

A CASE STUDY OF COMPETITIVENESS IN LATIN AMERICA: SCHUMPETERIAN APPROACH AND NEOSTRUCTURALIST SCHOOL¹

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ABSTRACT

This paper aims to focus on neostructuralism in case of Latin America on the basis of competitiveness and rivalry in order to analyze the influences of Schumpeterian approaches. Considering the historical evolution of structuralism to neostructuralism, *growth with equity* and *systematic competitiveness* have been defined as the main pillars of neostructuralism. Regarding Schumpeterian vision of economic development, innovation and entrepreneur, how these concepts have been used within neostructuralist approaches based on growth with equity and systematic competitiveness would tried to be answered. Within this context it is clearly seen that Schumpeterian approaches have a direct influence on neostructuralism.

JEL Classification: O1, O3,O31,O54, B5

Keywords: Latin America development, Schumpeterian approach, neostructuralism, innovation

ÖZET

Bu çalışma, Latin Amerika’da neoyapısalcı okulun rekabet edebilirlik kavramını temel alarak Schumpeterci yaklaşıma bakışını analiz etmeye odaklanıyor. Tarihsel süreç içerisinde yapısalcı yaklaşımların neoyapısalcı yaklaşımlara evrildiği görülürken, adil büyüme ile sistematik rekabet edebilirlik kavramları neoyapısalcı okulum temelleri olarak tanımlanmaktadır. Schumpeterci yaklaşımların iktisadi kalkınma, inovasyon ve girişimci kavramları dikkate alınarak, bu kavramların neoyapısalcı okulun temellerini oluşturan adil büyüme ile sistematik rekabet edebilirlik içerisinde ne şekilde kullanıldığına yanıtlar üretmeye çalışmaktadır. Çalışma kapsamında neoyapısalcı analizin Schumpeterci yaklaşımlardan doğrudan etkilediği açık bir şekilde görülmektedir.

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I)INTRODUCTION

In this paper first of all the roots and main concepts of neostructuralism would be analyzed in order to set up the links between Schumpeterian approach, competition and the perception of rivalry in Latin America. Rather than focusing on Schumpeterian approach itself the definition of competitiveness and also the usage of Schumpeterian analysis in neostructuralism would be analyzed. The approach to economic development, technological progress and the definition and perception of entrepreneur and innovation used in Schumpeterian analysis would be considered.

A)From structuralism to neostructuralism

Since neostructuralism has been defined as a continuous process of structuralism, adopting itself to the changing conditions of international competitiveness, as the first step it is inevitable to summarize the main framework of structuralism.

As it is known the structuralist school in Latin America has played an important role in the evolution of developmentalist approaches in 1950s and 1960s. Mostly based on Prebisch works (*The Economic Development of Latin America and its Principal Problems*, 1950) the evolution of structuralist thought has taken place especially under ECLAC(The Economic Commission for Latin America) in the 1950s and 1960s. Mostly have influenced from German historical school (Love,2005:157), structuralist school aimed to give answers to the problems of underdevelopment of Latin America countries.

Centre-periphery approach, the unequal exchange between the centre and periphery (based on trade relations that leads deterioration of terms of trade), structural heterogeneity and technological process via industrialization and ISI (inward led industrialization) policies could be summarized as the main titles covered by structuralism.

As Alfredo-Saad Filho (2005:133) emphasizes that structuralism is critical of neoclassical economic theory especially on its presumptions that markets work and that countries should specialize in international trade according to their comparative advantage. Calling the place of countries in the international division of

production as centre and periphery the structuralism claims that the markets don't work well in the periphery because of structural factors. Structuralists also argue that free trade and existing international division of labor systematically benefit the centre at the expense of the periphery because of secular decline of periphery's terms of trade. Deterioration of periphery's terms of trade is one of the distinguished features of Latin America's structuralism. Structuralism claim that the periphery can escape from this vicious circle only through industrialization(2005:137).

As the key answer to achieve development, structuralism supports the necessity of industrialization via ISI. Structuralism gave the state a special role in the development process and in any event structuralism distinguished itself from neoclassical analysis in its emphasis on macroeconomics, institutions and interdisciplinary approaches to economic issues as well as in reacting long-term changes(Love: 175).

