



The Center and the Periphery in the Structural Logic of the New Capitalism

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INTRODUCTION

The categories “center” and “periphery” were fundamental components of postwar development theory, particularly Latin American structuralism. They were part of a broader approach that sought to rethink the specific nature of countries that were moving through “late” industrialization processes, in the context of the historic transfer of the leadership of the global economy from Britain to the United States. The rejection of the conventional economic model (and its claim to be universally valid) and the contradictions of postwar industrialization in Latin America prompted early reflections on the very nature of the periphery and the antagonism that is inherent to the dynamics of the global economic system.¹

The crisis in the Latin American industrialization of the seventies can be read not only in terms of a weakness in power relations but also as the product of a change in the very structural logic of global capitalism. The explanations for this are not necessarily contradictory. During the eighties, a new antistructuralist consensus arose from this crisis, namely that the

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only possible logic for economic development is a passive adaptation to the decisions of the global market. The difference between the center and the periphery was abolished in the name of a single model of neoliberal globalization.

In response to this dominant vision and the consequences that it brought for development in Latin American countries, recent years have brought a return to the perspective of structural change in the discourse of those economists who have taken up the mantle of postwar structuralism (CEPAL 2012; Ocampo 2011; Cimoli et al. 2005). However, this “neo-structuralist” recovery generally tends to form part of a vision in which the antagonism between the center and the periphery is set aside or watered down in favor of a discourse that emphasizes consensus and cooperation (Leiva 2008).

This chapter, however, assumes that the antagonism between the center and the periphery is a fundamental tool for thinking about the development challenges that Latin America is currently facing. The factors that make this approach relevant cannot be limited to an understanding of the new global context in which it has arisen but must also include a review of the conceptual grounds on which the center-periphery dynamic was established in the postwar period.

This study presents a reflection on the nature of the periphery in the new capitalism, based on the following theoretical and methodological premises: (1) the center and the periphery are two structurally differentiated spaces of accumulation; (2) this differentiation emerged around the position that each occupies within a certain structural logic, in the sense of a specific sequence in which productive activities are articulated, leading to different potentials for accumulation; (3) this structural logic was transformed as part of a more widespread shift in the dynamics of capitalism as a global system; and (4) the change from one structural logic to another took the form of a break with the pre-existing logic.

On that basis, this chapter argues that the structural logic of the new capitalism is chain shaped and differentiates activities that create knowledge from those that reproduce it within different productive sectors. The logic of the chain does not cancel out the idea of structure in the sense of the sector-specific differentiation of production that was typical of postwar capitalism, but it does impose itself on this as the new dominant norm.

The chapter begins by establishing certain conceptual definitions regarding the relationship between spaces of accumulation and structural logic. It goes on to present a stylized representation of the structural logic of postwar capitalism and to describe how the opposition between the

center and the periphery was established within this. Next, it attempts to describe the fundamentals of the structural logic of the new capitalism and, therefore, the grounds for a new structural dynamic. The final section contains my conclusions.

SPACES OF ACCUMULATION AND STRUCTURAL LOGIC

From a structuralist point of view, the terms “center” and “periphery” refer to a position in the productive structure of global capitalism—spaces of accumulation that are differentiated according to their function within the dynamics of this structure. The center controls production activities with the greatest potential for accumulation—in other words, those in which complex work predominates.² In contrast, the periphery lacks the production capacities needed to dispute the core of global production and instead specializes in activities with less potential for accumulation—in other words, those which are structured around simple work.³ This issue is not limited to technology-related aspects. Developing and maintaining global technological leadership is something that always comes about in the context of the power relations that characterize global geopolitics.⁴

How is the relationship between simple and complex work represented in the global structure? What categories are used to distinguish between activities with high potential for accumulation and those with limited potential? In postwar Latin American structuralism, that aspect was implicit in the ideal of industrialization that was pursued at the time. However, there was no explicit category to describe the relationship between these two types of activities, no category that could differentiate the theoretical aspect of the problem from its specific historical content. This study sets out to fill that gap using the category “structural logic”, which indicates the specific way in which a certain historical stage represents the heterogeneity in the potential for accumulation that exists within the activities that make up the structure of productive global capital. In other words, how the sequence of activities that make up the global economy is defined depending on the level of complexity of the work that each activity entails. From this point of view, spaces of accumulation are defined (and differentiated) in relation to their position with a certain structural logic that changes over time.

