement in the diffusion of technical progress by the change in the distribution of the capabilities of absorption and generation of innovation. They are present in the most diverse sectors of the economy and compete directly with the multinational companies of the center for market share. Direct foreign investment by peripheral multinationals and the insertion of many peripheral economies into the global financial markets, including external financing through the issuance of government bonds, have also introduced the periphery into world capital exports. Although it has a large regional bias in services and capital export activities, the periphery has been able to change its role in the international division of labour. The periphery has always occupied the position of exporting raw materials and commodities, being a source of natural resources and providing manpower. But in the 21<sup>st</sup> century, it also exports manufactures, services and capital.

This shift in the role played by the periphery in the international division of labour has altered the international hierarchy in the center-periphery cleavage. The periphery, which was already heterogeneous, diversified even further. The number of complex peripheries has increased considerably, and China has been considered the most important peripheral economy in the 21<sup>st</sup> century.

Even though China has become an important player on the international political and economic chessboard, it has not yet crossed the limits of underdevelopment. Chinese experience show us it is possible, at a relative low *per capita* income, to satisfy a population's basic needs. But as Furtado (1992:51) points out, social homogeneity is a necessary but not sufficient condition for development. Homogeneity policies combined with other policies to address technological autonomy are the way out of underdevelopment. Nevertheless, an oriented construction of an endogenous technological core in China has been contributing to its approach to the international technological frontier.

Technological dependence is 'the main lock-in within international political structure' (Furtado 2008: 151). 'Fighting dependence is no other thing than peripheral efforts to modify this structure' (Furtado 2008: 151). Technological control is the most important power resource to hold back peripheral rises at development climb. Two economies that were originally peripheral and dependent, South Korea and Taiwan, managed to catch up and joined the center (Furtado 1986). The United States still occupies the top of the international hierarchy, but its economic-financial power is no longer the same and its leadership in innovation activities is under pressure. Thus, these changes in the structural elements of the center-periphery cleavage and in the dynamic density governed by the interactions of the units shape the systemic reconfiguration of capitalism in the 21<sup>st</sup> century. Figure 2 illustrates how the periphery is impacting the systemic reconfiguration of capitalism in the 21<sup>st</sup> century.

Figure 2 – The impact of the periphery on the current systemic reconfiguration of capitalism



Source: Prepared by the author.

In general terms, the ongoing systemic transformation in capitalism in the 21<sup>st</sup> century presents a new fact with recurrent elements. The internationalisation of capital has always been given by the incorporation of less capitalist areas<sup>8</sup> into capitalist rule; the propagation of technical progress by the global economic system has always had effects on the international division of labour; and inter-capitalist competition has always been tied to the interstate power struggle.

## Conclusions

Applying a Durkheimian approach and accepting Ruggie's critique to analyse global capitalism, this paper has shown how changes in the center-periphery cleavage have affected the systemic reconfiguration of capitalism in the 21<sup>st</sup> century. From a Durkheimian perspective, the system (global capitalism) is composed of a structure (center-periphery cleavage) and by the interaction of the units (central and peripheral countries). The structure is defined by three interconnected axes: by the ordination of the units; by the specification of the functions; and by the distribution of capabilities among the units.

The capability of the units to absorb and generate innovation determines the types of functions these units can perform in the international labour division. In turn, the place within the global labour division positions countries in better or worse conditions when it comes to incorporating the benefits of specialisation. Therefore, countries self-organise in central or peripheral positions in the global capitalist dynamic. By its turn, interactions among units are influenced by the structure and, at the same time, model it. The augmentation of the dynamic density of the units' interactions means more complexity of social organisation and a consequential higher specialisation and greater division of labour.

International institutional framework woven by central states during the 20<sup>th</sup> century's last decades affected the way actors accept catching-up behavior as appropriate. On the one hand, this institutional framework helps to keep center-periphery cleavage status quo. On the other, it opened up new interaction possibilities that have implications upon central and peripheral economies in a way not programmed by the central actors. Since this international institutional framework mostly reflects the structure of geopolitics since 1945, its rules and norms tend to reflect international power asymmetry, inhibiting a catching up process.