Considering the place and definition of technology it is seen that structuralism support industrialization also for achieving technological progress and modernization. The share of economic surplus between centre and periphery is one of the critical question in structuralist approach. As emphasized by Pinto (1965) the fruits of technological progress has been shared by the centre hence the excess labor supply in the periphery could not be absorbed. The industrialization process based on centre-periphery relations have created the structural heterogeneity so that these relations could be changed. ISI plays a critical role within this context and considered as a tool to achieve technological progress and eliminate the structural inequalities. Although during that period, Latin America countries have remained great consumers of imported technology. Except perhaps in the case of Brazil, as Sunkel states(1989:526) that Latin America countries have not yet developed the will and the capacity to produce, adapt, and select technology, but are most definitely convinced that this is a central feature of the development process. At this point, the process of institution-building in this field, aimed at channeling resources into this area and promoting science and technology, was quite significant in the 1960s, before the onslaught of neoliberalism.

By the 1980s the relevance of structuralist approach has been questioned as a result of crises faced by Latin American countries. The limits of ISI policies, the debt crisis that have emerged in Latin America countries also coincide with the world economic crisis as a result the relevance of Keynesian policies have been discussed. Following the crisis debates the application of neoliberal program have been taken into consideration in the region where as Latin America countries are among the first countries that have applied neoliberal policies.

Although it is possible to claim that in Latin America as a whole, as indicated above, the neoliberal program after 1980 produced poorer results than those of the “structuralist” period by means of growth and noneconomic measures of the “standard of living.” At least, these facts seem to bring into question the validity of neoliberalism in the region as it was actually carried out in the years after 1980s(Love, 2005b: 123).

To sum up in case of structuralism the technological progress linked with ISI remained to be insufficient considering the competitiveness of countries in international economy where as Latin America countries met with the problems of defining themselves in the international competitiveness.

II) The emergence of neostructuralism

By the 1990s structuralism has been recalled as neostructuralism, after the report of ECLAC, *Changing Production Patterns with Social Equity*(1990), with the aim of replacing the market dogmatism of the 1970s and 1980s with an approach that restored political, institutional and cultural dimensions to economic development. In some ways this report reflects the attempts of adopting globalization and changing climate in international economy and the answer of ECLAC that has renewed itself under the neostructuralist approach.

Apart from contributions made under ECLAC, for better understanding the evolution neostructuralism the works of Fernando Fajnzblor (1983, 1990) is critical. Addition to these, Sunkel(1989,1990), Altimir (1990), Rosales (1994), Katz (2000), Cimoli (2000),

later on Ocampo (2001) could be named among the pioneers of neostructuralism.

Later on the ECLAC’s report that has been published in 1990, three other main reports; “*Social Equity and Changing Production Patterns: An Integrated Approach*(1992)”, “*Globalization and Development*(2000)”, “*Productive development in Open Economies*(2004)” are classified as the key documents of ECLAC that maintains the continuity of neostructuralist line also whereby it provides deeper analysis.

The reports of ECLAC that has been published in 1990 (*Changing Production Patterns with Social Equity*) and in 1992 (*Social Equity and Changing Production Patterns: An Integrated Approach*) have been the main pillars of neostructuralist approach that characterizes the concepts of “*growth with equity*” and “*systematic competitiveness*”. These two core concepts briefly provides the analysis of productive development under globalization that is tried to be defined by neostructuralism. Later on as Bielschowsky (2009:172) stated between 1998 and 2008, the neostructuralist analyses and proposals were enhanced, matured and improved to form a policy agenda encompassing the institution’s four basic analytical domains of macroeconomics and finance, productive development and international trade, social development and environmental sustainability.

Regarding the emerging conditions of neostructuralist approach the international environment and the regional economic and political conditions plays a critical role. As is it is emphasized by Leiva (2008) the truth of this theory is revealed in three crucial characteristics of the Latin American economy at the end of 1980s (cited by Leiva, 2008, Rosales,1998) the a) a continuing pattern of external insertion which given the trends in international trade and the international financial system leads to an impoverishing specialization, b) the predominance of incoordination production apparatus which is vulnerable and highly heterogeneous concentrates technical progress and is incapable of absorbing productively the growth of labor force c) the persistence of a very concentrated and exclusive

income distribution which reveals the system's incapacity to reduce poverty.

As it is reflected to the ideas of ECLAC, it is possible to claim that after the mid-1990s the search for alternatives have also coincide with the emergence of Post Washington Consensus (PWC) and the redefinition of ECLAC policies for the region.

Under these circumstances it is also possible to observe that neostructuralist approach similarly with PWC try to define economic policies differently from neoliberal agenda and aim to remedy the negative effects of these policies. For example, the *growth with social equity* approach could be understood better considering the results of neoliberal agenda in the region.

Briefly, Latin American neostructuralism promises to transform Latin America and focus on the problems of economic development. Neostructuralism aim long term growth with equity approach and at the same time development coordination and social harmony indispensable for fluid and speedy integration into the globalization process (Leiva, 2008: xx).

