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Article

Development strategies and path dependence: Institutional elements for making sense of Brazil's falling behind and South Korea's forging ahead

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Abstract:

The present research aims to analyze two archetypal 20th century development strategy cases: Brazil's and South Korea's. During the last century, both countries had been experiencing catching up processes, but by the 1980's Brazil started to lag behind while South Korea began to technologically and productively forge ahead. In light of this, this paper sustains that industrial policy choices and distinct institutional arrangements, set during the initial years of each country's late industrialization process, were responsible for defining their different long term economic trajectories. A dialogue with Amsden's work (2001) is proposed, through which we discuss her industrial policy bifurcation hypothesis regarding the so-termed countries of the "rest" in the 1980's. By electing two emblematic members of such group, we seek to show how industrial policy choices made in the past still condition the two countries' economic trajectories, especially so with regards to the degree with which knowledge intensive assets have been accumulated.

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"What happens to the system today can profoundly influence how the system will behave for a long time into the future. Put another way, history matters", as Evolutionary exponent Richard Nelson remarked (2000, p. 2). This statement concerns the phenomenon best known as *path-dependence*. It entails that once chosen, a determined path will enable reinforcing mechanisms to *lock* the economy *in* it, imprisoning the system to the path in formation – making it *path dependent*. The present research embraces the quotation above, as it highlights the fact that certain historical events can decisively influence future economic performance.

It is for that matter that, given specific institutional conjunctures, industrial policies can sometimes fail to effectively transform the productive systems they were designed to improve.

That is, to the extent that there might exist techno-institutional rigidities and overall inertia related to past learning processes, it may very well be impossible for industrial policy in and by itself to elevate productivity and alter long-term growth prospects. We believe historical recourse can help elucidate such cases. Through it one can begin to grasp the reasons why some countries *forge ahead* and lead in economic progress, some *catch-up* and advance in matching up capacities, and others simply *fall behind* in their development trajectories (Perez, 2004).

Taking heed of this analytical perspective, Alice Amsden's *The Rise of "The Rest"* (2001) postulates that divergences in economic policies adopted by emerging countries in the 1980's (e.g. China, South Korea, India, Taiwan, Argentina, Brazil, Mexico and Chile) led to the emergence of two groups characterized by economically distinct capabilities. The first group, mainly composed of Asian countries, was labeled *independent*. It was called so because it had opted to rely on internally developed technological capacities, stimulating them as much as possible and fomenting national enterprises whenever viable. The second, mostly Latin American group opted for a different path. Called *integrationalist*, it sought to acquire technology through international purchases and through the allurement of foreign direct investments, believing that this would thereby incite structural change. It is these two opposing industrial policy choices that Amsden credits for the subsequent *forging ahead* of the first group in the 21st century and the concomitant *falling behind* of the second. Fundamentally, the matter at stake is that the independent group was able to create and develop their own set of knowledge-based assets, while the strategy employed by the integrationalists failed to do so.

According to Amsden, to a greater or lesser degree all latecomer countries belonging to the aforementioned rest managed to come up with sets of institutions for development and industrial progress by the late eighties. Thus, the bifurcation of trajectories of the 1990's and the consequent splitting up of economic outcomes are to be seen, by Amsden, as a product of the changes underlying the transition between the two decades, most notably so to the changes in foreign debt configurations and in the rules of global governance; the latter taking place mostly in the 1990's. While Latin American countries internationalized their domestic markets, privatized their state-owned enterprises and prematurely de-industrialized their economy, Asian nations were forming big, competitive and export-oriented national companies. They were gaining control over new manufacturing developments and over advanced service deliverance. They were investing in knowledge-based assets.[1]

Our hypothesis, far from aiming to dismiss Amsden's proposition, seeks instead to expand on some of the considerations to be drawn from it. We sustain our analytical critique upon an integrated Institutionalist and Neo Schumpeterian effort, our basic postulation being that the splitting up of the development trajectories of the rest hinges on deeper roots. Roots that relate to industrial policy choices stemming from decades prior to the 1980's. Through an analysis of the institutional and techno-productive trajectories of the two most emblematic countries

[1] Two models of economic development and of industrial policy were then defined for emerging economies. The main point to keep in mind, according to Amsden (2011), is that every country shared in the same set of developmental institutions up until the 1980's. They were: selective protectionism, public banks and state-owned enterprises. What made them different before the 1980's was the sort of manufacturing experience each of them had gone through during the first half of the 20th century. The seeds for the subsequent splitting up of the rest would actually lie in these experiences, which were prior even to the process of industrialization of the latter half of the century. Countries such as South Korea tended to follow the model heralded by Japan, which was marked by a proclivity towards early participation in foreign export markets (seen as a motor for the accumulation of domestic capital). On the other hand, countries like Brazil followed down on the North American path. This path was characterized by late participation in foreign export circuits and presupposed domestic protectionism and productive diversification.

appointed by Amsden, Brazil and South Korea, we argue that Brazil's economic policy had tilted towards integrationalism already by the 1950's. It is at this decade, and not in the 1980's, that Brazil compromised its national capacity to build on knowledge-based assets.

We defend that despite sharing a similar set of development institutions during their industrialization period (and thus before the 1980's), the countries in the rest were already by then differentiated by the institutional core each one of them possessed. As a consequence, their incentive structures were already extremely dissimilar, each of which a function of distinct path-dependently mediated choices. So that already by then different technological and institutional capacities existed, prior the bifurcation seen in the 1980's. The splitting up of independent and integrationalist groups can therefore be noticed for periods as early as the initial years of the late coming industrialization endeavors. The gap between the two groups was exacerbated in the 1990s and throughout the dawn of the 21st century, but it was not created then. Different policy choices taken in the post-war period culminated in different processes of institutional embeddedness and institutional hysteresis, each one of them creating particular techno-productive paths, both positive and negative. Discrete economic trajectories were thus established, all of which exerted decisive, albeit different influences over the ensuing choices in industrial policy of the second half of the century. And thus over the furthering or not of economic capabilities.

In order to sustain our point, this article will be further divided into four sections. In section 1 we discuss in stylized terms what it means for a country to evolve structurally. Special emphasis will be given to the process through which a nation can overcome low-income entrapment and its more complex sister, the middle-income trap. (A movement only achieved by a few developed States[2]). In section 2 we present a theoretical model used for diagnosing and illustrating the occurrence of institutional lock-in and hysteresis. Our aim thereupon is to construct a suitable analytical frame for comprehending the discrepancies between independent and integrationalist strategies for development. We argue that economic decisions over possible long-term strategies are always taken within given institutional frameworks, all of which are capable of altering short-term relative decision costs. Once taken, these decisions set self-reinforcing mechanisms in motion. To understand this particular dynamic is to understand an important component in the distinct trajectories found in different countries.

Section 3 depicts the different trajectories of Brazil and South Korea. Through empirical evidencing and the conceptual means hereby elicited, we then seek to complete our claim. We shall attempt to show that the policy choices made at the initial stages of each industrialization process were responsible for conditioning and embedding their aftereffects, be it in the independent form (South Korean's catch-up) or the integrationalist one (Brazil's lag). In our last section, we conclude by emphasizing that the industrial policies being taken today are still done so under the veil of past events, historical learning and embedded economic institutions.

[2]All in all, Amsden's point was about how countries would escape their impoverished conditions through means of late coming industrialization processes until levels of high income were achieved. The 1980's gap which divided emerging countries, such as Amsden makes reference to, is nothing more than the evidence that many countries have become stuck to the middle-income trap (integrationalists), while others have surpassed it (independents).

1. Structural change and industrial policies: the importance of building knowledge-based assets

A general ground established by the pioneers of development economics was that per capita income gains depended on changes related to the sectoral compositions of an economy (see Rosenstein-Rodan, 1943; Lewis, 1954; Kuznets, 1955; Rostow, 1956; Hirschman, 1958). Economic growth was perceived to be the result of sectoral migration, from traditional spheres of production (e.g. agriculture) to modern ones (the industry). As such, these studies argued that the stimulus brought forth from industrial expansion, measured in terms of its participation on national output, was capable of leading economies down trajectories of sustainable economic development. This was specially so for the case of Kaldor (1966), who saw in the industrial complex the key for autonomous, self-reliant, economic performance.

From the 1990s onwards, however, a new wave of empirical and theoretical evidence made its way into economic literature, adding other axes of economic growth beyond the industrial sector. In particular, this new literature advanced the idea that knowledge intensive services also positively influence economic trajectories. In particular, it argued that in the 1970's and 1980's the emergence of disruptive technologies, related to a new techno-economic paradigm (Perez, 2004), was responsible for the occurrence of critical shifts in international economic dynamics. Most notably, the increase in the volume of services traded and in the number of businesses participating in added-value chains, as well as the proliferation of offshore and outsourced enterprises, should be highlighted. All such examples have contributed, and are related to, the advent of knowledge intensive services. Furthermore, there seems to be strong evidence correlating knowledge-based services and Kaldor's growth law, indicating that these strands of services can also induce sustainable growth (Dasgupta and Singh, 2007; Di Meglio et al., 2015).

