Against the Dichotomy of Protectionism and Competition. The Contradictions of Competition.

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Bachelor's Thesis

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Date: 18.06.2021

Wordcount: 13090

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Abstract

Free trade policies are typically promoted by economists with the aim of increasing competition. In contrast, protectionism is depicted as inherently anti-competitive. This paper will question this view of the relationship between freer trade and competition by distinguishing between the two processes of competition. It will delineate the process of competition as allocation of resources and competition as a behavioral process of rivalry through innovation. It will show that internationally competitive allocation of resources can interfere with the ability of developing countries to behaviorally compete and innovate due to the presence of positive production externalities. The importance of externalities will be theoretically discussed based on the endogenous growth models and supported with empirical findings from Economic Geography. Further, Brazil will be used as a detailed case study to support and illustrate the reasoning. The paper will make a case for rejecting the view of protectionist policies as inherently anti-competitive. On the contrary, it will show that the contradiction between two processes of competition implies that restricting competition as allocation can, in certain cases, be pro-competitive in relation to competition as a behavioral process.

1 Introduction

The desirability of free trade for developing countries is one of the most contentious topics in economics that continues to spark debates. The potentially large effects of trade regime on development and economic growth give significant societal value to this topic. At the same time, its complexity makes reaching a definitive conclusion difficult, leading to disagreement. The complexity has its roots in the multiplicity of effects that changes in trade regimes produce.

Ranging from changes in knowledge accumulation and spread to improved intermediate inputs to modifications in the productive structures of the economies, more or less free trade potentially generates a variety of effects that frequently act in opposite directions. This complexity makes the theoretical modeling of the effects of free trade difficult, which is well-illustrated by the endogenous growth models (see Romer 1994 for a review). Every particular specification of these models generates a different outcome and while some models lead to favorable conclusions about free(er) trade, others are more pessimistic. This issue is complicated by the poor measurability of variables, such as knowledge spillovers, that does not allow to test the models empirically (Krugman 2018).

Similarly, the results of the empirical studies on the outcomes of trade liberalization are controversial. Many studies of the effects of trade liberalization show a positive effect of openness to trade on long-term economic growth (Havrylyshyn 1990). On the other hand, the most successful cases of catch-up development, be it Japan and South Korea recently or Germany and the United States in the 19th century, all coincided with intensive use of various protectionist policies (Chang 2005). Moreover, defining the measures of openness to trade is itself controversial. Multiple definitions of it exist, such as trade volumes or the size of the barriers[1], each producing different outcomes of the openness to trade (Yanikkaya 2003).

[1] Another problem is the difficulty of measuring some of the less susceptible to quantification barriers, such as product licensing or quality standards

Besides the difficulties with theorizing and measurement, there also exists a problem with conceptualizing the free trade analysis. Multiplicity of effects as well as somewhat speculative nature of the processes through which they are supposed to operate make properly defining the concepts difficult in the free trade debate. In particular, the concept of competition appears to be poorly defined, for it conflates two different, yet undistinguished processes.

On the domestic level, Blaug (2001) pointed out the issue with the concept of competition in his paper 'Is Competition Such a Good Thing?'. Following Schumpeter (2003), he points to the two understandings of competition that exist in economics. Blaug (2001, 37) defines them as 'competition as an *end-state* of rest in the rivalry between buyers and sellers and competition as a *process* of rivalry' The first understanding refers to the particular set of qualities of the end-state equilibrium of an economy. The second, in contrast, is the behavioral process, whereby economic agents compete with one another to obtain the highest utility by buying or selling products.

Schumpeter (2003) made the similar argument but put more emphasis than Blaug on the innovative aspect of competition as a behavioral process. For Schumpeter, competitive behavior primarily consisted of creating new, qualitatively different products or production methods rather than price competition. Based on this, he also showed that perfect end-state competition could interfere with the process of competition as innovation by depriving firms of incentives to innovate.