Considering the last decade five key analytical contribution for neostructuralist approach has been defined; a wider ranging assessment of countries' economic and social performance following the liberalizing reforms; an agenda for the global era; sociopolitical concepts of citizenship and social cohesion; a merging of the structuralist and Schumpeterian approaches; and the emphasis placed on countercyclical macroeconomic policies in situations of financial volatility (Bielschowsky, 2009:179).

Addition to these four type of policies for better position within the international economy have been encouraged as it is stated in the report of *Productive Development in Open Economies* (ECLAC,2004); technological development and innovation policies, policies for enterprise development and job creation of the formal sectors and policies strengthen productive structures fostering and consolidating strategic sectors(Leiva,2008:41).

The main aim is to create reproductive structures in order to increase international competitiveness. At this point, instructional change

and the relationship between the state and transformative process also plays a critical role. Shortly an endogenous accumulation process that absorbs and generates technical advances including the use of foreign investments (Sunkel, 1993) has been targeted.

A) Core principles of neostructuralism and Schumpeterian influences

As stated above, "*growth with equity*" and "*systematic competitiveness*" could be defined as the core concepts of neostructuralism. In order to create reproductive structures and catch the international competitiveness, these two core concepts also have been accepted as the goal that is need to be achieved.

The approach to technological progress, innovation and rivalry under neostructuralism could be understood better by considering these core concepts. How the roots of competitiveness has been defined, what is meant by innovation and rivalry could be answered by focusing these concepts as well. Again, the influences of Schumpeterian analysis is possible to be investigated. As it is mentioned in several works related with neostructuralism the definition of productive development and international engagement, a combination of structuralism and Schumpeterian approaches has been observed. Recalling Schumpeterian approach to development, where as for Schumpeter development means new combinations of productive means it is clearly seen that neostructuralism has inspired from this idea.

As Schumpeter defines (1962:63) by development therefore we shall understand only such changes in economic life as are not forced upon it from without but arise by its own initiative from within. According to Schumpeter, development is spontaneous and discontinuous change in the channels of the flow, disturbances of equilibrium which forever cutters and displaces the equilibrium state previously existing.

As he defines(1962:66);

Development in our sense is then defined by carrying out of new combinations, new products, new industries et al. a)the introduction of a new good, the one that is consumers are not yet familiar b)the introduction of a new quality of goods of a new method of production c) the opening of a new market d) the

conquest of a new source of supply of raw materials. e) the carrying out of the new organization of any industry like the creation of a monopoly position or the breaking up of monopoly position.

Again as stated by Schumpeter (cited by Reisman, 2004:60, Schumpeter: 1935:138)

Economic development in sum is not primarily the result of more labor and savings but the result of irreverent alteration, endogenous and active: The historic and irreversible change in the way of doing things we call "innovation" and we define: innovations are changes in production functions which can't be decomposed into infinitesimal steps.

Schumpeter's theory of innovation deals with 3 dimensional that is entrepreneur agency, leadership and profit motive and imperfect competition. The innovation process is the basis for destructive creation that characterizes capitalism (cited by Reisman, 57, Schumpeter, 1942a:32), it is not the innovation that created capitalism but capitalism that has created innovations needed for existence (Schumpeter, 1962:71). Innovation doesn't initiate economic development but rather are a consequence of an economic development.

In other words, creative destruction is a necessity for development. For the evolution of capitalist development innovation is critical for creative destruction. Schumpeter always see the entrepreneur and innovator as a disequilibrium force distributing a previous equilibrium by creative destruction.

Entrepreneur has specific meanings in Schumpeterian analysis. Entrepreneur is the one who creates new products, or new types of production, the function of entrepreneur is to carry out the new combinations. Initiative, authority or foresight points are the specific characteristics of entrepreneur (Sweldberg, 1991:173). The entrepreneur is defined as an innovator as opposed to an inventor. The emphasize is made to the creativity of the entrepreneur since the entrepreneur is always creative when his work has become routine he is not an entrepreneur any larger but may be called as a manager (Sweldberg, 1991:173). Since entrepreneur is not the same with the capitalist,

Schumpeter doesn't consider him/her as a social class. Even the state could play the role of the entrepreneur. Entrepreneur is not the risk taker, it is the capitalist who takes the risk by putting up the capital, entrepreneur is the one who carries the innovations and one of the key figure in the economy as a part of social life. Simply the entrepreneur is defined as the agent of change(Reisman, 2004:59) and the pioneer(cited by Reisman:59, Schumpeter, 1942a :132)where as the carrying out of new combinations has been called enterprise and the individuals whose function it is to carry them out has been called entrepreneur(cited by Reisman:59, Schumpeter, 1912b:74). Shortly, Schumpeter vision of innovation and entrepreneurial function reveals the dynamic nature of economic development concept since Schumpeterian development model based on the stages of creation of innovation, purchasing parity and by the help of entrepreneur the application of innovations.