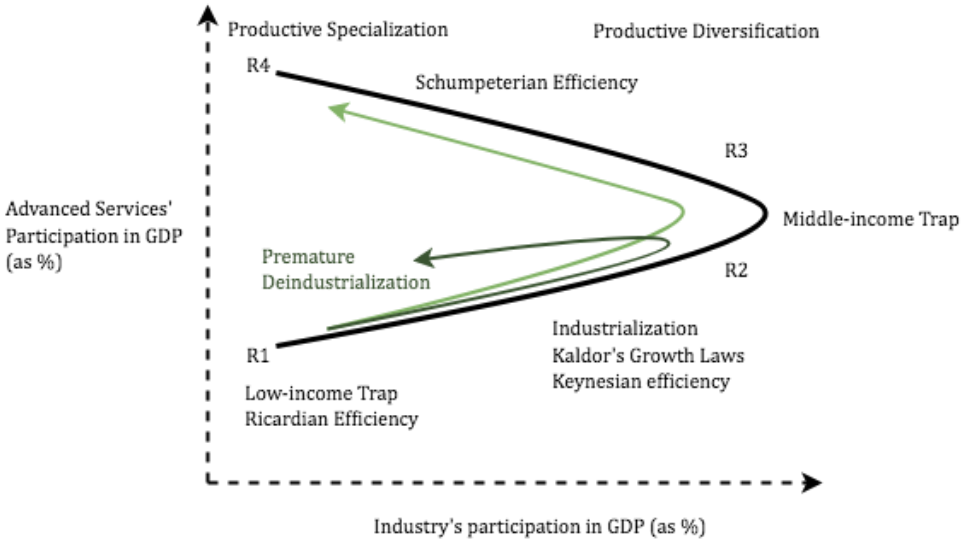
In light of this, services are now also associated to a country's capacity to innovate (Miozzo and Soete, 2001), particularly so as regards this sector's role as a supplier of knowledge and information. Knowledge, it must be pointed, that comes not from isolated activities found in either industry or service, but precisely from the interactions between the two (see Miles et al., 1995; Czarnitzki et al., 2000; Hertog, 2000; Muller and Zenker, 2001; Miles, 2005, 2008).

As a consequence, the creation of a sophisticated technical base sustained by knowledge-based assets (Amsden, 2001) and capable of engendering paradigmatic advancements is a prerequisite for those countries wishing to increase their income levels The acquisition of such assets enables the development of new technologies, which in turn makes changes in the productive structure feasible. Inversely, it also possible to determine that the process of productive diversification acts back on the technical base it is assented on, contributing to its sophistication. Both structural change and knowledge-based asset acquisition seem to co-evolve.[3] This dynamic is further strengthened if one considers how learning gains related to paradigmatic goods can be fed back into subsequent innovations, allowing for both complementary developments onto a given technological trajectory and the maintenance of that process of structural transformation. In other words, the development of new technology-based knowledge depends on experience and on the learning gains acquired throughout a given productive process, as they shape ensuing production routines, in a circular manner.

[3]As has been analyzed by Nelson (1994, 2000, 2008) and Nelson and Sampat (2001).

Figure 1 seeks to synthesize what has been stated thus far. It depicts the stylized trajectory of structural change over which advanced economies have historically gone over. This development-space is made up of four quadrants, each of which represents different stages of structural change. In R1, the population is predominantly rural and farming is the dominant productive sector, meaning that in R1 a country is a victim of low-income (or poverty) entrapment (Rodrik, 2014). In the Schumpeterian terms expressed by Dosi et al. (1993), the stage related to R1 is one of exclusive Ricardian efficiency, as factor allocation is mostly determined in consonance to the principle of static comparative advantages.

Figure 1 – *Development-space*



Source: adapted from Arbache (2012).

The second quadrant, R2, is characterized by a growing demand for basic industrial goods and for the establishment of a low added-value industry and basic services. Down this path, many countries manage to overcome their low-income entrapment, aided by the frequent occurrence of industrialization booms, which help accelerate immediate growth rates, and Kaldor's productivity growth law is suited for explaining the implicit trajectory from the first quadrant to the next situated. Such was the case for the economic rest from the 1950's through to the 1980's, as Amsden (2001) shows. Still with regards to R2, it is important to mention that within it, Keynesian-type efficiency functions as the axis of per capita economic growth, as opposed to the Ricardian-led factor allocation seen in R1. Keynesian efficiency implies that the productive structure becomes progressively more apt to incorporate activities with a more income-elastic demand. This means that a 'Keynesianly' efficient country is able to internalize economic sectors through expansive demand and market growth, and thereby through new opportunities for investment and higher profit expectations (Dosi et al., 1993). Aligned with

the process of industrialization, productive diversification takes place (Imbs and Wacziarg, 2003).[4]

The transition from R2 to R3 and the final leap towards R4 are a feat of only a few countries. In general, once a certain level of income is attained in R2, many countries fall prey to relative economic stagnation; also referred to as the middle-income trap. This often happens together with regress in productive structures. For the entrapped countries, this retrogressive phenomenon is commonly associated with the advent of premature deindustrialization. So, as others advance, those who say stagnant are left with an ever-enlarging productive gap to surmount (Amsden, 2001).

Moreover, quadrant R4 represents the most advanced stage in the development of manufacture. In this quadrant, the expansion in industrial density is such that there then exists a more-than-proportional demand for knowledge-based services. Conversely and in a complementary manner, the participation of traditional industrial segments tends to decline (Arbache, 2012). Countries in R4 are those that are fully industrialized. They manifest high levels of per capita income and possess knowledge-based assets in satisfactory quantities. In line with what Imbs and Wacziarg (2003) have argued, this quadrant is also marked by a relative return to productive specialization. As the demand for advanced services grow, these countries are characterized by the development of services linked to exceptionally complex goods. Drawing from the conclusions contained in Rodrik (2014), those countries that successfully migrate from R3 to R4 are those capable of building on the indispensable capacities required for the creation of knowledge-intensive services and complex product sectors. The secret to prosperity would be one related to organizational capabilities; related to the distribution of knowledge among workers and to the increasing availability of knowledge ready for collective use.

The leap from R2 towards R3 and R4 presupposes the attainment of Schumpeterian efficiency. This class of efficiency presumes the existence of economic sectors marked by elevated technical progress and high-yielding productive gains. The definition of Schumpeterian efficiency dictates a certain standard of specialization based on the export of products out of which a high cost of opportunity is found and which are distinguished by high levels of appropriability and technological cumulativeness (Dosi et al., 1993).

[4] We must add, and this is indeed a way to interpret ECLAC's early works, that sectors displaying Ricardian efficiencies are highly subject to conjectural cycles in the amount of revenue they muster. This is due to the way prices are formed in the sector. As is amply known, primary commodities' prices are determined by global demand, with a smaller role in their determining played by the degree of competition or productive efficiency. What we wish to highlight is that during worldwide economic upturns, Ricardian efficiencies may be confounded with Keynesian ones, for the income they generate – and the multiplier effect they trigger – may buoy the economy upwards. In their essence, however, these sectors cannot be treated as if they were Keynesian efficient for they do not *structure* the economy around endogenous higher aggregate demand curves, but only pass the momentum forward (multipliers considered), and only conjecturally so. Another way to highlight their intrinsic limitations is by considering the matter from a balance of payments standpoint. Were Ricardian booms truly Keynesian, they would in the least ensure some compatibility in import and export elasticities. The lack of internally concatenated sources for supplying income-elastic products, alongside supply-side pressures, such as production input requirements, obtained from moving the economy beyond its normal state both hint at the unsustainability, and hence "un-Keynesiability" of such boom. Lastly, perhaps the greatest divide between Ricardian and Keynesian goods with regards to price is that, no matter how technologically outdated a given Keynesian sector may be, through its embryonic relation to manufacture one can observe that there are always mark-up strategies available for firms in the sector). This not being the case for Ricardian sectors, there resides a permanent tendency for the deterioration of the terms of trade between the two, the severity of which influences, for example and among other things, the aforementioned balance of payments shortcomings of Ricardian booms. For Latin American economic thought, this has been a keystone issue in studies of industrialization and development, given the upward pressure it exerts over the costs of accumulating capital and the consequent downward pressure over investments for the structuring of a complex industrial system.

Complex societies, with complex productive structures, display Schumpeterian efficiency. They are countries that have faced deindustrializing pressures without succumbing to wealth stagnation. In their cases, deindustrialization was brought about alongside an elevation in industrial density and a growth of knowledge-intensive service sectors.

2. Structural change and institutions: trajectories for knowledge-based asset accumulation and lock-in processes

The main conclusion to be derived from the preceding section is that the process of economic development presupposes the command over efficient, *Schumpeterian* techniques, which, as has been stated, presupposes the maturation of knowledge-based assets (Amsden, 2001). An important albeit non exhaustive first step in understanding the almost unrealizable nature of Schumpeterian economic maturation for middle income countries lies in the recourse to Old Institutional Economics of Veblenian and evolutionary inclinations, for an economy's productive trajectory is decisively linked to the shape of its institutional path (Setterfield, 1993; Zysman, 1994; Hodgson, 1997, 1998; Nelson and Sampat, 2001; Chang and Evans, 2005; Blyth et al., 2011; Hodgson and Stoelhorst, 2014). As we understand it, there is an inescapable connection between economic agents, institutions and productive sophistication: sophisticated economies do not exist in the vacuum, they are a function not only of complex structures or industries but also of equally complex and developed agents and institutions.