Following them, this paper will argue that the concept of competition in the way it is currently used in the free trade debate is misleading. Unlike Blaug and Schumpeter, however, it will not distinguish between a process and an end-state but rather between two different processes. These two processes are evident in the two main arguments in favor of trade liberalization. First, proponents of liberalization argue that international competition should allocate productive resources to their most efficient uses since countries that openly trade with each other can specialize in production that best fits their productive endowments. Second, competition with more and better producers worldwide should stimulate innovation and production efficiency improvements among the local producers. In the former argument, competition is the process of allocation of resources, while in the latter, it is similar to what Schumpeter meant by the behavioral activity of competition.

Since the two are not distinguished, there is no discussion of the relationship between them, and they are often assumed to always go together. World Bank (1991, 1) argued in the report: "Competitive markets are the best way yet found for efficiently organizing the production and distribution of goods and services. Domestic and external competition provides the incentives that unleash entrepreneurship and technological progress". The first sentence refers to the allocative process of competition, while the second to the behavioral one. Nevertheless, no explication for why they are put together is provided. This paper will show there are good reasons to believe that the two do not always go together. There is a more complex, frequently conflicting relationship.

As a consequence of this conflation, further conceptual inconsistencies arise, particularly around the relationship between protectionism[2] and competition. Static neoclassical models of production allocation in the context of international trade clearly show that protectionism hinders competitive allocation. Protectionism distorts the markets and thereby restrict the process through which competition as efficient allocation operates. This outcome is constant at all levels of protection, implying a dichotomy between protectionism and competition (Leamer 1995). The conclusions about the static allocative efficiency[3] implications of this model are mostly undisputed, which gives support to the dichotomy (WTO 1998).

However, while the competition-protectionism dichotomy is valid concerning competition as allocation, it is much more questionable concerning competition as a behavioral process. Openness to international markets indeed creates incentives for innovative behavior, but incentives are not the only constituent of such behavior. Increasing evidence that will be discussed below suggests that innovation depends on the productive capabilities that a country possesses. Consequently, if openness to trade results in an allocation of production that damages a country's capabilities, it can hurt its ability to engage in competitive behavior. In this case, protectionism can have a positive effect on competition.

Due to the poor definition of competition, the static model's outcome appears to spill over to competition as a behavioral process. Discourse around free trade is exclusively formulated in terms of the competition-protectionism dichotomy, and no specification of the meaning of competition in the particular instance is provided. An article in the Nature journal defines protectionism as "shielding domestic producers from foreign competition" (Mehling et al. 2018, 1) without specifying what is meant here by competition. It is frequently assumed or implied that competition and protectionism always create a trade-off. This assumption is justified concerning one understanding of competition and much less so concerning the other. For example, in one of the reports, WTO (1998, 44) says: "international competition forces firms to be more innovative and open to foreign ideas and technologies, while protection may foster complacency and technological stagnation.". Here, authors refer to competition as a behavioral process of innovation yet apply the competition-protectionism dichotomy.

Even the critics of free trade adopt the same competition concept, which leads to inconsistencies in their arguments. Chang (2009) argues in favor of the infant industry argument, which says that young industries have to be protected from competition for some time to acquire competitiveness via 'learning-by-doing'. Singh and Amsden (1994), based on examples of South Korea and Japan, propose an optimal degree of competition. They argue that it is possible and desirable to restrict competition both domestically and with foreign producers by limiting access to the market and encouraging mergers, while at the same time preserving competition in the form of an 'investment race' by setting productivity and export goals. Due to the poorly defined concept, Chang's argument implies that firms will become more competitive by restricting competition, which, although not necessarily logically incoherent, confuses the

[2] Protectionism here includes all measures that give local firms an advantage over foreign ones. In addition to trade barriers, these include subsidies, large tax breaks, below-market prices for primary resources, etc.
[3] Although not particular country welfare outcomes – see Roca and Simabuko (2007)

reasoning. Similarly, the optimal degree of competition for Singh and Amsden implies both restriction and encouragement of competition at the same time.