Addition to the main points defined above, the given role to the institutions and the state, the private sector and state relations in neostructuralism are the other related titles inspired from Schumpeterian analysis.

Another specific title that should be mentioned is related with the perception of neo-Schumpeterian approaches in neostructuralism where as it give importance to innovation. According to neo-Schumpeterian approaches innovation is identified as the major force propelling economic dynamics (Hanusch and Pyka, 2005:3). The hardcore of the economic system is the innovation where as it is believed that to understand the process driving the development at the meso-level neo-Schumpeterian economics put a strong emphasis on knowledge, innovation and entrepreneurship at the micro level. Evolutionary and institutional approaches have been also used in order to analyze the process of economic development. Again, considering neostructuralism it is clearly seen that innovation, knowledge and entrepreneurship have specific meanings in order to achieve *growth with equity and systematic competitiveness*.

B) Core Concepts of neostructuralism in detail

Regarding Schumpeterian analysis, it is now possible to go further and analyze the main core of neostructuralism in detail. As defined in the reports of ECLAC(1992) “*Changing Production Patterns with Social Equity*”, embraced the two main objectives that have traditionally been promoted by the institution: to develop a productive base combining continuous productivity increase with competitive engagement in the international economy, while building a more equal and fairer society (Bielschowsky, 2009: 172).

It should be underlined that in globalization era for Latin American countries, low GDP growth and increasing inequality led the question of growth but also the equity. The development gap between rich and developing countries (difference in GDP per capita or per worker) has broadened in this period. For instance, GDP per capita in Latin America countries increased merely 1% annually in 1990-2005, while in the USA rose 1,8%, and for the world it averaged 1,2%(Ffrench-Davis,2007).

As a matter of fact the neoliberal reforms in Latin America often triggered a virtuous circle of macroeconomic instability and consumption –led growth financed by foreign capital (Alfredo Saad Filho, 2005:228). Called as lost decades of Latin America, according to ECLAC figures, during that period the inequalities have increased. According to ECLAC (2010), the poverty rate in Latin America was 40.5% in which it has increased to 48.3% in 1990 and later decline to 34.1% in 2007.

As a result by the 1990s the search for alternatives, the increasing inequalities during this period have led the question of elimination of social exclusion and poverty and the necessity of alternative policies against neoliberal agenda have been discussed. Comparing the GDP growth of the Latin American countries the low performance is also not satisfactory that leads the question of competitiveness of the economies. Under the given facts the approach of growth with equity could be understood better.

What ECLAC calls an integrated approach for growth with equity, fusing macro, meso and

microeconomic policy initiatives(ECLAC, 1992) with political intervention to construct a broad social consensus, neostructuralists support the export drive policies in ways that seek capture and endogenize technical progress (Leiva,2008:10) that also makes sense of approach of development within and Schumpeterian approaches.

According to ECLAC report(1992), economic growth and equity is complementary. Thus, of the three major types of policies which promote social equity those aimed at increasing productive employment, investment in human capital and transfers only in the latter could advances be made at the expense of growth. Technological productive employment and investment in human resources are defined as main titles in order to reach growth with equity.

Another key element of this approach is defined as the institutional change for changing production patterns with equity whereas with the earlier works of Fajnzylber (1990) explored the relationship between growth with equity via industrialization, technological progress and international competitiveness. Briefly to achieve equity, social justice and strengthen democratic institutions, technological innovation and renovation of the state plays a critical role(Sunkel and Zuleta,1990).

By looking to “*systematic competitiveness*,” definition of ECLAC, as the other main core concept of neostructuralism, it seen that competitiveness founded on the strengthening of productive capacity and innovation. Rather than competitive advantage systematic competitiveness has been used as the key point. Differently from neoliberalism the roots of the competitiveness is not the prices but it is incorporation of technical progress. In neoliberalism realm of competitiveness is the market where as in neostructuralism it is the society as a whole (interface between market, intuitions and mindset (Leiva,2008:9).In the ECLAC’s view, competitiveness has a macroeconomic basis, a market friendly approach, a systemic nature, and emphasis on productivity, technical change and sustainability. The aim of competitiveness is to achieve both a better position in international markets(that also determines the rivalry) and a better standard of living for the

population, within open economies with few restrictions on trade and free markets (ECLAC, 1990).