Anticipating this section's main argument, what is defended here is that institutions, agents and productive structures co-evolve and mutually condition one another, generating particular, cumulatively determined production patterns (Veblen, [1899] 1988; Wendt, 1992; Samuels, 1995). Specific economic trajectories emanate from the cumulative repetition of a given institutional-productive structure. They become more or less embedded according to how widely accepted they are, and essentially, to how frequently reiterated by the economic system they come to be (Setterfield, 1993; Greener, 2005). This results in the sedimentation of a pattern, out of many, of economic efficiency and overall performance, it not necessarily being micro economically efficient, as had been suggested by Liebowitz and Margolis (1995), given it is the product of a complex and dynamic relation between *cognitively* rational agents (and not rational/utilitarian) (Lane et al., 1996) and institutions encompassing more than just markets (Samuels, 1995; Hodgson, 1998; Polanyi, [1944] 2000).

Thereby, if the middle-income trap is to be understood from an institutionally keen standpoint, the conclusion to which one is drawn to is that the disruptive effort towards Schumpeterian efficiency requires, necessarily, an equally disruptive effort towards institutional and cognitive melioration. To engage in such disruption, the first step is to understand how institutional and cognitive lock-ins may occur.

First and foremost, we must establish what we understand when we talk about institutions. For the purposes of this research, institutions are socially constructed arrangements, responsible for ordering interactions among agents, be they economic or not, and for promoting a stable structure upon which decisions can be taken (Young, 1983; North, 1990, 1991, 1994; Williamson, 1998, 2000). Institutions are constituted by human action, and an institutional frame should always emerge so long as agents constantly interact with one another repeatedly through time (Wendt, 1992). In the short term, institutions are sufficiently stiff to be taken as given – as happens, for instance, with the price system in a neoclassical

model. In the long term, however, they are susceptible to transformation and change (Setterfield, 1993), much in tune to what the evolutionary reasoning supposes (Nelson, 1995; Nelson and Sampat, 2001; Blyth et al., 2011; Hodgson and Stoelhorst, 2014). This happens to be so because interactions (more than simply actions) are what make up the bulk of institutions, as agents interact with one another and as they interact with their institutional interface (and conversely too, as institutions feedback onto agents). Hence, interactions are the ontological building block defining institutions as essentially dynamic variables.

Hodgson (1997, 1998, 2003, 2004) is who has better explored this facet, through his work on the notion of *reconstitutive downward effects*. It reads: institutions condition the economic performance of their subjected agents, but these same agents, through the formation of habits, and through learning to form new preferences from within a given institutional framework, end up modifying the very institutional structures whence they first acted. As new choices, which are initially taken to be marginal and incipient, are increasingly reiterated by action (always conditioned by the institutional environment in effect), they create new standards for economic behavior. These, in turn, affect economic institutions. In a circular manner, institutions and economic agents wind up co-determining one another (Hodgson, 1998). From this rather evolutionary process of co-determination, patterns of productive performance are institutionally conferred to an economy.

This institutional ordering is *cognitive* because, given that human choices and actions are what sustain it, it is a function of how agents understand their institutions and how they form preferences starting out from it (Wendt, 1992; Lane et al., 1996; Hodgson, 1998, 2003; Change, 2010). When we study institutions based upon these principles, we see them not necessarily as market efficient, in the neoclassical lexicon, for here we deal with the notion of cognitive rationality, as opposed axiomatic rationale (David, 2001). It should be noted, in passing, that since *acceptance* and not *rationality* is what sustains an institution, no guarantee against inefficient outcomes can be assumed by construct (Setterfield, 1993; Torfing, 1999; Strachman, 2002). Certainly, one reason why inefficient institutions are quite abundant in the economic world should be associated to the fact that real economic rationale is not axiomatic. Indeed, since economic rationality is, in circular and cumulative ways, *cause then effect* of its institutions, it should conceptually suffice that, in case one of the two rest in assumptions unrelated to efficiency, the other be consequently negatively skewed. In such a case, it should conceptually make sense that an economy, through cognitive and rational means, opted for seemingly irrational trajectories (Setterfield, 1993; Zysman, 1994; Hodgson, 1998; David, 2001; Greener, 2005; Chang, 2010).[5]

Once the economy has witnessed a significant amount of negatively inclined rounds of interaction, the cumulative and circular character of institutions acts toward normalizing such and any behavioral deviations (Hodgson, 1998, 2003; Chang and Evans, 2005). Interestingly, the idea is very similar to what Celso Furtado had proposed when studying Brazil's industrialization of the 20th century (1974, 1977, 1992, 2009, 2011). Furtado suggested the coinage of a new

[5] Here, it is fruitful also to think of cognition and knowledge in terms of *pools* of knowledge, or alternatively, of stocks of accumulated social capital, for the influence that institutions have on cognition is of a two-fold nature, at least. On the one hand, and as has been explained in the body of this article, they represent the recurring practices and understandings of the system, and act thus as an implicit guide for action. But on the other, institutions are the repository of what an economy has collectively achieved, and through this they contain what agents' potentialities can be. They are institutions as *tools* at the disposal of actors. The development of knowledge-based assets requires both that agents' learning curves are dynamic and that the repository of social knowledge be plentiful. Both require institutional sophistication. See Veblen ([1899] 1988).

concept, which he called *modernization*, so as to highlight the fact that Brazil's industrialization was designed to fulfill deviations in the aggregate consumption proclivities of both private and public actors, whose essential pursuit was mimetic, presumably "sophisticated" consumption. As economic ends prioritized consumption mimesis, industrial gains were not oriented towards real asset accumulation or technological progress, and were hence not evaluated in their accordance. The potential for future productivity was thus hindered.

In this sense, Brazil's industrialization was led by the pre-existing configuration of its *modernized* elite's demand curve, one of highly diversified and uncoupled consumption impetuses. All of this contributed to the fostering of what Furtado called *cultural dependence*. Under the aegis of cultural dependence, economic agents learn that to compensate for cost inefficiencies, given that they haven't internalized advanced production techniques (only advanced consumption patterns) they have to partake in processes of forceful income appropriation. This means, namely but not solely, that aggregate wages are compressed to compensate for rising technological costs, and that aggregate growth depends on the availability of strong currencies for financing mimetic consumption, by allowing the import of both consumption and capital goods.

Cultural dependence is a deficiency that bends a country's curve of effective demand, rendering it unable to grow by autonomous, self-sustainable and egalitarian means (Furtado, 1974, 1977). Put together, Furtado and Amsden's central arguments show that when a *modernized*, culturally dependent, industrialization process takes place, it is very difficult for a country to properly acquire knowledge-based assets. In fact, according to this line of reasoning the constant urge to incorporate foreign technology, rather than to learn it, produces the exact opposite of what an endogenously articulated center for economic decision-making should be. As it is foreign firms who ultimately detain the ingredients for state-of-the-art products, a culturally dependent country will sooner or later acquiesce to surrendering its economic autonomy in exchange for greater access to such goods (Furtado, 2009, 2011). Cultural dependence's ulterior effect is the maturation of an economic system lacking in macroeconomic independence and in microeconomic vigor. Worst yet, of an economic system structurally dependent on wealth disparities and wage exploitation, as they tend to remain the only instrument available to counterweight systemic losses of competitiveness (Furtado, 1974, 1976, 2008). A perpetuated system of pronounced economic inefficiency is hard to conceive under axiomatic premises, but is not so unlikely if one begins by accepting institutional and cognitive deviations, chronologically accumulated and reinforced, sedimented upon economic agents (Zysman, 1994; Hodgson, 2003): i.e. a genuine process of institutional lock-in.

In adaptation to the evolutionary lexicon, we mean that a given technological framework and a given productive capacity both reinforce and are reinforced by the institutions to which they belong and by the agents acting in it (Zysman, 1994; Nelson, 1995; David, 2001). As a consequence, an economy's potentialities are determined by its technological structure as well as by how its agents interact with said structure. This interactive phenomenon, of preference and choice formation, of decision-making and action-taking is institutionally reflexive, cumulative and circular (Samuels, 1995). So, the middle-income trap is so ubiquitous because it is a trap not only from a technological perspective, but also from a behavioral and cognitive one. Schumpeterian efficiency depends on the Schumpeterian technology and productivity – on the Schumpeterian industry; but it also depends on the Schumpeterian economic agent and on the Schumpeterian institutional arrangement. This is the indispensable amalgam behind plain Schumpeterian efficiency.

Why then is the promotion of this triad so difficult? Preliminarily, as has been stated, because institutional frames of economic performance are by definition self-reinforcing (Hodgson, 1998, 2003; Samuels, 1995; Torfing, 1999; Chang, 2010; Hodgson and Stoelhorst, 2014). The older an institution, the more rigid and inelastic towards marginal actions it becomes (Setterfield, 1993). The more also it is taken to be an immutable social fact, instead of a fluid and malleable thing. Agents then become progressively accustomed to form preferences in accordance to the institutional boundaries available to them (Dugger, 1988; Wendt, 1992). They cannot economically choose and act in dissonance to the institutionally embedded behavioral pattern that is formed.