To contribute to the resolution of the free trade debate, this paper will engage in the philosophical analysis of the concept of competition. Indeed, working with concepts is one of philosophy's main strengths, as Gilles Deleuze has famously expressed it. This paper will attempt to clarify the economic processes that constitute the concept and specify the relationship between them, making future analysis more coherent and manageable. By clarifying the concept of competition, it aims to answer the specific question 'What is the relationship between protectionism and competition?'[4]. Answering this question can help frame future debates about the effects of protectionism on competition in more conceptually clear terms and eliminate potential biases that the protectionism-competition dichotomy may produce.

To accomplish this, it will distinguish between the two processes of competition along the lines of Blaug's and Schumpeter's arguments. The first process of competition will be taken entirely from Schumpeter as the behavioral process of innovation and efficiency improvements. The second one will be defined as the process whereby free markets allocate production to the most efficient producer - according to each country's comparative advantage in the context of international trade.

It will show a conflicting relationship between the two, which is particularly strong on the scale of international markets due to the localization of positive production externalities. Based on this, it will show that protectionism does not always exist in dichotomy with competition. Instead, by reducing competition as allocation of production, protectionism is, in many circumstances, a necessary condition for competition as a behavioral process. However, unlike Schumpeter, who viewed the two understandings of competition as almost exclusively conflicting, this paper will show them to be highly interdependent, which is the reason for their conflation.

To accomplish this task, this paper will present auxiliary theoretical and empirical sources. Before conceptualizing competition, it will be helpful first to discuss the effects of trade liberalization using the related but more concrete, conceptually clear, and embedded in the literature distinction between static and dynamic efficiency. In doing this, it will answer the sub question 'What is the contradiction between static and dynamic efficiencies of the economy?'. This question is primarily economical in its nature, however answering it is necessary before proceeding to a more philosophical analysis. The answer to it will be useful for reaching the main goal of the research due to the close correspondence of two meanings of competition to the concepts of static and dynamic efficiency. Static efficiency aligns closely to competition as the process of allocation, since as this paper will show static efficiency is typically maximized by competition as allocation. Competition as behavioral process is, on the other hand, an important source of dynamic efficiency in the economy.

[4] Since this paper engages in the philosophical analysis of an economic concept, it has to keep this concept in the research question, making it impossible to formulate in fully neutral terms.

This paper will discuss the relationship between static and dynamic efficiency using the recent findings from Economic Geography. It will argue that once the ability to produce certain (complex) products is endogenously dependent on the existing production, for which there is strong evidence, static efficiency can interfere with dynamic. Then, it will illustrate this argument on the example of Brazil, which is a vivid example of rapid transition from protectionism to free trade that resulted in the noticeable effects on static and dynamic efficiency. Integrating a historical perspective into the analysis can provide both an empirical support for the argument and a real-world grounding to illustrate the abstract ideas.

The paper will be structured as follows. First, the concepts of static and dynamic efficiency will be introduced and applied to international trade. Mechanisms that account for the relationship between the two will be identified and explained using endogenous growth theories and findings from Economic Geography. In the following section, the case study of Brazil will be used as an illustration. Then, the two concepts of competition will be introduced in more detail and related to the discussion of static vs. dynamic efficiency. A dynamically inefficient tendency of competition as allocation of production will be illustrated and its relation to competition as behavioral process specified. Finally, the role of protectionism in counteracting the dynamically inefficient tendency will be shown, and the dichotomy of protectionism and competition criticized.

2 Contradictions of Static and Dynamic Efficiency

Before turning to the discussion of competition, the argument advanced in the paper will be framed in terms of the static and dynamic efficiency effects of different economic systems. The reason for this is better conceptual clarity of this distinction and the more significant presence of it in the literature. The section below will introduce the two concepts.