In case of systematic competitiveness, first of all the change in the productive systems is crucial. Besides, the composition and forms of specialization for international trade, the wage policies and labor productivity also plays critical roles that should be considered in the formation of policies. First of all Katz (2000) set out in a group of papers critically evaluating the effects of reforms on the productive performance of the countries of the region and the growth rate of their economies and also in the discussions on the relevant transformation strategies and development policies (Bielschowsky, 2009:180).

Ocampo's contribution to the analysis of the relationship between the dynamic of the productive structure and economic growth in developing countries (Ocampo, 2002 and 2005) also represents another perspective. This study shares the view of those who, like ECLAC, believe that per capita GDP growth is related to the changes in the composition of output and forms of specialization in terms of trade (Bielschowsky, 2009:180-181).

It is an inevitable fact that Latin America and the Caribbean need to retarget their productive and export basket on goods of higher technological content and, at the same time, add value through larger sector chains. The strategy of open regionalism that would not be discussed here in detail has been developed as a tool of increasing competitiveness. Related with this title based on open regionalism, specific importance has been given to the emergence and continuity of MERCOSUR. So the importance of foreign trade also has been stressed in several works of neostructuralist approaches.

One more aspect of systematic competitiveness is about the labor side. The increase in labor productivity, and the wage policy of the related countries should be considered. As Leiva emphasized, the lower real wage policies during the neoliberal era (that is also one of the specific consequences of neoliberal transformation) need to be changed. As Lagos(1994) stated state action is a need to ensure the transition from defensive to offensive or proactive policies to achieve labor

flexibility (Leiva,2008:11). Simply the labor flexibility is one of the tools in order to achieve international competitiveness that also may contradict with the idea of *growth with equity*.

As defined by ECLAC(1994) the promotion of competition encompasses a number of areas: i) deregulating competitive markets, which represent the majority; ii) regulating markets dominated by natural monopolies or other flaws of industrial organization, which are few but decisive for the well-being of individuals; and iii) deepening and extending the coverage of incipient or underdeveloped markets, such as those for technology, training and long-term capital.

By this definition, the systemic nature of competitiveness, prioritizing the creation of physical infrastructure, human resource formation and policies towards innovation and technical progress, together with others aimed at achieving faster and sustained growth and successful international engagement has been defined (Bielschowsky, 2009:177). As it is emphasized by Ocampo (2002) Latin American economies today should be building systematic competitiveness based on three fundamental pillars: the creation of innovation systems to speed up the accumulation of technological capacities; support for new productive activities and the formation of production linkages; and the provision of quality infrastructure services. The role of deep financial markets has already been emphasized, as an essential complement to an appropriate macroeconomic environment.

C) A new industrial development for competitiveness

Besides the defined pillars of neostructuralism, the conceptualization of industrial development should be also analyzed. At this point the main reference should be given to Fernando Fajnzylber's contributions(1983,1990) to this analysis. As stated before Fajnzylber, earlier works(1983, 1990) have determined the roots of neostructuralism and provide industrial development from within that has very different implications. Fajnzylber opposite to neoliberal policies for development try to set up development challenges facing open economies with

active but less interventionist states. Moreover, his emphasis on technical progress based on knowledge accumulation—which stemmed partly from neo-Schumpeterian studies of the revolution represented by information technologies and biotechnology, and the creation of national innovation systems—lead to the establishment of a new analytical benchmark in ECLAC thinking (Bielschowsky, 2009:179). Fajnzylber(1990) defined a new way of industrial restructuring for Latin America region in which the technological progress is the core element. As he states(1990:40) the intensification of international competition associated with the spread of progress and industrialization to new regions and countries reinforces the need for technical progress and the expansion of the capital good sector.

Fajnzylber uses two main concepts in order to explain the process of industrialization in Latin America. First of all Latin America countries have faced with empty box syndrome; whereas the industrialization could not achieve growth with equity. Considering the link between the pattern of industrialization and development and the attainment of the objectives of growth with equity, Latin America should fullified empty box into a black box. Black box refers to Latin America's precariousness in terms of creativity absorbing and incorporating technical progress in order to respond to regional deficiencies and potentials(1990:ix). Latin American development process could be characterized as weak incorporation of technological progress so that the empty box would be linked directly to the inability to open the black box of technical progress .

The industrialization pattern characterizes by the convergence of these 4 elements showcase modernity, comfortable internal market, preferential international insertion by means of natural resources and the national entrepreneurial precariousness-reflects the weakness of what has been defined as the endogenous nucleus of technological dynamization (1990:21). Here the black box would also be influenced by the origin of Latin American formations, their instutionality, the cultural context and a series of structural economic factors whose ties with the sociopolitical element are complex yet undeniable (1990: 4-5).