Differences in the capabilities of technological absorption set up economies to occupy different positions in the international division of labour, and peripheral technological backwardness is related to the lack of an endogenous technological core in its economies. As a consequence, peripheral economies tend to present low technical absorption capability and low level of R&D investments. Some international agreements from the Uruguay Round strictly restrict industrial policy tools for development, and rigorous rules on intellectual propriety were established by the WTO in the TRIPS agreement. Under these conditions, many policies adopted by the central economies during their catching-up process are no longer accepted by international norms.

Conversely, the new financial architecture built by the central states since 1990, rewarding policies of economic-financial liberalisation and deregulation, have increased and deepened peripheral insertion on world economy. The impact of these policies at the periphery was a greater share of international trade of goods and of capital international flows. The relative peripheral weight gain on world economy is affected by central economic performance.

As John Ruggie highlighted, structural change results from processes occurring at the unit level. New interactions are potential sources of structural change. Following Ruggie's recommendations the analysis above embraces both a determinant and a dimension of

change, that is, the interactions among units and its effects. The systemic change is due to the unit's interactions process, and the dynamic density is its main determinant (Ruggie 1986).

The interactions carried out by complex peripheries since 1970 have modified each of the elements of the structure, producing the boomerang effect (systemic result), which alters the interaction based in the center-periphery relationship (new power relations, new forms of dependence, etc.) and impacts the dynamic density. In turn, this change in dynamic density (characterized by quantitative and qualitative change of flows plus the boomerang effect) affects the structure of the system (ordering, diversification of functions, distribution of capacities) and shapes the reconfiguration of capitalism at the rise of 21<sup>st</sup> century.

Since 1970, there has been an increase in the dynamic density of the global capitalist system, and part of the periphery – complex peripheral economies, together – has had an active participation in this rise. In addition, some elements point to the action of the boomerang effect in the center-periphery relationship that shape the systemic reconfiguration of capitalism at the rise of the 21<sup>st</sup> century. The economic performance of the complex peripheries has driven global growth and affected the performance of core economies. The unprecedented accumulation of international reserves in these economies has made complex peripheral economies, such as China, Russia and Brazil, major international creditors. Complex peripheral economies have not only become potential sources of instability (contagion channel for a central and/or systemic financial crisis), but also necessary for the management of systemic crises and for the conduction of world order. The overall decentralised production process is also creating a global labour market that affects domestic labour markets in central economies with economic and political implications. In addition, offshoring and outsourcing activities affect international flows of technology, resulting in the intensification of research and technology activities in the peripheral economies and the spreading of research and technology laboratories of the center's multinationals as a means of diversification, intensification and maintenance of the control over innovation activities.

Therefore, the increase in the dynamic density of the system and the action of the boomerang effect have altered the structure of the global capitalist system. New distributions of absorption and generation capacity for innovations allowed the performance of new functions in the international division of labour and the emergence of more complex peripheral economies, reconfiguring the positioning of countries in the structural ordering of the center-periphery cleavage. It is possible to point out then a systemic change that reorganises the relations among the parts (units) and affects the functioning of the whole (system).

From a Durkheimian perspective, the systems themselves ascend and are shaped in a process, by the interaction of the parts, that organises them with a certain degree of autonomy guided by learning, evolution, competition and cooperation processes which make them flexible and dynamic. Thus, there are systemic elements, such as the boomerang effect, that can only be observed through a holistic approach. Nevertheless, as we arrive at the 21<sup>st</sup> century's second decade, we verify a lack of dynamism in the economic



performance of the important complex peripheral economies. Thus, it is currently not possible to infer about the maintenance of the boomerang effect in the long run. Only future studies can indicate its permanent, recurrent or temporary condition. What we know, however, is that global capitalism, as any system, has a dynamic stability in which the structure remains even with its components continuous changes and transformations. To sum up, capitalism will follow its reproduction and accumulation track, transforming and upholding itself as a system. The center-periphery cleavage that articulates it will continue to suffer structural changes but will remain through time, with or without the boomerang effect.