2.1 Static and Dynamic Efficiency – The Concepts

Although he never used these terms, the first and probably the most prominent advocate of the importance of static vs. dynamic efficiency distinction was Joseph Schumpeter. In his seminal work, Schumpeter (2003) criticized his contemporary economists. They, in his view, focused too much on establishing the conditions under which the allocation of resources will lead to the highest *current* output, which Schumpeter showed to be exemplified by the reliance of these economists on static equilibrium models. These models view economy as converging to a steady state and therefore rely on exogenous factors to explain long-term growth, instead focusing their analysis on marginal short-term changes in output.

Viewing economics from a historical evolutionary perspective, Schumpeter (2003, 77) recognized the limitations of this approach. He saw that the most important developments in economics are linked to the qualitative change in productive resources, not to the marginal differences in the current output that the already existing resources can produce. Technological change, invention of new products, and introduction of new means of production – these are the processes to which the attention of an economist

should be directed, according to Schumpeter. Thus, he distinguishes between what was later called static and dynamic efficiencies. The former maximizes the output of given productive capabilities, and the latter maximizes the ability of the economy to upgrade existing and create new production capabilities.

For Schumpeter, dynamic and static efficiency are not only different things, but they are also in conflict with one another due to the different conditions that produce them. The main positive feature of capitalism, according to Schumpeter, lies in the process of innovation that capitalistic competition between firms creates. Opportunities to make gains and fear of losing them incentivize firms to constantly upgrade themselves, invent better products and means of production, which raises dynamic efficiency. At the same time, higher static efficiency is achieved by reducing the potential gains that a firm can capture. Higher static efficiency sprouts from the inability of any firm to capture monopolistic profits, which forces them to produce at the socially optimal quantity and sell it at lower prices. Thus, opportunities for gains are limited in the statically efficient system, which reduces the incentives of firms to innovate. From here, the static vs. dynamic efficiency trade-off arises.

Schumpeter (2003, 83) elegantly summarized the trade-off in the following quote: "A system—any system, economic or other—that at every given point of time fully utilizes its possibilities to the best advantage may yet in the long run be inferior to a system that does so at no given point of time, because the latter's failure to do so maybe a condition for the level or speed of long-run performance."

Following Schumpeter's analysis of the effects of market monopolization, the area of anti-trust legislation has been the main field of application of the static/dynamic efficiency trade-off. At the same time, the distinction between static and dynamic effects occupies an important place in the debate surrounding the openness to trade and its importance is acknowledged by both supporters and critics of liberalization (WTO 1998; World Bank 1991; Lin and Chang 2009).

The possibility of the static-dynamic efficiency trade-off in the international trade is theoretically recognized and formalized, particularly by the 'learning-by-doing'-type endogenous growth models (Romer 1986; Redding 1999). This section will discuss these models and their implications. Then, given the empirical difficulties with these models, it will supplement them with the empirical findings from Economic Geography. The aim of this section is to elucidate the relationship between static and dynamic efficiency in the area of international trade. It will be shown that statically more efficient allocation is potentially detrimental to dynamic efficiency due to positive production externalities.

2.2 Comparative Advantage and its Dynamic Effects

One of the main arguments in favor of trade liberalization is static efficiency benefits arising from production allocation according to comparative advantage. The principle of comparative advantage shows that countries with different endowments in factors of production can always benefit from trade with each other. If each country specializes in a product that best fits its factors endowments and exchanges part of it for the other, then all production will be allocated to the most suitable for it places. This way,

productive resources will be utilized to the maximum efficiency, improving the overall outcome for each country and globally (WTO 1998).

A classic textbook example is that a country with abundant capital will be more efficient in producing capital-intensive goods than a labor-abundant one. Then, establishing free trade between the two will allocate the production of capital-intensive goods to a capital-abundant country, which will result in the highest output. Importantly, however, the labor-abundant country, which had to produce capital-intensive products for domestic consumption during autarchy, will see its capital-intensive industries disappear, as they relocate to a place with more suitable endowments after trade liberalization. Thus, markets achieve higher output by changing the structure of the economies to better fit local factor endowments.