In this way, our understanding of the historical nature of spaces of accumulation is always subject to breaks, which come about as a consequence of the rupture in the structural logic that comes with the historical dynamics of global capitalism.⁵

Within this perspective, the distinction between structural change and change in structure is a meaningful one. Structural change, a fundamental point of reference for postwar structuralism, means a change in position within a certain structure. The concept alludes to the internal transformation of production patterns within a space of accumulation that allows this transformation to gradually bring about a transition from peripheral to central functions while a certain structural logic endures, at least within a given period in history. In contrast, a change in structure implies a modification of the dominant structural logic itself and thus of the specific production conditions through which positions within the structure are defined.

Based on these concepts, the rest of this chapter will present an approach to the fundamental elements of change in the structural logic of global capitalism in order to provide a preliminary description of the defining features of the periphery in this new phase in history.

THE STRUCTURAL LOGIC OF POSTWAR CAPITALISM

This section begins with a definition of the structural logic of postwar capitalism, which represents the mature phase of industrial capitalism during the Fordist/Keynesian stage,⁶ which was the historical context in which classic Latin American structuralism unfolded.

The sequence that expresses the structural logic of this period can be represented through a series of movements: the first and most important is the shift from primary goods to industrial ones. Within this logic, industrialization is seen as a synonym for economic development. But the problem does not end with this first part of the sequence.

Industrialization can be intensified as it advances toward those more capital-intensive branches of activity that are more technologically complex. This implies a transition from consumer goods to producer goods. However, this transition does not complete the sequence, either. Within consumer goods, there may be a growing potential for accumulation that goes from nondurable goods to durable ones, or, within producer goods, from intermediate goods to capital goods, which is the culmination of the entire sequence.

The whole sequence contains a total of four movements, each of which marks a further degree of potential accumulation: (1) from primary goods (PG) to industrial goods (IG); (2) from industrial consumer goods (CG) to producer goods (PdG); (3) from nondurable consumer goods (ND) to durable consumer goods (D); and (4) from intermediate goods (IntG) to capital goods (KG). The structural logic of postwar capitalism (L1) can thus be written as follows:

$$L1 = PG \rightarrow IG \left[CG (ND \rightarrow D) \rightarrow PG (IntG \rightarrow KG) \right]$$

This logic unfolded based on the following properties:

- The existence of a relatively long product lifecycle with low product differentiation. During Fordism, as Corsani (2003) explains, “increases in value essentially rested on controlling the time needed to reproduce standardized merchandise using mechanical technologies”. The focus of the innovation process was on adopting technology that was embodied in fixed capital (machinery as a fundamental vehicle for the spread of technology) and on the organizational-type improvements needed to discipline a low-skilled labor force (Rullani 2000). The stars of this show were process innovations, which were oriented toward improvements in the means of production used in the work process and the advances that arose in the wake of the so-called scientific organization of labor (Míguez 2008).
- Those services that were seen as “productive” were ones that performed a specific function in the production process for goods (the direct sphere of validity for L1). These were transportation and distribution services that performed an essential function but that lay outside the production process: moving workers from their homes to the factory and products from the factory to the market. All other services (especially those that take place within the sphere of social reproduction) might have a social value but not a direct function within L1.
- Highly vertically integrated production, which corresponded to an institutional framework of domestic economic regulation. The internationalization of capital and the creation of a global market are not incompatible with the existence of a production model that is articulated within the national sphere (Dicken 2003). One specific feature of the postwar period is the Cold War, and the military and technological hegemony of the United States, which took on a leading role in the structuring of a new international regulatory framework following the Bretton Woods agreements (Stiglitz 2002).

If we start from the premise that the center and the periphery differed during this period as spaces of accumulation due to their role in the global deployment of L1, we can follow the structuralist argument according to which the productive structure of the center is homogenous and diversified,

while that of their periphery is heterogeneous and specialized⁷ (Rodríguez 1977). Taking this as the point of departure, we can then go on to identify two fundamental aspects of the production structure: (1) the degree of sectoral completeness, which points to the level of productive diversification; and (2) the degree of complexity of the production process, in the sense of how far it is from the global frontline of productivity in any given era.

As stated above, the center represents the dominant space within the system and thus defines the dynamic of the structure. This means that (1) it has sufficient production capacity to cover and dominate the entire range of products defined in L1 (especially in products where there is greater potential for accumulation); and (2) for all these products, it has the highest production capacity of its time (leading-edge global productivity). This is why the structure of the center can be described as diversified and homogenous.