Addition to these Fajnzylber (1990,53) defines the chief factors that link the pattern of industrialization and development within the achievement of the objectives of growth with equity. The principle factors to be explored and quantified are the natural resource base, the structure of the industrial system , its international competitiveness and the pattern of consumption and investment. Growth also reinforces international competitiveness at the same time these virtuous circle between growth and competitiveness in which the requisites of equity , austerity and the technological learning are often omitted, constitutes one of the central axes of the successful experiences of industrialization (1990:62). As it is supported by Fajnzylber, an internationally competitive industrial system favors equity by (at least) the following means: a relatively broad distribution of property associated with the creation of small and medium enterprises, the diffusion of labor qualifications, a more rapid growth of employment associated with the dynamism of the international market, a surge in productivity and wages, the diffusion of the educational system on the widest and most integrated social base and the diffusion of industrial logic by both formal and informal means to the whole of the society(1990:63).He also emphasize the relevance of the relationship among the productive sectors, enterprises and types of markets for better understanding the process of technological innovation(1990:65). Here the availability of the national entrepreneurial base will be unquestionably determinant factor in the construction of an internationally competitive industrial system at the same time transnational corporations could also contribute (1990:66).

Briefly the ideas of Fajnzylber, comprised in that concept which stresses the role of technical progress, proposes a new form of industrialization that takes account of linkages and interactions with other production activities and gives a central place both to equity and to the quest for a truly competitive role in the international economy(Esser, K. and et.al, 1996). These ideas later was supported by ECLAC(1990,1992), where it is stated that Latin America needs to fill the empty box in the matrix of countries that are characterized as pursuing a course

that has made equity compatible with high rates of industrial growth and competitiveness.

Regarding the question of technological progress for the region, another main contribution in case of has been made by Sunkel(1989).Sunkel(1989) supports that the building up of a national base of technological capability is certainly crucial to development whereby Latin American countries have attempted to create it in various forms. As Sunkel (1989) criticize, in case of technology there is much to be learned from institutional approach where structuralism and particularly dependence thought, has argued is that the nature of the process of transfer of technology has inhibited the development of endogenous technical capabilities in Latin America(Sunkel:526).

According to Sunkel's (1993:46) thought for *growth with equity* and *systematic competitiveness* the technological progress is an endogenous parameter. Technological change performs an essential function in the structural change (Sunkel,1993:46). Neostructuralism shares the basic structuralist stance that the sources of Latin America's underdevelopment are not to be found primarily in policy-induced distortions in relative prices but rather are: rooted in endogenous structural factors(Sunkel,1993:6). So that a development strategy that offers growth with equity and democracy have been defined. So, for the development of Latin American countries, it is stated that rather than Keynesian growth strategy Schumpeterian approach is needed which incentives encourage technological mastery and innovation and mobilize an increasing number of entrepreneurs. This attempts is named as "endogenization of technological change" and development within (Sunkel, 1993, and Rodriguez, 1993). By neostructuralism the industrialization strategy has been recalled and inward industrial strategy of structuralism has been replaced by development within strategy. It is an inward to outward looking development but towards a future of development and industrialization from within that promises a dynamic progress of accumulation, innovation and productivity gains(Sunkel,1993: 156).

Sunkel describes the development within as industrial development from within that has different implications. In final analysis, it is expressed in terms of import substitutes but it starts from industries that considered at that time to be the pillars of what we have come to call the basic endogenous nucleus from industrial accumulation, creation and dissemination of technical progress and productivity gains (Sunkel,1993:155).

Development from within also have been explained, as given importance to dynamic effort on the supply side. Neostructuralism mostly focus on supply side, accumulation, quality, flexibility, the combination and efficient use of productive resources the deliberate incorporation of technical progress, innovation and creativity organizational capacity social harmony and discipline, frugal private and public consumption and emphasis on national savings and the acquisition of the capacity to insert national economy dynamically into the world economy. With active participation of the state and private economic agents to achieve self-sustained development.

According to this approach an endogenous nucleus for industrialization, endogenous nucleus of technological infrastructure lead to creative impulse. This approach could resemble the metaphor of "creative destruction" process of Schumpeterian analysis. By the endogenous nucleus of technological infrastructure, initial creative impulse give rise to industries such as iron and steel, after the foundation stage has passed large industrial plants tied to medium and small business scientific and technological infrastructure (technological and basic sciences research institutions), the training of skilled human resources mass communications media, and public agencies and levels of decision-making are consolidated as a national practice of an endogenous nucleus of technological dynamism(Sunkel, 1993:47) .