In traditional neoclassical models that view economic growth resulting from capital accumulation, the dynamic effects of improved specialization are also positive. The increased output achieved through specialization in one's advantage raises the amount that can be invested in capital, increasing the speed of capital accumulation (Subramanian and Jonsson 2000). This effect is transitionary as it only speeds up the convergence of the economy towards the steady-state, while the long-term growth is wholly determined by exogenous technological change. However, if the transition is long enough, this improvement can have long and visible growth effects. This argument was, for example, used by Lin in his debate with Chang about comparative advantage (Lin and Chang 2009). He said (Lin and Chang 2009, 486) that following the country's comparative advantage is essential for long-run growth since it is the most conducive to transforming the economy into a more capital-intensive one.

The problem with this kind of models is that they neglect the importance of productive capabilities for the ability of the economy to engage in more complex economic activities. This neglect allows such models to disregard the structural changes in the economy, assuming any type of activity that results in the highest output as the most conducive to development. In other words, factors that determine the productive capabilities of the economy, mainly capital and labor, are external to and independent from the structure of the economy according to such models. Capital is not built upon the existing structure of the production but simply externally acquired in some unspecified form. Capital characteristics are identical at all levels of capital, so any country could potentially produce any product, given enough capital. According to such models, as Chang replied to Lin, nothing prevents Ecuador from developing BMWs, except for the high opportunity cost of its production that low amount of capital results in.

Issues with capital accumulation models with time became ever more apparent. Despite enormous differences in capital abundance between developed and developing countries, no convergence of incomes or investments in capital took place (Martin and Sunley 1998; Romer 1994). Apparently, there was something in the local structure of the economy that made capital investments more profitable in one place than another. This problem was acknowledged by economists and incorporated into the endogenous growth models, as first developed by Paul Romer (1986).

In Romer's model, every new investment in capital, besides simply increasing its stock, also produces positive externalities in the form of technology spillovers to the whole of the country's economy. Improved technology counteracts diminishing marginal returns to capital. It potentially makes investments in capital in capital-abundant countries with higher technology levels more profitable than in countries with little capital and low technology.

Based on Romer's idea, Redding (1999) developed a more elaborate model that included different types of spillovers. Instead of treating spillovers as simply arising from any investments in capital, Redding divided production into high-tech and low-tech, with each producing a different amount of knowledge spillovers. Knowledge spillovers raise an economy's productivity, and spillovers from high-tech production in his model increase the productivity of an economy higher than spillovers from low-tech production.

Under this assumption, static gains from specializing in a country's comparative advantage can be detrimental to dynamic efficiency. A country with a comparative advantage in low-tech products will have lower productivity growth if it fully specializes in its comparative advantage than if it produces both types of goods. According to the model, exclusively extracting primary resources, no matter how abundant they are, is less conducive to long-term growth than adding automobile industry to the production basket, since the latter produces more knowledge that in the long-run benefits the whole economy.

In addition, an important assumption of the model is that comparative advantage depends on the country's productivity. Higher productivity creates a lower opportunity cost of producing high-tech goods, resulting in more productive countries having a comparative advantage in high-tech goods. Then, since productivity is itself dependent on knowledge spillovers from production, comparative advantage in the model is endogenous to the structure of production. Having a comparative advantage in a particular type of production depends on the country's structure of production in the past. Consequently, having a comparative advantage in high-tech production in the future depends on having high-tech production today.

Despite the intellectual appeal of endogenous growth models, they suffered from empirical immeasurability. Indeed, by their very nature, externalities are difficult to measure, even more so in the long-term and particularly in the case of knowledge externalities (Krugman 1987). Knowledge externalities are believed to exist in the form of tacit knowledge that circulates the firms and institutions in the country or region (Rodriguez-Pose and Crescenzi 2010). This circulation primarily happens via informal or poorly documented interactions and is therefore difficult to trace. Failing to produce empirical support, the interest of economists towards endogenous growth models largely faded out (Krugman 2018). At the same time, new empirical methods fueled a discussion of a similar issue in Economic Geography.