The periphery, in contrast, takes on a subordinate role, which is expressed through an incapacity on two counts: its difficulty in moving through the range of more complex products (due to the absence of deep industrialization) and its inability to achieve the productivity levels found at the center, with the exception of a handful of primary (or basic industrial) export goods. Given these characteristics, the productive structure of the periphery tends to become specialized (low levels of diversification) and heterogeneous (in its productivity levels) in comparison with the standard of the center, which is the central standard in each period.

The dynamic of the structure is subject to spatiotemporal variations that are not changes in the structure itself but rather variations within the same structural logic. They are steps forward and backward within the same logic. In this way, a peripheral country can increase the sectoral completeness of its domestic structure (increased industrialization toward durable goods or producer goods) or bring about variations in productivity (narrowing or expanding the productivity gap as both sides of the relationship change), and these movements can lead to processes of differentiation within the peripheral locations in the structure. This was observed, for example, in the differences in the postwar industrialization patterns of East Asia and Latin America (Fajnzylber 1983; Amsden 2004; Fernández 2017).

From a geographic point of view, the deployment of this structural logic ran parallel to the consolidation of the North Atlantic (north-western Europe and the United States, especially the East Coast) as the space that accounted for most of the cutting-edge industrial production at the time.

In other words, widely used intermediate goods (such as those produced by the petrochemical industry), higher-complexity durable consumer goods (the most emblematic example is the motor vehicle industry), and capital goods (“machines that make machines”, which are at the core of L1).

In the late sixties and early seventies, this postwar structural logic came up against concrete limitations to its functioning and deployment. Discussing the reasons for this process is beyond the scope of this paper. However, so as not to leave out a strong factor in the argument, it could be argued that this had to do with a crisis of legitimacy, on the one hand, and of profitability, on the other, in central countries themselves. The fundamental (but not the only) causes for this were (1) increased salaries (associated with the strength of the labor movement at the time) and higher taxes (which supported the welfare state); (2) growing levels of social conflict that was largely expressed through the rejection of industrial work by workers from the center; (3) saturation of a standardized consumption pattern and growing instability in demand; and (4) a crisis in the innovation model, in which only a small fraction of the labor force (those workers that were directly connected to the tasks of “conception”) became responsible for increasing the productivity of a huge mass of workers (those who are directly linked to the tasks of “execution”), who played a passive role in this process.⁸

THE STRUCTURAL LOGIC OF THE NEW CAPITALISM

In the late sixties and early seventies, the largest countries in Latin America—Brazil, Mexico, and Argentina—were expanding their industrialization process, despite certain domestic inconsistencies (Fajnzylber 1983; Katz and Kosacoff 1998). However, this period also marked a serious reversal in the aspiration to a change of position in the global economic structure, not just because of the contradictions that arose within the industrialization process, but also because of a change in the global economic structure. In other words, attempts to change position within the structure coincided with a change in the structure itself.

What this study argues is that the emergence of the structural logic of the new capitalism represented a break with the old logic. This is not a question of a techno-economic paradigm shift (the IT revolution and networked organization) within the same industrial logic of the postwar.⁹ Instead, it is a break in the structural conditions in which these technological changes (digitalization) and organizational changes (decentralization)

were deployed. The problem is how to understand the nature of this break—the meaning of moving from one logic to another.

So, a new logic was established. New spatiotemporal determinants for accumulation began to emerge in response to this crisis. The structure of the global economy was reconfigured in the form of a global chain: a series of stages in the production process that are divided up into activities that are structurally differentiated but are articulated through the planning power of a leading firm.¹⁰

What, however, is the nature of this break? Innovation and production are now tied together in a singularly novel way.¹¹ Let's look at a simple chain model:

Conception stage → Production stage → Commercialization stage

The conception stage consists of developing new production techniques and creating product designs. This is specifically an innovation activity in which new knowledge is produced. Strictly speaking, this does not take place entirely within the company itself. Instead, it is about a link between the company, and the education and research system in a given territory. The strength of labor that is deployed during this stage depends on the degree of complexity of the knowledge system that it rests on¹² and on the company's capacity to exploit the knowledge created in that context for economic ends.

The production stage: at this point, the designs and techniques that were developed during the previous stage are adopted and the task of production itself is carried out—that is, the reproduction, capture, or extraction of natural resources (in the case of primary goods), the physical transformation of raw materials, and the assembly of parts and components (industrial goods), and supply (services¹³). The productive potential of this stage is entirely linked to the capacity to efficiently reproduce existing knowledge. This efficiency should be understood as the relationship between physical productivity and production costs, that is, as the minimization of the unit cost of production of a good or service that embodies a certain production design by adopting the most advanced production techniques of the era. In this case, the speed at which they are adopted plays a critical role in the competition process, which brings to the forefront the technological and institutional barriers to entry that regulate the international dissemination of knowledge.