D) Technological progress and the roots of innovation system

As the key parameter for economic growth is accepted to be the innovation in Schumpeterian analysis, ECLAC (1992) also defines that technological progress as a must in order to attain increasingly higher

and sustainable levels of productivity and to create a greater number of productive jobs. In this case, the behavior of firms, institutions devoted to development oriented activities in science and technology should be considered to be similar with the Schumpeterian approach.

Schumpeterian approaches has been considered for a country in order to insert international economy, better organization of production and marketing on the part of enterprises (cooperations or microenterprises). As stated by ECLAC(1992) small and medium-sized firms are particularly important in this context, since they employ the bulk of the labor force and account for a good proportion of regional output. The absorption and dissemination of technical progress also calls for a suitable technological infrastructure, better production linkages from the natural resource base on up, and the modernization of basic production support services such as transport, communications, ports and trade. All this fully justifies the need for a long-term strategy designed to raise, gradually and steadily, the educational supply in the various phases and areas: the pre-school, basic and secondary cycles, universities, research centers, training systems, mass education and adult education programs, and occupational retraining programs. As regards the establishment of enterprises, there is a need to design policies to stimulate the formation of enterprises and the training of entrepreneurs (ECLAC, 1990).

Neostucturalism give importance to the institutions so that in case of creating efficient innovation systems either. The combination of agents, institutions and rules on which the absorption of technology is based has been called an *innovation system* generally a *national innovation* system which determines the rate of generation, adaptation, acquisition and dissemination of technological know-how in all production activities (Nelson, 1988; ECLAC, 1996b, ECLAC, 2004:204)

As defined by ECLAC(2004),"innovation systems" which support its development and generate dynamic interactions between the educational system, technological research centers and the enterprises themselves and which make it possible to take full advantage of the economies of scale of research and the

externalities characteristic of technological know-how (ECLAC, 1990 and 1996). These institutions are therefore named as a central element of "knowledge capital".

Especially emerged from the ideas of Ocampo(2000) the review of innovation processes goes hand in hand with the idea of forming productive chains based on stimuli with potential to promote innovations based on "complementary aspects, linkages and networks", with capacity to generate an "integrated productive fabric". In other words, it addresses innovation in the broad Schumpeterian sense, as the capacity to create new activities and undertake existing activities in new ways(Bieslowsky, 2009:181).

The performance of innovation systems is directly related to the production structure and the firms and public institutions that constitute it. Four patterns of behavior are associated with the transformation and new pattern of acquisition of technological and innovative capabilities that today characterizes the production system and its enterprises (Cimoli and Katz, 2001.) These are listed as (ECLAC, 2004:208);

The first pattern involves a *simultaneous process of modernization and inhibition of national capacities*.

The second pattern is the *marginalization and destruction of national production chains*.

The third behavioral pattern that has been emerging is *uneven specialization in the production of knowledge*.

The fourth behavioral pattern is *the transfer of some pre-existing R&D activities out of the region*.

The generation and absorption of technology and the consequent achievement and improvement of international competitiveness are thus *systemic processes*, since the performance of the innovation system depends on a set of synergies and externalities of various kinds whose scope goes beyond business enterprises' profit-maximization responses to changes in incentives (Katz, 2000). It is also an evolutionary process, that entails social cohesion in order to create reproductive structures again with similarities to Schumpeterian approach.

III) Some notes on neostructuralism in practice

During the last decades the application of economic policies especially in Chile and Brazil, reflect the influences of neostructuralism (Bieslowsky, 2008). After the neoliberal era, the search for alternatives also lead the question of increasing competitiveness of these countries where national innovation policies, expenditures on R&D and given importance to institutional research have found its place in the first ranks of governmental policies. Considering the applied policies, both of the countries aim to increase international competitiveness, at the same time embraced the growth with equity approach.

Comparing to Brazil, in Chile influence of ECLAC during the last years has been observed more directly. These policies have been carried out at governmental level for example, in the Concentration governments of Chile (1990-2005) some of the pioneers of ECLAC also have ministerial duties (Such as , Ffrench-Davis, Rosales, Lahera). In Chile, after the Pinochet era, for the civil governments the neostructuralist approach act as a tool in order to integrate into the world economy so that social cohesion and growth with equity have been considered and as result neostructuralist policies have been considered.

In case of Brazil, although structuralism has strong historical roots (especially in 1950s) considering neostructuralist policies ECLAC seems to have weaker influences. In spite of this, during the Lula administration (2002-2010) it is seen that Brazil also give importance to increasing international competitiveness and applied national innovation policies that considers the neostructuralist approaches. For example, under Lula administration between 2003 and 2006, a national policy for science technology and innovation (PNCT&I) has been applied (Knight and Marques, 2008: 105). Four main strategic goals of PNCT&I has been defined as (2008:106)

-Consolidate perfect and modernize the national system of science technology and innovation expanding the national scientific and technological base.