2.3 Principle of Relatedness

Economic geographers have recently provided the more empirically valid treatment of the importance of local productive structure and externalities that the structure produces. Their findings show an unprecedented influence of local production on the ability of a country to engage in related types of production. This is reflected in what has been named the principle of relatedness. The principle of relatedness says that a region is more likely to develop an (economic) activity if there already exist activities that require related knowledge or inputs (Hidalgo et al. 2018).

Casual observation of industrial clusters, such as Silicon Valley or Detroit, has long hinted economists at the idea that companies in the region create positive local externalities for other companies in the same industry. By observing such clusters, Marshall, in the early 20th century, came up with the idea that there are by-products of existing production, which act as positive local externalities and make nearby firms in the same industry more successful. He hypothesized that skilled labor, shared intermediate inputs, and knowledge dissemination are some of these by-products (Boschma 2015).

Later, Jacobs pointed to the possibility that inter-industry externalities may be (more) important. He thought that combining knowledge from different areas created opportunities for innovation, which made firms in industrial clusters (which rarely consist of a single industry) more successful. This type of externalities implied that the scope of reach of externalities may be larger than just inside the industry. Without significant empirical research, however, little understanding of the scope and details of either Marshallian or Jacobian externalities has been possible (Boschma 2015).

The path-breaking empirical work in this area has been the paper by Hidalgo et al. (2007). In this work, they studied the co-occurrence of products in the export baskets of countries. If a product had a higher share in a country's export basket than in the average world export basket, then a country possessed a revealed comparative advantage (RCA) in this product. Consequently, they calculated how frequently two given products (e.g. automobiles and bicycles) occurred together in an export basket of one country. That is, they looked at how often countries had RCA in these two products at the same time, which tells how frequently the products were co-exported together.

Using this methodology, they discovered the pattern of relatedness between the products. Two products frequently co-exported together are related, for the RCA in one makes a country more likely to have RCA in another. Authors attributed relatedness to the presence of shared capabilities between some types of production. Supposedly, capabilities can be knowledge, labor skills or intermediate inputs, but the method does not tell anything about their nature. It shows, however, that their presence makes production of a given product more likely to be successful in case there already exists related production in the country. In other words, by building capabilities that can be shared, already competitive production creates positive externalities for related production, making it more likely to develop and become internationally competitive as well. The strength of relatedness is determined by the number of products' co-occurrences and indicates the amount of externalities their production creates.

By using the data on relatedness and is strength, Hidalgo et. al constructed the product space, which visualized the relatedness between products, and the resulting pattern was highly insightful. Primary activities, such as agriculture or mining, appeared to be largely unrelated both to each other and to the industrial products. In contrast, industrial products appeared to be highly related between each other. Thus, product space had a core-periphery structure, where industrial products formed an interconnected core and primary products were dispersed on the periphery.

Notably, the structure of the product space correlated with the income levels of countries. Countries with more products with RCA in the core had higher income than countries with more products with RCA in the periphery. Combined with the higher inter-relatedness of industrial core products, this shows the importance of having more complex industrial production for the country's development. It is unlikely that a country producing only primary products will be able to acquire competitiveness in industrial products; at least, it will be more difficult. At the same time, it is industrial products that lead countries to higher income.

Overall, this study suggested that existing production and its structure should themselves be considered an important condition for economic change and development in certain directions. Acquiring comparative advantage in a given industry depends to a large extent on the presence of externalities from related production in the country. This way, Redding's argument received empirical evidence and was developed in much further detail. Instead of a single type of externality that increased the productivity of the economy overall, externalities appeared to have varying effects, depending on relatedness.

The study supports the case that specializing in less complex products, despite increasing static efficiency, can be detrimental for the dynamic efficiency of developing countries' economies, leading to reduced long-term growth. Products on the periphery do not create any externalities that are necessary for the development of more complex industries, which create higher incomes. In contrast to what Lin has argued, simply increasing savings and capital investments from higher static efficiency will not by themselves be sufficient to create a comparative advantage in more capital- and skill-intensive industries. Acquiring comparative advantage in them requires having related production, which is eliminated in case a country specializes in primary products.