The long-term institutional malleability to which we made mention earlier is, in light of what's been argued, inversely proportional to an institution's age. More incipient institutional arrangements are less firmly determined; they are arrangements "under construction" and because of that, in their infancy they are more susceptible to actions that would otherwise be seen as deviant (Torfing, 1999; Greener, 2005). As they gain volume in the amount of reiterated actions encompassed, however, institutions become progressively referred back to as the mold for subsequent social action (North, 1990, 1994). They become the model based on which economic agents *learn* to form their preferences, establishing themselves as the structures from which economic choices are made (Hodgson, 1998). This is not the same as to say that economic agents can never alter their embedded institutions – which would be contradictory, since institutions are made from agent action. Rather, we suggest that it is the *possibility of institutional change* that is less and less perceptible to embedded agents (Wendt, 1992). Furthermore, institutional structures are also a source for identity creation, so that embedded agents come to *identify themselves* in terms of the functions exercised by embedded institutions and the stability they provide (Ruggie, 1983; Fligstein, 1996). Agents see themselves as part of the embedded framework, and as such fail to consider whatever reason there might be for rupture.

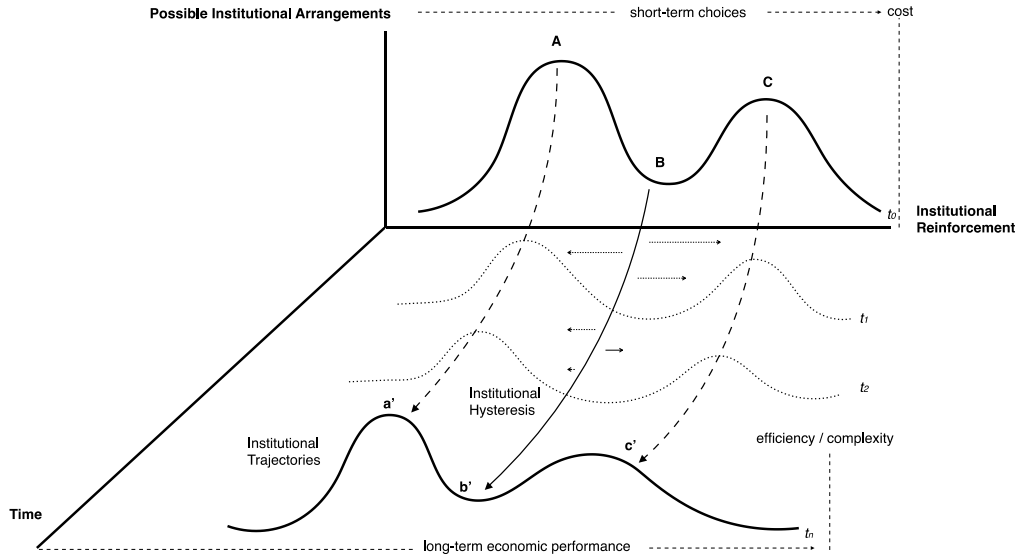
When an institution becomes embedded and its embeddedness resists temporal change, *institutional hysteresis* occurs (Setterfield, 1993). It is for the following reasons that institutional hysteresis is so important in comprehending the middle-income trap. Conditioned as they are to operate under a particular frame of economic performance, middle-income embedded economic agents learn to formulate choices based on institutional premises that reflect back on their productive structure; that is, they are conditioned to understand their economic environment in terms of its mix of Ricardian and Keynesian efficiencies. And for such set of efficiencies there is a given set of macroeconomic possibilities and microeconomic choices available, which the agents see as simply naturally occurring.

Consequently, the middle income-trap is so ubiquitous because it is enveloped within a wider, institutionally hysteretic, framework. One that over time creates embedded *economic trajectories*. In other words, just as the cumulative reiteration of choices and actions constructs embedded intuitions, the iteration of embedded institutions over time (hysteresis) produces specific economic trajectories, be they efficient or not. Therefore, as if on a tightrope, the economy tends to march according to the narrow possibilities deriving from its economic path. Again, of course there are possibilities lying beyond what is determined by the embedded economic trajectory, but the process of institutional path-dependence is precisely this: the incapacity of economic agents to see their economic prospects without recourse to the tightrope walker allegory. The diagram below illustrates our point.

What figure 2 shows is that in the short term, an economy counts with a set of available institutional alternatives and that the general proclivity of its agents tends to tilt in favor of

arrangements that, being the more commonly accepted and disseminated ones, are the least costly for human choice.[6] This cost structure can be understood from standard microeconomic practice, but it is pertinent to keep in mind the importance of the downward causation effect in influencing how agents *understand*, *know*, *prefer* and *identify themselves*. Through this, it is conceptually plausible to consider that this choice per cost structure is itself institutionally shaped, inasmuch as the process of institutional reinforcement and co-evolution creates parameters by means of which choice undertakings are ordered. Cheaper choices represent safer, more accessible and socially accepted sets of alternatives (precisely why they have a lower cost). These qualities, in turn, only exist because an institutional framework acts to reorder the relative costs of possible actions. Once more, choices affect institutions, but the former are taken within a structure given by the latter.

Figure 2 – *Institutional trajectories and economic performance*



Note: see also Setterfield (1993, p. 768).

[6] For the sake of clarification, we may add that when thinking of short-term costs, it is admissible to pose them following the standard practice, as relative input prices. This does not contradict or undermine the suggested argument, since, from the point of view of the agent, his or her costs may be immediately summarized in terms of price signals, accordingly ordering less to more costly alternatives. Further, these – the price signals – may in themselves be the least interesting part of the story. For, it is their co-creation and co-transformation what truly matters. It is the why in a given context they have become what they are, and not that in a given context they are a given value, what is of interest here. And it is the why short-term choice parameters do not readily translate into their long-term counterparts.
Also, note that by alternative institutional arrangements, we are simply aiming to illustrate that a wide set of options is available and open for determination. It is not the aim of this diagram to explain how choices will take place in an institutionally conditioned environment, but instead only to show what conditions such choice and how such conditioning evolves. One aspect of it, as we hope the diagram makes clear, is the progressive deflection of alternatives in favor of embedded familiarities.

Since they do not operate in isolation, institutional choice dynamics are temporally conditioned. This means that economic choices do take place in some *t0*,[7] but as soon as this happens, the chronological passing of time imposes another set of choices, in *t1*, to be appreciated. This way, successively repeated rounds of short-term decision-making become ingrained and entrench themselves until *t0* and *t1* form a clear institutionally co-determined trajectory, in *tn*. As shown in the diagram, the closer an action is to *t0*, the more institutionally fluid are the set of choices available to economic agents. That is: the slimmer the cost gap existing between two or more different institutional arrangements. The greater too are the chances of modifications and alterations – of movements aimed towards other institutional possibilities and/or at changes to the already existing substructure.

The process of institutional reinforcement and aggregate embeddedness, duly amplified by the cumulative, temporal actions and choices of individual agents, makes deviant choices progressively more unfeasible and expensive; choices that would have been far more plausible had they been taken at *t0* or *t1*. Under institutional hysteresis, in *tn*, an economy is institutionally entrapped and strongly path dependent: its embedded cognitive path renders the economy dependent on frames of behavior built on the past while it concurrently narrows the possibilities related to future economic performances.

According to Figure 2, institutional trajectories are created when initial points A, B and C are temporally dislocated, leading up to *a'*, *b'* and *c'*. Here, an important suggestion regarding short-term static choices and long-term dynamic performance can be made. Namely, that an import source of tension arises when one considers that short-term choices are evaluated and endorsed with regards to parameters (e.g. costs) which are distinct from those used to determine long-term trajectories' fitness (e.g. sectorial efficiency or economic complexity). Thus, insomuch as there exists institutional and cognitive conditionings influencing choice, it is possible for "correct" (cheap) short-term decisions to evolve into long-term mistakes. Low costing choices can lead to inefficiencies and to deviations that, in light of the cumulative nature of institutions, might then perpetuate themselves under the guise of path-dependent subpar economic trajectories. It is in this short-term/long-term contradiction that we believe lies part of the answer as to why middle-income entrapment tends to persist; as to why certain countries cannot build knowledge-based assets and attain a condition of elevated Schumpeterian efficiency. A condition that is institutional, cognitive and evolutionary.

The next two sections will seek to better illustrate how this path-dependent dynamics work. For such, we will delineate the two distinct trajectories taken up by Brazil on side, and South Korea on the other. We aim to support the initial hypothesis contained in our introduction that the gap between these two countries' relative economic performances did not originate in the 1980's, but thirty years prior. This was when particular industrial policy choices were made. They have been reinforced since.

[7] Though in reality this *t0* is an abstraction from the point of view of the ontology of institutions. The conceptually correct way of presenting the statement is by saying that some ideal choice has been taken in some *t0*. This vagueness of the initial act does not alter in any way the core of the concept or, more broadly, its message as a theoretical device. Old Institutionalism is about evolution and movement, so the 'chicken or the egg' question is posed in terms of *what is the relation between the two* and not over who has come first.