Commercialization is the last stage in the chain. Although this stage involves a series of relatively simple tasks, one function that is deployed during it may turn out to be decisive to the success or failure of a product on the market. The function in question is the communication between the firm and the consumer and, consequently, the creation of a discourse on the subjective effect that the consumption of specific merchandise has (on the consumer). The efficiency of this communication depends on the construction of a social imaginary that can mobilize consumer's desire (rather than just represent their interests). This is an innovation-intensive activity as its focus is on the production of new knowledge. Although there is a structural continuity between design and communication, it is a different sort of knowledge to that created during the conception stage. The strength of labor for this stage must be sought not so much in the science and technology system or in education and research institutions but rather in the logic that serves to endow merchandise with a cultural "aura". The model for this logic must be sought in the cultural industry itself.¹⁴

The chain scheme is not universal but it does play a dominant role in the main industries of the new capitalism. Its fundamental properties are:

- Segmentation between innovation-intensive activities (the creation of new knowledge) and production-intensive activities (reproduction of existing knowledge).¹⁵ This segmentation implies that firms that adopt modern production techniques will gradually lose the ability to create their own production techniques (Levín 1997).
- Shortening of the product lifecycle and increasing product differentiation. According to Corsani (2003), this state of affairs entails the transition from a "reproduction regime", in which increasing value essentially rested on control over the time needed to reproduce standardized merchandise, to an "invention regime", in which increasing value is about creating new knowledge. As Vercellone (2011) argues, this implies that it is increasingly far "behind" the sphere of wage labor and the market both in society in general and in the education and research system in particular, which contains the key to productivity and the development of social wealth. These conditions may lead to conflicts in terms of appropriating innovative rents by exercising property rights over intellectual creations.
- The dispersal of production but the centralization of command. The entry of new global actors into the production phase does not imply a growing autonomy in their accumulation process. Leading firms

are being forced to take on governance functions throughout these productive chains as the separation of conception and production entails very high risks for the subcontracting firm—specifically, the risk of the subcontractor not meeting production standards (in terms of quality or delivery times, for example). In this sense, exerting command over the chain implies that if the leading firm wants to guarantee the standard of its product, it cannot extricate itself from the subordinate phases of the chain. It thus must control and punish subcontractors if they do not comply with this standard and should also provide technical assistance to help suppliers develop (Kaplinsky 2000; Humphrey and Schmitz 2001; Sassen 1999).

- The emergence of a new governance structure that is private and global in nature brought the existence of new forms of regulation for global accumulation to the forefront. These pose new challenges to sovereignty in the public domestic sphere, which was the focus of regulation during industrial postwar capitalism. Likewise, the strategies of multinational firms are articulated with global political networks in the construction of new forms of financial, commercial, intellectual property, and environmental regulation, among others, which shape global institutions and have an undeniable center-periphery bias (Sassen 2007; Fernández 2017; Olivera 2018).

So, how should we look at the structural logic of the new capitalism following the emergence of this chain-shaped structure? One option would be suggesting that the break with the previous logic leaves a *tabula rasa*. In this sense, it could be claimed that the growing potential for accumulation (which implies a transition from the simple to the complex) might be sequenced as follows: from the peripheral function of adopting production techniques and designs (which have already been created) to the central function of developing these dominant techniques and designs (adding the term “dominant” implies the inclusion of the commercialization and marketing phase, without which there would be no domination of the subjectivity of the consumer, at least not as a permanent, structural phenomenon). In terms of a cognitive division of labor, this could be expressed as follows: as the transition from activities that reproduce existing knowledge (use and adaptation of knowledge) to others that create new knowledge (cutting-edge global innovation).¹⁶

However, the structural logic of the new capitalism cannot be described as a *tabula rasa* in comparison with the logic of postwar capitalism. The

nature of the rupture is different. The structural differences in sector-specific specialization do not disappear in the course of the transition. The potential for accumulation continues to be heterogeneous within the sector-specific structure of production. However, this heterogeneity is now chain shaped. In this way, forming part of a cutting-edge global sector does not imply taking on the functions of centrality. One example of this would be a worker from the periphery who carries out simple tasks in a high-tech industry.