Despite the strong evidence of this study concerning the importance of capabilities, it remained unclear what kind of capabilities created the product space. Indeed, a critical reader might question whether production externalities influence the development of related industries. It could be that local institutions, both research and political, capital abundance, and labor skills, all create favorable conditions for certain industries, which therefore turn up together in the export basket. In this case, externalities would be unimportant for development and the arguments made above would not hold. Consequently, specializing in comparative advantage would not have any detrimental effects on dynamic efficiency, only improving it due to higher savings from more efficient the static allocation. To eliminate these doubts, it is worth considering the follow-up studies in Economic Geography.

A study by Neffke et al. (2011) researched the co-occurrence of products on the plant level in the regions of Sweden. Importantly, this study focused on a much smaller scale and studied the evolution of products from 1970 to 1994. The study found that despite the significant change in the productive structure of the Swedish economy overall and regions[5], in particular, there was a consistent pattern of entry and exit of industries. Exiting industries had considerably and consistently lower relatedness to existing regional production. At the same time entering industries, despite slightly diverging from an average firm in the region in terms of relatedness, were much closer to them than exiting. That is, industries that were less related to industries present in the region were more likely to go out of business or relocate, getting replaced by the more closely-related industries. Hence, in case the structure of production shifted to a less complex one in the short-term, in the long-term entry and exit would reinforce this pattern, reducing the dynamic efficiency.

The persistence of this pattern of entry and exit over two and a half decades proves the importance of existing related production for the success of the industries. Despite the changing nature of production in place, the success of the firms was consistently dependent on their relatedness to existing production. This potentially means two things. First, production could have impacted the success of related industries through the direct creation of externalities, such as tacit knowledge. Second, institutions, labor, and other factors could have co-evolved with changing production, becoming more suitable for other industries[6]. In any case, we can attribute the success of related industries directly to the nature of production in place.

Similarly, Hidalgo and Hausman (2009) measure the impact of the economic complexity of a country on its long-term development. Complexity was defined as the diversity of RCA products (how many products does a country have RCA in; the more, the more complexity) and their ubiquity (how frequently other countries export them; the less, the more complexity). The outcome was that complexity appeared to be highly predictive of a country's development in the future. More complex economies today had a higher GDP level in the future, and this pattern persisted over many decades, as countries' GDP tended to converge to economy's complexity over time. Countries with relatively high GDP to complexity experienced slower growth than countries with relatively low GDP to complexity. Thus, the structure of production was predictive of countries' growth, and this evolution confirms the importance of existing production for the dynamic efficiency of the economy.

To conclude this section, studies from Economic Geography have two main implications for the potential dynamic effects of more statically efficient allocation according to comparative advantage. Most importantly, they confirmed the idea present in endogenous growth models that externalities are essential for development and that some activities produce fewer positive externalities than others. This means that

[5] The study used the Swedish functional A-regions as their definition of a region. According to it, Sweden is divided into 70 regions, which typically consist of smaller municipalities centered around an urban center (Neffke et al. 2011).

[6] In this case, it can still be attributed to externalities that production creates. The only difference is that they operate via intermediate channels instead of having a direct effect.

specializing in a country's comparative advantage can be detrimental for long-term development. If a country's advantage is in products on the periphery of the product space, potentially producing only little or irrelevant for growth externalities, specializing in it will hinder the dynamic efficiency of the economy.

In addition, they showed that new production is built upon existing specific capabilities and not simply acquired externally in the form of qualitatively identical capital. In this case, higher output resulting from better static efficiency is insufficient to move the country's production to a more capital-intensive one, in contrast to the implications of the neoclassical growth model. Instead, the country's absorptive capacity, which is created by existing related industries, is also important. Altogether, this points to the existence of the static versus dynamic efficiency trade-off. More efficient static allocation is indeed potentially detrimental for countries, the comparative advantage of which is in the industries on the periphery of the product space.