3. Development trajectories compared: industrial policies in Brazil and South Korea during the 20th and 21st century

It is important to beware of the limitations of comparative analysis, and thus to tread carefully when analytically comparing countries that are different in many aspects, be they geographical, historical or structural-economical. We understand that industrial development trajectories are always subject to cross-country specificities, so it is important to avoid generalizations when comparing industrialization cases. One should always keep in mind the role that different national and international particularities have on distinct economic trajectories. After all, idiosyncrasy in the patterns of structural change is to be an assumption – even more: a motivator, of the methodological choice backing path-dependence.

A close look over the industrial late-coming strategies implemented by Brazil and South Korea for the last 60 or 70 years is of great assistance for understanding such idiosyncrasies. Each of the two countries was faced with different sets of circumstances and choices available, and so was tried with different paths for economic change. They ended up with distinct patterns of technological, institutional and social evolution, all of which co-determined the level of complexity of the productive fabric in these two nations. To illustrate this, we shall compare the evolution of some key variables in economic performance measurement. Some stylized facts regarding each of the strategies implemented will also come in handy when of the explanation about the two differing processes of structural change experienced.

To being, as suggested by Dosi et al. (1993), global differences in technological capacities are decisive in explaining disparities in the levels and patterns for exports, imports and overall economic per capita growth between countries. Technology is far from being a free good and its learning is more often than not cumulative, path-dependent, local, firm specific and privately appropriated (this is crucial for what follows). If the levels and changes relative to foreign trade participations between countries can be explained via the recourse to absolute specific dis/advantages, then distributional patterns in international trade exert dynamic pressures over cycles of economic development. These are commonly amplified by means of macroeconomic multipliers, which resonate through foreign trade channels. Therefore, a nation's capacity to alter its industrial structure according to international growth configurations and opportunities seems to be of key importance when examining virtuous cycles of domestic development. More specifically, here it is worth having in mind the manners by which a country enters a techno-economic paradigm in its initial stages, that is: whether dynamically or not (see Perez, 2010, for an overview).

By these terms, a Schumpeterian efficient country is one that manages to successfully join and lead in the techno-paradigm mutations in force (Dosi et al., 1993; Freeman and Perez, 1988). This happens when innovations are used to expand existing market boundaries. New market spaces are created by means of autonomous effective demand increases, domestic investments and by industrial competitiveness increments. The latter is characterized by increases in high added value production and manufacturing exports, and by the expansion of per capita knowledge-intensive services. This is so because high technology industrial activities have a greater income-elasticity demand curve, as they are associated with more-than-proportional increases in international demand per global economic growth (Keynesian efficiency). Moreover, and quite crucially, these activities generate dynamic externalities and

increasing returns, which propel technological learning capacities in knowledge intensive productive sectors (Schumpeterian efficiency).[8]

South Korea is a small, natural resource-scarce country. In the 1950's it was an impoverished, agrarian State with a limited domestic market. Brazil, on the contrary, is territorially extensive, abundant in natural resources and, by that same 1950's, had a large domestic market and was an industrializing economy.[9] As Table 1 shows, in 1960 the added values for Brazilian industry and agriculture were about 32% and 18%, respectively. South Korean values were virtually the opposite: 36% in agriculture and 17% in industry.

Table 1 – *Changes in economic structure and export performance for Brazil and South Korea*

	Industry (incl. constr.), value added (% of GDP)		Agriculture, forestry, and fishing, value added (% of GDP)		Services, value added (% of GDP)		Manufacturing, value added (% of GDP)		Medium and high-tech Industry (incl. constr.) (% manufacturing value added)		Manufactures exports (% of merchandise exports)		High-technology exports (% of manufactured exports)		Medium and high-tech exports (% manufactured exports)	
	BRA	**KOR**	**BRA**	**KOR**	**BRA**	**KOR**	**BRA**	**KOR**	**BRA**	**KOR**	**BRA**	**KOR**	**BRA**	**KOR**	**BRA**	**KOR**
1960	31,8	17,1	17,7	36,2	36,3	39,6	25,4	11,2	—	—	—	—	—	—	—	—
1965	29,9	23,0	16,7	37,3	42,5	34,3	23,3	17,0	—	—	7,7	59,3	—	—	—	—
1970	32,2	24,5	10,4	26,4	41,5	40,4	24,6	17,2	—	—	13,2	76,5	—	—	—	—
1975	35,5	26,4	10,7	24,4	42,1	40,0	26,7	19,9	—	—	25,3	81,4	—	—	—	—
1980	39,6	31,5	9,9	14,1	40,8	43,2	30,3	21,6	—	—	37,2	89,5	—	—	—	—
1985	41,2	33,4	10,5	11,7	39,3	44,6	30,7	23,8	—	—	43,7	91,3	—	—	—	—
1990	32,8	35,8	6,9	7,6	45,2	46,9	22,1	24,6	49,4	45,2	51,9	93,5	6,5	18,0	37,9	51,1
1995	23,4	35,8	5,0	5,3	58,1	49,5	14,5	25,2	51,0	52,3	53,5	93,3	4,9	26,0	38,3	68,8
2000	23,0	34,2	4,8	3,9	58,3	51,6	13,1	26,0	35,0	58,9	58,4	90,7	18,7	35,1	48,3	70,4
2005	23,3	33,8	4,7	2,8	56,1	53,6	14,7	25,5	33,6	60,2	53,0	90,9	12,8	32,5	48,2	75,3
2010	23,3	34,6	4,1	2,2	57,6	53,6	12,7	27,8	36,6	61,6	36,6	89,0	11,2	29,5	36,3	75,8
2015	19,4	34,9	4,3	2,1	62,3	54,0	10,5	27,1	35,2	63,7	38,1	89,7	12,3	26,8	41,5	76,2

Source: World Development Indicators (2019).

Brazil's industrialization process dates back to 1930, when its coffee economy plunged into crisis. A gradual industrializing conscience was then formed, as the Vargas government

[8] In these terms, leading companies-related products, processes, organization and service innovations lead to a rise in autonomous investment. These expand aggregate demand and export possibilities, as well as real wages and import levels. Therefore, in the long run the only solution for increasing economic growth rates without risking to compromise one's balance of payment structure is through structural Schumpeterian change (Dosi et al., 1993).

[9] The implication of these natural and demographic characteristics being that Brazil had, by the 1950s, an already great comparative advantage over South Korea towards the industrial, agricultural and mineral segments (Britto et al., 2019). We believe that these characteristics should not be overlooked when analyzing the potential economic performance each nation displayed.

experimented with a great deal of institutional modifications (1930-1945); this was the embryo of what has been called the Brazilian national-developmentalist movement (Fonseca, 1989, 2003). Beginning in the second half of the 1950s, Juscelino Kubitschek's administration (1956-1960) implemented a series of long-term industrial policies (the so-called Target Plan), claiming as a slogan that Brazil would fast-track "50 years in 5". Kubitschek's government aimed to accelerate Brazil's import substitution process, which had been in motion since Vargas's administration. His intent was to address the great potential demand that lied before him, and his plan was to internationalize Brazil's domestic market (Cardoso and Faletto, 1979). The Target Plan, however, contained no specific strategy tackling Brazil's export market. And in addition, it prioritized foreign capital, in the form of both liquidity funds and as productive plants proper. Foreign capital was entrusted with the command of the dynamic import-substitutive industries (automobiles, transport materials, electrical and mechanical machinery, and naval equipment).[10]

Changes in Brazil's mid-50's exchange rate policy help diagnose mutations in the development strategies of the country. Back then they already reflected the creation of an integrationalist institutional apparatus in the terms Amsden classifies a Brazil of only the later 1990's. To begin with, it is useful to note that prior to these changes, Vargas's second tenure (1951-54) deliberately attempted to devaluate the country's currency and to manage its inflow of foreign capital, through the so-called Superintendência da Moeda e do Crédito's[11] (SUMOC) Instruction n. 70. In practice, the Instruction created a system of multiple exchange regimes. Imports and exports were classified by essentiality criteria, with five groupings for the former and two for the latter. The Instruction had a trifold effect. First, it mitigated Brazil's Dutch disease: coffee exports were overvalued (in Brazil's currency) but they did not share the same exchange regime as the remaining exports, manufactures included, which were sold at undervalued (Brazilian) currency rates, stimulating the export of latter group while retaining the former's competitiveness. Second, superfluous import goods – elite consumption goods, were bought through undervalued (national) money, disincentivizing scarce reserves misusage. And finally, industrial imports, mainly of industrial equipment, were classified as essential and as were to be acquired at overvalued (national) rates.[12]

Immediately after Vargas's suicide, both his successor, Café Filho, and the following administration, Juscelino Kubitschek's (1956-60), worked towards institutionally revising and breaking away from the inherited exchange regime. Their aim was the attraction of foreign

[10] "Reversing a trend from the previous period, between 1955 and 1959 Brazil took advantage of a favorable international economic environment, and favored the installation of multinational companies in the country. Through SUMOC's Law nº113 (1955) special conditions to import machine tools and equipment were created. The public sector increased its direct participation in the internal formation of capital, including through inflationary funding, and several forms of external credit access were granted. From 1957 onwards the exchange rate system was simplified (Lessa 1981) and a monetary stabilization plan was attempt in the period, but did not go very far, especially after Kubitschek broke out with the IMF" (Burlamaqui et al., 2006, p. 5).

[11] SUMOC, or the Superintendência da Moeda e do Crédito (Money and Credit Superintendency) was Brazil's monetary authority from 1945 to 1965, the year it was replaced by a de jure Central Bank. Its decrees were called Instruções (Instructions).