-Create an environment favorable to innovation in the country stimulating the business sector to invest in R&D and innovation.

-Integrate all the regions and sectors in a national effort for training for science technology and innovation.

-Develop a broad social base of support for the national strategy for science technology and innovation.

In case of Brazil it should be stressed that the most competitive firms are national and state led companies that were established before 1980. Emprapa, Embraer, Petrobras are among the most competitive companies of Brazil that have already established before 1980s. At the same time especially during the Lula administration a significant improvement has been observed due to given importance to national innovation policies as a part of active state policies. These facts could be also classified as one of the main characteristics of national innovation system of Brazil that adopt itself to the neoliberal era under the influences of neoSchumpeterian and neostructuralist approaches.

Together with the policy change for national innovation systems, during the last decade both Chile and Brazil have made significant progress in case of technological progress considering the R&D expenditures to GDP, numbers of patents created and international competitiveness rank. Chile and Brazil are among the most important countries that shares the first rank of competitiveness comparing with others in the region. Although at the international scale, still the Latin American countries have poor performance of competitiveness.

According to OECD figures (OECD Fact Book:2010) the expenditures share of R&D to the GDP still is above the OECD average (2.28%). Considering Brazil the share of R&D expenditures has been given as 1.13 % where as for Chile it is calculated as 0.67%. Comparing the number of researchers per thousand according to 2008 figures (OECD Fact Book:2010) for Brazil it is given as 2.2% and for Chile as 2.3%. Considering the patent applications (patents granted by

resident countries within the country and out of country) in 2009(WIPO,2011) for Brazil it is given as 2541 and for Chile it is given as 1398. Residents patent fillings per GDP(\$ billion) according to 2006 figures for Brazil is calculated as 2.32 % and for Chile 1.41% . Comparing the R&D expenditures to GDP, in case of Chile foreign sector also have an important share where as in case of Brazil the composition of expenditures are from government, universities and other national institutions(private sector firms).

In both of the countries, it is seen that specific roles have given to the entrepreneurs and the small and medium scale business. It is seen that the neostructuralist approach aim to develop a new business class either initially small scale or formed by highly qualified technicians who made proficient and full use of an instutional and economic environment that favored this type of the activity (Goma, 1993:280). As Goma emphasize, the role of the business class in absorbing and incorporating technological advances has been inspired from Schumpeterian analysis (Goma, 1993:280). So in both cases of Chile and Brazil it is possible to observe the creation of a new business class by the application of neostructuralist policies.

IV) Conclusion

Based on the analysis above, it is clear that neostructuralism historically influenced from structuralism and defining itself as a continuous process of structuralism, try to build a new theoretical framework for the 21st century economic conditions. The institutional influence of ECLAC in the region also accelerated the relevance of neostructuralism for the Latin American countries. Within these context neostructuralism, critical to neoliberal agenda, try to define alternatives depending on this purposes Schumpeterian, developmentalist approaches has been considered as well. It is also possible to observe that institutional and evolutionary approaches and a synthesis of Post-Keynesian policies has been accepted.

Considering the Schumpeterian approach to capitalism, there is no reference given to the continuity or discontinuity to capitalist mode of production in neostructuralism. But the creative destruction principle of Schumpeterian analysis has been considered and it is

also possible to claim that the characteristics of capitalist mode of production has been taken given. Also the international economic conditions have been considered as given and mostly an attempt to readopt the Latin America economies to these conditions tried to be formulated.

While searching for alternatives for *growth with equity* and *systematic competitiveness*, the constraints in the creation of national innovation and new competitive technologies emerge as one of the main obstacles. At that point while increasing the international competitiveness the creation of patents, the nature of created patents and the place in the division of labor within world economy is also critical.

Considering the historical roots of technological development in the region and the consequences of neoliberal policies, the creation of competitive national innovation policies have some constraints. The creation of patents and disturbances of patent systems still stays weak. The role of transnational companies and international trade rules in this case should be included to the analysis of systematic competitiveness that seems to be partially neglected within neostructuralist approaches.

Even supporting the Schumpeterian approaches to innovation policies the place of the economies in the international economy still stay weak due to lower GDP growth and inequalities.

Neostructuralism briefly with its core concepts adopted to 21st century could be called as one of the significant school that also aims to be alternative to neoliberal policies. Although its alternative characteristics still need to be investigated.

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