The core idea to consider, therefore, is that L1 (as the structural logic of postwar capitalism, which is defined according to the degree of complexity of the different goods-producing sectors) remains valid, but is no longer the dominant norm. Instead, it is permeated and given meaning by a new logic that separates activities that create knowledge from those that reproduce it within the different sectors (although not in all of them). That is the nature of the break: a division that is imposed on the previous logic without eliminating it. Consequently, the structural logic of the new capitalism (L2) can be described as follows:

$$L2 = L1 / (A \rightarrow D)$$

In other words, in the new capitalism, a chain-shaped structure is imposed on (and divides) the structural logic of postwar capitalism (L1). This new structure expresses a sequence of increasing accumulation that is based on the transition from being an adopter (A) to being a developer (D) of the production techniques and designs that business discourse defines as being dominant.

The structural change in the new capitalism is, therefore, a change in position in the structure in the direction $A \rightarrow D$ within sectors with increasing potential for accumulation. However, it is worth considering how far L1 is altered (or persists) when it collides with the structural logic of the new capitalism. The fundamental changes are:

- A revaluing of consumer goods in relation to producer goods that derives from the growing importance of esthetics and communication¹⁷
- The fuller inclusion of services in the structural logic, based on greater innovative potential in both financial services and high-tech services (IT or specialized technical assistance) and in services that are oriented toward mass consumption and tend to be structured as commercial franchise chains with a global reach¹⁸

- The de-commoditization of primary goods based on increasing product differentiation, be it through advances in the genetic design of living organisms or the certification of designation of origin or of distinctive characteristics in the production process (such as “organic” or “fair trade”)¹⁹

There are some areas where LI persists: for example, it is noteworthy that it is still not possible to fully separate the conception and execution phases in some parts of the metalworking industry. The existence of complex process technologies functions as a barrier to reaching the level of codification necessary to make process learning independent from product learning (Pisano and Shih 2012). Likewise, mastery of these complex process technologies may function as a complementary asset through which product innovation rents can be appropriated (Teece 1986). In this sense, the metalworking industry expresses certain aspects of the previous logic that are hard for the dominant logic of the new capitalism to assimilate—it is, in other words, an area of resistance to the break in the structural logic.

In this context, being on the periphery takes on new meanings. Although the barriers to entry to innovation-intensive activities are being raised (increasingly complex knowledge systems and the concentration of the capacity to exploit knowledge at a global scale for economic ends), the same is not true of production-intensive stages, the global supply of which is on the rise as new economic actors enter the market (Altenburg et al. 2008). In this way, innovation-intensive activities (the development of production techniques and the creation of dominant design) take on central functions in the new structure, and production-intensive activities (the adopter position) take on a peripheral role in the dynamics of the structure.²⁰

In geographic terms, the change in structure has implied a shift in the geographic center of the global economy from the North Atlantic to the Pacific (the West Coast of the United States and East Asia). This region, however, is not a unified space for commanding the global economy. Quite the contrary, it is subject to the chain-shaped segmentation that characterizes the global structure. On one side is the West Coast of the United States, home to the symbolic centers of high-tech innovation (Silicon Valley) and culture (Hollywood). On the other is the east coast of Asia (above all China), where the world’s greatest production capacities are now found. The Asian model can also be internally divided into those countries that only dominate the production stage and those that have also made significant advances in second-generation innovation, that is, new developments that complement more fundamental innovation.²¹

In this way, the structural logic of the new capitalism implies a break in what it means to be on the periphery. In line with recent historical changes, the core of capitalist increases in value has shifted toward the sphere of knowledge production, which takes place during the stage that precedes the production of the merchandise itself. It is in relation to this shift that the fundamental antagonisms of the global economy in this new period of history need to be considered.

CONCLUSIONS

This study has presented a hypothesis around the emergence of a new structural logic that broke with the one that reigned during postwar capitalism. This break, however, did not imply the disappearance of the antagonism between the center and the periphery. Instead, this antagonism is reproduced and refreshed within the conditions of the new capitalism. This state of affairs is the foundation for new prospects for change.

One such prospect is the deepening of the path followed by the periphery: taking on the role of an early adopter of the dominant techniques and designs that are produced in the center to develop production capacities that can compete with other places on the periphery. This option comes with a policy program of its own: opening up to trade to allow the entry of embodied technology, reinforcing intellectual property rights, developing the capacity for the early adoption of cutting-edge global technology, and so on. The peripheral nature of this option derives from the loss of technological autonomy that is an intrinsic condition of being an adopter. The most significant implication of this is being subjected to the planning strategies of a leading global firm (or several of these), as part of a highly efficient global production scheme, albeit in a subordinate role.