[12] Essentiality criteria, especially with regards to foreign direct investment, were further refined through SUMOC's Instruction 81, during Vargas's second tenure. The Instruction created the Commission for Recordable Foreign Investment and Financing (Comissão de Investimentos e Financiamentos Estrangeiros Registráveis, CIFER), responsible for introducing 15 new criteria regulating foreign influx to the country. This rather sophisticated institutional mechanism put in place serves to show the administration's developmental concerns. Interventionism here was assented on the fear of jeopardizing Brazil's internal decision centers. By the same token, the intention was to subsume foreign capital to Vargas's national development strategy.

funds, and SUMOC's Instruction 113, the Lei de Similares Nacionais (National Similar Goods Law) and Lei de Tarifas (Tariffs Law) best illustrate this swift shift in policy.[13]

In the 1960's, despite the onerous aftereffects of Kubitschek's economic policy and the perceived need for economic reforms, Jânio Quadros's administration did not alter the preceeding regime of foreign capital regulation. In fact, in its first years, the government undervalued and unified its exchange rates (Instruction 204), a move which further facilitated the entrance of funds from abroad. It was only in 1962, during João Goulart's tenure, that a more defensive and strategic policy was attempted, through the Lei n 4.131 (Lei de Remessas de Lucros – Profit Remittance Law).[14]

Since 1955, the overall evolution of Brazil's laws, rules and institutional norms has favored foreign interests in the national economy. With the civil-military coup of 1964, there were many institutional reforms aimed at removing restrictive clauses to the inflow of foreign capital; in particular, apt conditions were created for financial transactions mediated by foreign conglomerates operating in Brazil. Expressed in terms of this simple summary, it is clear that from the mid-1950 onwards – and chiefly from Brazil's coup onwards – the institutional changes undertaken prioritized the adoption of development strategies based primarily on Brazil's elite-oriented domestic market. As our brief currency rates detour illustrates (though other examples would fit the task), Brazil's overarching strategy occurred mainly at the expense of manufacturing exports. Logically, no Kaldorian-style development in output and productivity could have been attained (Oreiro et al., 2020).

Upon the conclusion of the Plan's investment blocs, economic growth actually retracted, and strong inflationary pressures and balance of payment distortions ensued, with grave political unrest settling in. The political instability of the first half of the 1960's would eventually culminate in a military coup, in 1964. João Goulart's government – the coup's victim, was vocally in favor of distributive income and wealth reforms (Furtado, 1974). It called for "basic reforms", the term used to designate changes in the tributary and financial spheres, in the educational system and agrarian structure, as means of boosting domestic markets. This signaled a possible return to the national developmentalist strategies of the Vargas era. The military regime that forced Goulart out of power made sure to implement institutional reforms in the opposite direction. The succeeding presidents chose to deepen what Kubitschek had started, intensifying Brazil's economic internationalization through the molds initially laid by the Target Plans and setting aside concerns related to social inequality. In addition, the military regime sought to secure the entry of foreign productive capital by "automatically" aligning to North American interests. The then-inaugurated euro-market ties are also of relevance. Through the channels of increasing foreign indebtedness and liabilities contraction, local and

[13] Set during Café Filho's incumbency (1955), idealized by finance minister Eugenio Gudin, the new rule was a return to explicitly liberal principles; there was an increase to the alignment with foreign capital, easing up capital entrance requirements and reducing bureaucratic control over it. Essentiality criteria were accordingly removed. Scrutinized in its own terms – the attraction of foreign capital – these changes were successful in the medium run: practically all foreign capital inflow during Kubitschek's Plan era was obtained thanks to this new regulation. Moreover, Kubitschek's administration re-intensified its institutional promotion of foreign capital, through its National Similar Goods Law and Tariffs Law. Both laws were designed to close markets once incumbent firms were secured. (It reads: should foreign investors be the first to install firms in these privileged markets, they would be sealed off from potential competitors). These mechanisms were, by all practical means, institutional barriers to competition handed over to foreign agents. They evince Brazil's longstanding and long-lasting tradition of State-led foreign capital privileging.

[14] This law severed off the legal treatment towards foreign capital of up until then, for it tried to discipline the domestic use of international funds and the remitting of profit overseas. It was an attempt at reversing the prevailing regulatory integrationalist trends of up until then.

international companies as well as private banks sought to increase domestic investment and consumption volumes (Cruz, [1995] 2013; Arend and Fonseca, 2012).

The rise in global financial liquidity, coupled with the strengthening of this internationalist stratagem, helped restructure Brazil's institutional stability. In compliance to the financial configurations of the time, foreign capital influx was responsible for both financing Brazilian economic growth and for safeguarding its balance of payments stability, therefore allowing for the advent of what was known as the Brazilian "economic miracle" (Cruz, [1995] 2013). The institutional reforms promoted by the military regime, and the consecution of two National Development Plans in the 1970's produced robust industrial growth and succeeded in correcting some structural imbalances in the Brazilian economy. This "new" development strategy, based on the contraction of foreign debt (or euphemistically, foreign savings) would lead to severe financial instabilities in the 1980's.

On to our other industrial contender, the first development strategy implemented by South Korea, following the conclusion of the Korean War (1953-1961), revolved around the need for economic reorganization. Structural reforms conducted by the United States, conditioned as they were by Cold War geopolitical impositions, focused on educational and agrarian reforms, and aimed at nationalizing Korea's domestic banking system. General Park's development strategy was composed of two, export-oriented, industrialization phases.[15] Already back then, South Korea counted on inter-industrial and financial trade channels established with Japan and North America. In the 1908's, South Korea's industry was intra-industrially specialized, importing and exporting components, manufacturing inputs, capital goods and civil construction parts. South Korea's substitutive strategy was nationally oriented, or "mercantilist", as it aimed to build up on its international competitiveness and currency acquisition capacities, strongly discouraging foreign direct investment in the meantime (Shin and Chang, 2003, p. 11-12).[16] Table 1 shows that between 1960 and 1981 South Korean manufacturing added value went from 17.1% to 31.5%, while its agricultural counterpart fell from 31.2% to 14.1%. Much of the increase seen on manufacturing values derives from the growth of industrial exports for the period.

Commercial deficits from 1960 to 1980 and the concentration of long-term financing obligations in the hands of North American and Japanese banks allowed South Korea to continue its developmentalist effort until 1993, while already by the 1980's its industrial policies were centered on microelectronics and economic foreign expansion. This is in stark contrast to Brazil's 1980's, a decade of profound economic difficulties, highlighted by the heavy debt burden it had to carry. Contrary to Brazil, South Korea's financial and technological licensing relations with Japan imprinted a distinct, milder, outlook to its foreign obligations schedules (Lima, 2017, p. 609).

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[15] For first phase, from 1961 to 1970, private national companies used turnkey contracts to import foreign technology (oil refining and petrochemical industries were among the priorities). The goal was to promote an initial productive capacity among heavy industries; meanwhile textile and simple industries were created envisioning export sales. From 1971 to 1979, steel, chemical, metal mechanics and naval industries were put in place. Subsidies, selective FDI internalizations, fiscal exemptions, supply of long-term financing with low interest rates, technological capacitation incentives and exchange rate administrations were all used in order to selectively promote South Korean exports (Lima, 2017).

[16] "The case of Korea, which is a classic case of Gerschenkronian 'substituting strategy' – or a strategy where late-developing countries pursue an 'independent' developmental path by finding functional substitutes for the institutions used for industrial financing by the forerunners. We argue that 'the state–banks–chaebol nexus' in the Korean model – often characterized as Korea Inc. – was such an institutional substitute" (Shin and Chang, 2003, p. 4).

Between 1980 and 1989, South Korean technological policies were preoccupied with the internalization of technological advancements, acting through upgrading goods from abroad and turning to local engineers. A strategy for economic stimulus was implemented, seeking to boost private research and development with fiscal and financial incentives, and to attract FDI with the use of foreign technology licensing contracts. The rise in aggregate investment, both public and private, instilled the creation of local technological capacities in South Korean automobile and microelectronic industries, which made them globally competitive, equipped with brands, designs and productive processes of their own (Shin and Chang, 2003).

Following South Korea's heavy industrialization period, the growing economic power of private conglomerates led to political pressures in demand of reductions on State control over capital accumulation strategies (Chang, Palma and Whittaker, 2001). Concomitantly, the 1990's witnessed widespread liberalization and financialization of national economies. Together, these newborn commercial and financial regimes represented new challenges to South Korea's industrial base. Public incentive influxes were reduced and there was an overall increase in foreign competition (Shin and Chang, 2003). As a result, mechanisms for rationalizing industrial policy were used. Their aim was the establishing of leaner control over so-deemed priority sectors. According to Shin and Chang (2003), from the late 1980's, and more intensely so throughout Kim Young Sam's tenure (1993-1998), South Korea went through a dismantling of its idiosyncratic industrial policy, in accordance to what Chang, Palma and Whittaker (2001) sustain were IMF directives to the country. These were acutely tailored to curb the incentive structures behind the country's chaebols. Though interestingly enough, after the crisis of 1997 South Korea re-aligned its development policies to the interests of its chaebols (Shin and Chang, 2003).