## Notes

- 1 This research was intended to have as its temporal object the 21<sup>st</sup> century's first decade but due to the 2007-8 world crisis, it expanded onto five more years in order to make the analysis more accurate, hence the data research limit is 2013.
- 2 See Prebisch [1949] 2000; Furtado 1961, 1986, 1987, 1992, 2008; Bielschowsky 2000; Rodriguez 2009; Fanjylber 1983, 1989; among others.
- 3 International flows of people are also part of unit interactions, but this paper does not analyse it due to a matter of scope.
- 4 Departing from a structuralist point of view, center and periphery are ideal types, seen as two poles of an intermediary development situation gradient (Lourenço 2005). Arrighi (1986) argues for the use of three categories – center, semiperiphery and periphery. For him, the semiperiphery should be treated as a distinct analytical category, corresponding to an intermediary structural position relative stable in the system – and not transitory or residual (Arrighi 1986; 1990). But in his attempt to prove this distinct structural position, he dissociates economy and politics in his semiperiphery definition concept. In the World System approach – adopted by Arrighi – the semiperiphery includes states in an intermediary position in the world's wealth scale or in terms of power in the interstate system (Arrighi 1986). But to investigate semiperiphery as a distinct analytical category, Arrighi (1986; 1990) defines it very much in an economic way and withdraws the state's role in capital accumulation (Lourenço 2005). The dissociation of the interstate system from world economy, the temporal horizon adopted, and the option for some economic indicators to model the semiperiphery category have serious implications upon his results, leading to questions about his claims (see Lourenço 2005). In addition, the structuralist concepts of center and periphery have a dynamic content; they do not denote only the international trade structure or the position on the world scale of wealth (Rodriguez 2009:84). Considering all that, this paper adopts structuralism's view of the center-periphery cleavage, where the center is composed of a gradient of developed economies and the periphery is composed of a gradient of underdeveloped economies (see Furtado 1986).
- 5 The G7 is a group that brings together the seven major world economies, namely United States, Japan, Germany, United Kingdom, France, Italy and Canada.
- 6 According to Furtado (1986: 163), the degree of underdevelopment is defined by the relative importance of the delayed department and the rate of increase of the department's share in the social product. Thus, there are underdeveloped economies of lesser degree and more complex underdeveloped economies.
- 7 Dependence between periphery and center is related to an inside-outside structural relationship (Rodriguez 2009). The so called dependency school – represented by Theotônio dos Santos, Marini, Cardoso and Faletto, among others – highlighted the ties evolving the national, regional and international society and economies in their analysis. Even with the new contours, in the 21<sup>st</sup> century, center-periphery relations still show local, regional and international capitalist interest articulation that ends up in a development deadlock (see Santos 2020; Furtado 1998).
- 8 Areas where the dynamics of reproduction of capital is less intense, absent or limited. The designation of these areas is given by the structuralist concept of periphery, or of 'non-capitalist' areas by Rosa Luxemburg, or 'pre-capitalist,' by Furtado, for example.

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## Reconfiguração Sistêmica do Capitalismo: Aplicando a Crítica de Ruggie à Waltz na Economia

**Resumo:** Este artigo identifica mudanças na estrutura Centro-Periferia devido às transformações do capitalismo a partir de 1970. Em sua nova configuração, o Capitalismo não apenas alterou as relações centro-periferia, como também impactou as unidades periféricas que afetam a própria estrutura do sistema. Este artigo tem como objetivo aplicar a famosa crítica de Relações Internacionais de Ruggie a Waltz para analisar o capitalismo global e mostrar como as mudanças na clivagem centro-periferia estão afetando a reconfiguração sistêmica do capitalismo no século 21. Esta pesquisa identifica o efeito bumerangue como um novo elemento sistêmico; isto é, um subproduto da interação da unidade no sistema capitalista global no século 21.

**Palavras-chave:** capitalismo; clivagem centro-periferia; efeito bumerangue; crítica de Ruggie; economia.

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