Another option would be to take on the structural change perspective, which would enable a change in position in the structure (in the direction $A \rightarrow D$) within sectors with high potential for accumulation. This implies developing an education and research infrastructure on the basis of which peripheral countries could reach a certain threshold of autonomy in terms of knowledge production. This is the minimum foundation needed for building innovation capacities that would allow such locations to gradually take on certain central functions, at least in sectors that are defined as strategic within a planning process that is independent of global firms and the political networks that support them in order to exercise control over the global economy.

NOTES

1. See Prebisch (1962 [1949]) and Hirschman (1980).
2. The relationship between the degree of productive complexity and actual accumulation is not a linear one. It is mediated by the existence of barriers to entry that regulate the conversion of productive knowledge into innovation rents (Rullani 2000; Teece 1986).
3. The existence of land rent as an extraordinary source of accumulation is compatible with a peripheral function in the global economy.
4. For more on this, see Cox (1987), Sassen (2010) and Medeiros and Massat (2018).
5. There are different positions on how to divide up capitalism into stages (Dabat 2006; Pérez 2002). This study draws on the concept of the historical system of accumulation and the transformation within capitalist production that alludes to “the association between a form of production and a logic of accumulation that together guide the long-term trend toward the value of capital increasing, the division of labor, and the reproduction of the most fundamental social relationships” (Dieuaidé et al. 2007: 74). See also Vercellone (2011) and Moulrier-Boutang (2004).
6. See Dabat (2006).
7. Strictly speaking, both the center and the periphery have productive sub-structures that together make up the structure of the global economy.
8. See, among others, Coriat (1991), Gorz (1998), Vercellone (2011), and Piore and Sabel (1984).
9. For more on the concept of techno-economic paradigms, see Freeman and Pérez (1988).
10. It is important to identify the global chain as a historical phenomenon which in the specialist literature is known as the global value chain or global production chain approach, depending on the author. Key examples of approach include Gereffi (1996), Kaplinsky (2000), Humphrey and Schmitz (2001), or Dicken (2003), among others. For a critical perspective on this approach, see Trevignani and Fernández (2017).
11. Production capacities are fundamentally oriented toward the use and adaptation of existing knowledge. According to Bell and Albu (1999) and Bell and Pavitt (1995), these capacities are linked to the replication and circulation of knowledge that has already been established within the production system, with the potential for expanding production capacities using certain methods of production. On the other hand, at the core of the development of innovation capacity lies the acquisition, creation, processing, and accumulation of new knowledge. Innovation and production are intertwined aspects of the valorization process. However, this analytical distinction seeks to differentiate those productive stages that are dominated by

- tasks involving the introduction of new knowledge from those that are fundamentally oriented toward the reproduction of existing knowledge (Altenburg et al. 2008).
12. For an analysis of the innovation system from the complexity perspective, see Robert and Yoguel (2010).
 13. The conception of a service can be separated from the execution (provision) of it. This is the case, for example, with a large part of mass consumption service chains, in which this fragmentation is expressed in terms of a franchiser (conception) and a franchise (implementation).
 14. For more on this, see Lash and Urry (1998), Power and Scott (2004), Bocoek (1993), and Lazzarato (2006).
 15. This process of productive segmentation is also one of social fragmentation: it entails the spatial separation (at the global level) of skilled workers from unskilled workers, and thus of the organizational unity of workers that were all formerly within the same country (Sassen 1999).
 16. Differentiating between first- and second-generation innovations may relativize this trend (Brennitz and Murphree 2011). The first case refers to radically new product innovations, the second, to the development of new attributes for existing products.
 17. See Jameson (1991).
 18. See Low (2013) and Sztulwark and Girard (2014).
 19. See Kaplinsky and Fitter (2004) and Sztulwark and Girard (2016).
 20. This structural dynamic cannot be fully understood without taking into account the center-periphery factor in the production of knowledge itself. According to Richard (1997), the hierarchy of the center on this level originates in its “trappings of authority as a hub that endows things with meaning”. The function of the center can be as the axis which drives “a system of references around its symbolic authority: establishing standards of meaning or behavior, prescribing uses, legitimizing, decreeing validity” (Richard 1997).
 21. For more on this, see Brennitz and Murphree (2011) and Rivera Ríos (2016).

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