South Korea's crisis of the late nineties can be traced to its hasty and in some ways inordinate opening of capital and financial accounts, bolstered also by its renouncement in coordinating industrial policies (Shin and Chang, 2003; Chang, 1993). This was to be changed thereafter, during Kim Dae-jung's incumbency (1998-2003). Interventionism was re-approached and industrial policy was re-designed. Finer tunings with chaebols' requirements, which included the restructuring of some, and greater State power, were the pivots of this new movement.

These changes in policy, however, were undertaken after the opening of globalization's Pandora's box; hence South Korean interventionism itself was subject to some new rules of the game and to novel constraints. In tandem, trade and financial openness heralded new challenges to the South Korean firm, as overt State incentives were reprehended and foreign competition was intensified (Shin and Chang, 2003). Inevitably, at the dawn of the century, industrial policy was gradually scaled down, the only unscathed practice being R&D support in high technology industries. Being large conglomerates as they were, chaebols were still essential for the economy, though their performance was subject to increasing scrutiny – to the point where their dismantlement into smaller and more concise firms was considered a national competitiveness bolster (Kim et al., 2004).

These difficulties in adjustment were quite inherent of the period for the world economy as a whole. Thus, Chang (2003) correctly opines that even after having broken away from IMF directives and having rejected its more forceful institutional re-designations of State and national economy, South Korea's catch-up was still, in virtue of the prevalent economic governance, under stress. It is to be noted, therefore, that even though South Korean industrial policy was altered, it was not abandoned. Neither the State nor the national firm were

marginalized in spite of, and conditioned by, neoliberalism and its reforms. Instead, new, even if not uncontroversial, relations between the two were accorded. And though the margin for governmental action has become restricted, two things remain. On the one hand, chaebols are still understood as essential economic backbones and are still supported, even if less linearly so, while on the other, the State still conducts interventions in the form of sectoral policies (Hundt, 2014; Lee, 2013).

From the 1990's until the late 2000's, South Korean industrial and technological policies were focused in product and process innovation, targeting relative technological autonomy. South Korean development strategies have progressively become more knowledge-grounded and scientifically oriented, as their research on semi-conductors, display screens and cellphones show. By 2013, under president Park Geun-Hye, a shift in understandings came about. South Korean policy-makers started to regard the catching-up phase of national development as having been completed. The country was then considered to be among the wealthiest in the world, all while detaining a strong prominence in industrial export circuits. Hence, the next challenges for South Korean industrial policy in the 21st century were to be in creative economics.

Back to Brazil, the sequence of international events from the 1980's onward seriously deteriorated the institutional viability of its internationalist strategy inaugurated in the 1950's. For most of the 1980's Brazil had failed to sufficiently integrate itself and to participate in the new forms of production and trade that had begun to flourish in the global economy. Its monumental macroeconomic instability did not help, and Brazil was economically petrified: the "lost decade" was marked by soaring hyperinflation, imbalanced public deficit and debt ratios, technological lag and suffocating foreign restrictions.

The 1990's were inaugurated with shock therapy for Brazil's industrial sector. Neoliberal precepts were adopted and the economy faced forceful commercial and financial liberalizations, and its industrial policies were redefined. Promoting competitiveness had then become the main concern in the economic policy agenda, with liberal orientations going so far as to claim that the ideal industrial policy was no industrial policy at all. Foreign capital was then imbued with the task of further denationalizing the economy. With the help of international capital, new export standards were to be perused, and industrial modernization was to be promoted. The subjacent reasoning at work was that so long as Brazil accepted to partake in the new globalized patterns of labor division, assuring economic openness and stimulating foreign investment, the consequent waves of FDI would suffice to usher Brazil into a new expansion cycle, in consonance with what had happened in the 1950's and 70's. The modest per capita GDP growth of the decade and the inexistent promised structural change attest to the insufficiencies of that strategy.

The extreme dependence on direct technological transfers, which was characteristic of the development strategy prior to the 1980's, was a key reason why the structural effort of the 1990's lacked in robustness. Despite being directed towards domestic markets, 1990's foreign capital did not work to foster import substitution and neither did it promote the technological catch-up it was intended to, in contrast to the period of 1955 to 1980. Instead, foreign investment capital was used in local asset acquisition, mainly via company takeovers, mergers and privatizations, and in acquisitions in the service sector. This made it difficult for Brazil to dynamically engage in the paradigmatic wave in formation (Perez, 2004) for its investment structure was largely dependent on the preceding manufacturing paradigm, thus disarticulating Brazil from global capital flows. Throughout the last two decades, basic

commodities are the bulk of what Brazil exports, whereas its import balance is largely composed of high technology products.

For comparison's sake, one may conclude that both Brazil and South Korea were subject to institutional shocks and to the imposition of a new accumulation regime, in both its macro and microeconomic aspects. And while both economies are still subject to neoliberalism's dicta and still have to operate under its flagrant contradictions – and both underwent a traumatic closing of the century –, a qualitative difference remains in their statuses in the world economy ladder. Though not exclusively, but certainly in parts due it, differences in industrial policies, in how they were constructed and understood, in how they were institutionally gestated, are to blame. Granted that a more comprehensive account of South Korea's economic history is required for furthering the institutionalist hypothesis of its industrialization, for the purposes of this article it is enough to note the dissimilarities in treatment dispended to the overall goal of productive sophistication, and how Brazil pales in comparison. But it only pales so, and this is what we wish to leave as this article's main contribution, because whatever that goal may have been formulated to be, the institutional arrangements congealing it made it so that the appropriate choices, paths and criteria were ultimately compatible with other ends rather than, say, industrial development.[17]

Brazilian stagnation is not only due to the neoliberal policies implemented in the 1990s. The gap in economic policy to which Amsden makes reference has deeper causes. If foreign debt-led growth and FDI-based productive internationalization are to be considered responsible for Brazil's recent poor performing economic growth, one must remember that such strategy had been implemented from the 1950's onwards – and it had worked. For the last 50 years, Brazil has always worked to attract multinational companies and foreign financial capital. The 1990's cannot be seen just as the formal break from explicit Developmentalism, or the bifurcation Amsden suggests. It represents first and foremost the continuation and deepening of a boarder development strategy, one that has been the constant since the second half of the 1950's. What we sought to make clear was that, throughout the last 50 years, the internationalist or "integrationalist" strategy began to progressively lose vigor. The structural conditions of the global economy are so fundamentally different from what they were during the Target plans that the technological incentives and international capital arrangements that once existed are no longer in force, mitigating the long-term efficacy of this 50-year old stratagem.

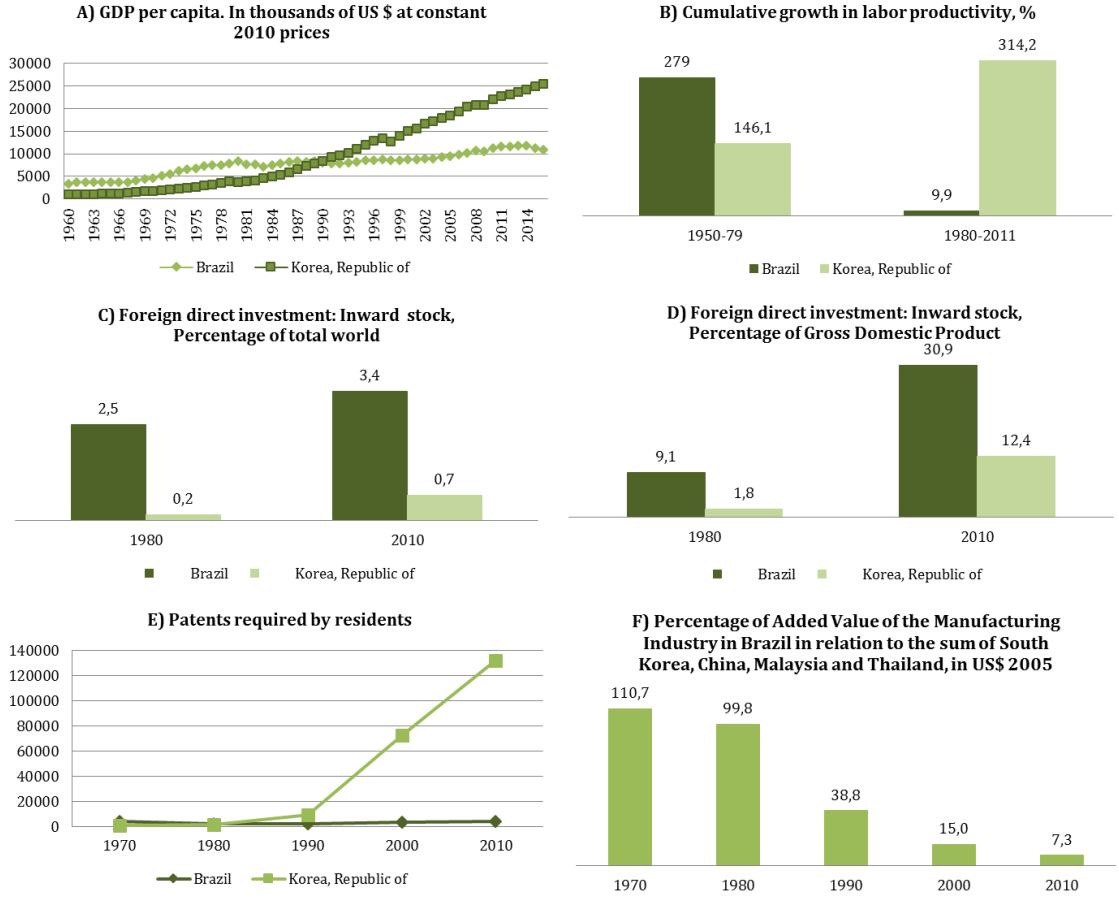
In relation to the 21st century, although it is possible to identify and point to at least three formally announced industrial policy programs, short-term macroeconomic priorities and the fluctuations in the international economy culminated in turning these programs into mere anti-cyclical instruments. The overall investment patterns, strongly assented on commodity production and on medium-to-low-technology industrial sectors were not tackled by the aforementioned programs, which rather enhanced them.[18]

[17] As important as they may be, these 'other ends' are not to be discussed here; what is to be stressed is only that they were different in constitution and appearance than in South Korea, and that they were arrived at through a historical process of institutional co-evolution. Or, that they were similar to the extent that they had to respond to the capitalist imperative of accumulation and perhaps dissimilar everywhere else.

[18] During Lula's administration, two industrial plans were announced, the "Industrial, Technological and Trade Policy" (Política Industrial, Tecnológica e de Comércio Exterior, PITCE, 2004), and the "Policy for Productive Development" (Parcerias para o Desenvolvimento Produtivo, PDP, 2008). Dilma's presidency had the "A Greater Brazil Plan" (Plano Brasil Maior). Real's foreign exchange appreciation until 2007, allied to the growth in wages and employment, despite favoring policies of wealth redistribution, also served to preserve conservative macroeconomic policies and to postpone industrial upgrading reforms. During Lula's second term, the Policy for

Figure 3 shows that for the period of 1950 to 1980 the per capita income growth rate for Brazil was greater than the South Korean one. Starting in the 1980's, Brazil begins its economic stagnation while South Korea leaps up in income levels. South Korea managed to steadily grow during the last 50 years, moving up from a low-income nation to a developed one in half a century. Conversely, Brazil grew at a staggering pace until the 1980's, falling prey to the middle-income trap since, as panel B shows. Between 1950 and 1970, Brazil displayed an elevated productivity growth rate, exceeding that of the South Korean case. This situation more than reverses, however, when we look at the data relating to these past 30 years, with Brazil clearly languishing in labor productivity.

Figure 3 – *Economic performance indicators, Brazil and South Korea*



Source: UNCTADSTAT; World Bank DATA and GGDC DATABASES.

Productive Development was decisively constrained by the international economic crisis of 2008/09. Instead of being used to alter Brazil's industrial structure, the PPD was used as an aggregate demand instrument, oriented towards employment and product maintenance. "A Greater Brazil" Plan was conceived as a means to improve Brazil's position in global added value chains, but this was put aside upon the stiffening of international competition. The Plan progressively became a tool for domestic market enclosure and national industry protection, aimed at altering relative supply-oriented costs instead of promoting structural and sectorial efficiencies (Kupfer, 2013). For these reasons, we find it hard to conceive the three aforementioned industrial plans as truly structurally pertinent.

Panels C and D reveal a crucial difference between the two industrialization processes studied. Brazil's industrializing effort was amply based on the presence of foreign investment capital; South Korea's was not. In order to fulfill its import substituting ambitions, Brazil amassed the greater foreign capital stock among the economies of the "rest"; South Korea's was among the least sizable. Overall capital stock participation as a GDP proportion was also a lot more significant in the Brazilian case than in the South Korean one. This entails that Brazil has been one of the world's most internationalized economies since the 1950s, being highly *integrationalist* during its industrializing heydays. The opposite seems to have been the case for South Korea. The last couple of decades have only magnified these fundamental differences.

Panel E shows how patent requisitions have evolved in these two countries. Brazil led in patent requests per resident up until the 1980's, with a gigantic gap between it and South Korea ensuing in the 1990's. That is, Brazil practically maintains its substitution-era levels of patent requisitions, while South Korea becomes one of the most innovative countries of the global economy. Despite guarantying intense short-term (and arguably *circumstantial* rather than structural) growth, the integrationalist stratagem does not stand the long-term comparison to its "independent" cousin. It seems then only appropriate to consider Brazil's integrationalist strategy unfit for long-term development, in the very least from the viewpoint of knowledge-based asset building

Panel F shows that up until the 1980's Brazil's industrial added value was at least of equal value to the *sum of* South Korea's, China's, Malaysia's and Thailand's. In 2010, Brazil went from a 1 : 1 added value parity relation to a perfunctory 0.07 : 1 (or 1 : 13.7) correlation of values. Again, it seems that Brazil's integrationalist strategy was responsible both for its rapid industrial rise and for its stagnation and premature dismantling, differing from the Asian rest.

A crucial fact not shown in the graph is that by the 1980's Brazil possessed the largest stock of foreign debt in the world, as computed by the World Bank, making Brazil arguably the most globally integrated economy out of all the latecoming rest. It functioned with the greater stock of foreign capital and the greater amount of external debt as well as with the greater industrial estate among the rest. Given this state of things, we understand that Brazil's integrationalist predispositions must be seen as prior to the 1980s.

Brazil's and South Korea's economic performances over the past decades work to demonstrate how present industrial decision-making processes are conditioned by past choices and embedded trajectories. As has been argued, a Schumpeterian-efficient growth regime is a phenomenon of co-evolutionary premises; institutionally, technologically and structurally. A path-dependent country, strongly subject to long-term institutional hysteresis, is constricted to choose sets and action patterns which are reflexive of past and embedded behavior.

Why then has Brazil lagged behind, imprisoned to its 1980's middle-income configurations, stuck to being a mostly Ricardian and Keynesian efficient country suffering from premature deindustrialization, while South Korea has broken its Schumpeterian barrier? The fundamental matter we wished to bring forth is that short term institutional decisions may have a priori lower action costs and may be *immediately* perceived as beneficial in the long-term, but short-term cost and long-term performance cannot always be so easily equated. It may be immediately cheaper to adopt a strategy with short-term inclinations – the Target plan and the economic growth it surged is an example –, but there is no guarantee that the resulting long-term economic trajectory will fulfill projected promises. As it was not built on sustainable and self-reliant acquisitions of knowledge-based and paradigmatic assets, the path laid out by

the integrationalist recourse had a limited amount of miracles it could perform. While South Korea can improve its technological base one independent step at a time, Brazil constantly requires that others install their advancements there. Its short-lived miracle of the past decade did little to break away from this 50-year-old hysteretic configuration. Economic growth came from the reinforcement of international Ricardian impositions, via commodities export, and domestic Keynesian-style consumption. Knowledge-based assets have yet to come.

4. Conclusion

Our research aimed to highlight the importance of history and past political decisions when considering the possibilities of structural change in the present. Keeping Amsden's work in mind, we showed how two countries, Brazil and South Korea, went opposite directions and displayed dissimilar economic capabilities despite sharing a common developmentalist desideratum. For this matter, distinct historical trajectories played a big role in determining what each of these two countries' final outcome would be. Knowledge-based asset acquisition can be seen as a historic process, since it stems from cumulative learning. What a country is able to produce today largely depends on how it has learned to do things in the past; when participating in the global economy, nations do not produce whatever they want, but whatever they have learnt to muster. Cognitive and evolutionary institutions are critical in determining what and how countries choose to learn.

Brazil's catch-up endeavor was largely dependent on multinationals. They were chosen to be in charge of modernizing and invigorating Brazil's domestic markets dynamism; local firms were to be subsidiary: they were to occupy low technology segments of production. This strategy worked until the 1970's. Economic growth, productivity surges and robust financial integration made Brazil the most complex and diversified economy among the rest. An abrupt foreign investment disconnection, forcedly imposed in the 1980's, however, was enough to expose the frailties of the integrationalist strategy. Despite renovating its international economic exposition in the 1990's, the culminating arrival of foreign investment was not directed towards structural and productive reforms. Lacking the internal capacity to lead in technological advancements and in conducting foreign capital towards productive investment, Brazil stood stagnant. In the dawn of the 2000's, new explicit industrial policies were designed. Their content, nonetheless, was too institutionally conditioned to be much more than counter-cyclical, paradigmatically outdated, industrial incentives. Ricardian efficiencies abound, since they come not from asset construction or knowledge acquisition, but from natural luck.

Technological limitations, external vulnerabilities, low productivity of both capital and labor, precocious deindustrialization and regressive productive re-specialization are all evidences that since the 1980's Brazil has begun to fall behind. We have argued that the international conditions that heeded Brazil's catch-up effort in the 1955-80 period are no longer available. Yet, the underlying Brazilian strategy stays the same. It still counts on foreign capital and on foreign direct investments to revitalize its domestic productive structures, failing to see that this is no longer adequate. Brazil's industrial policy is locked-in to integrationalist presupposes, both in how it *understands* development (institutional lock-in) and in how it can *achieve* it (technological lock-in).

South Korea remains on the edge of current technological frontiers. On the long run, the costliest industrial policy choice has turned out to be the most technically capacitating one. And the most institutionally efficient too.

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