3 Historical Evidence

Abundant historical evidence exists that supports and illustrates the conclusions of the previous section[7]. For our purpose, the most telling are the examples of what has been called premature deindustrialization that followed the abrupt trade liberalization of the 1990s in many developing countries. Premature deindustrialization refers to experiences of multiple middle-income countries that, similar to high-income ones, saw a decline in the share of employment in industrial production.

However, unlike the high-income countries, premature deindustrialization in developing countries also caused the share of manufacturing value-added in GDP to decline. In developed countries the share of employment dropped due to growing productivity of manufacturing that required less labor to sustain the same output (Rodrik 2016). On the other hand, in developing countries deindustrialization reduced both employment and output, which is illustrative of a different process that Rodrik (2016) attributed to the loss of competition in manufacturing after trade liberalization.

Castillo and Neto (2016) document premature deindustrialization in Brazil, Chile, and Argentina. Beginning from the 1990s, the share of employment in manufacturing sectors in these countries has been steadily falling. Instead, employment in natural resources and the primary sector has been rising. Similarly, Lopez (2017) found the same pattern in Colombia.

To give more depth to the discussion, this paper will refer to the particularly vivid case of Brazil. Brazil had a long history of strong protectionism, ended by a rapid liberalization that resulted in a dramatic restructuring of Brazil's economy. The presence of abrupt and radical changes from one extreme of trade policy to another makes Brazil an interesting and convenient case study. The trajectory of Brazil's

[7] See, for example, Williamson (2013) for an extensive review of widespread deindustrialization after the first globalization in the 19th century.

development is in line with the arguments made in the section above, which makes it a good illustration of the static-dynamic efficiency trade-off.

3.1 Brazil

Brazil has begun industrializing in the 1930s and by the 1950s, it already possessed some industrial potential (Baer and Kerstenetzky 1964). At that time, it initiated an active industrial policy, which is usually defined as a set of measures aimed at promoting the development of a specific type of industrial production (Chang 2010). In Brazil, use of industrial policy was extensive both in terms of the range of tools used and industries promoted. Basic industries, such as iron and steel, as well as consumer ones, such as textile and vehicles, received substantial protection. Protection included establishing high tariffs or restricting import altogether, multiple exchange rates, and encouragement of import of necessary capital equipment for protected industries, among other tools (Baer and Kerstenetzky 1964).

This policy was continued in the 1960s and up until the late 1980s. In the first two and a half decades, its results were spectacular. Between 1947 and 1961, the industrial product grew by 262%, while GDP increased by 128% (Baer and Kerstenetzky 1964). Further, from 1964 to 1973, GDP growth averaged 8% per year. After the shock of the oil crisis, however, growth stalled, Brazil encountered a balance of payments shortage, and hyperinflation set in (Britto et al. 2019). Nevertheless, industrial policy remained almost unchanged, with very high tariffs of up to average 86% that ranged over most of Brazil's manufacturing industries. Later, critics of industrial policy portrayed Brazil's protectionism as a particularly inefficient example, where rent-seeking producers captured government policy (Hay 2001). GDP growth in the 1980s virtually stalled, and as a later study (Ferreira and Rossi 2003) has shown, the firms' productivity was declining in the late 1980s.

To tackle this development, between 1987 and 1993 sharp market-oriented reforms were initiated following the advice of the IMF and the World Bank. Quantitative import restrictions were lifted, financial liberalization occurred, and the effective tariff rate was cut from 86% in 1987 to 18% in 1993 (Muendler 2004). After the reforms, however, little improvement happened. GDP growth rate averaged 2% until 2004 and slightly accelerated to 4% until 2010 to come to a complete stall in the last decade (World Bank 2021).

Now it is helpful to discuss the more detailed studies of the effects of trade liberalization on the economy and relate it to the static-dynamic efficiency trade-off. The discussion in the previous section identified the effects that we would expect from trade liberalization. Free trade should improve the static efficiency, which consists of allocating production to more suitable in terms of endowment industries. In addition, Dijkstra (2000) includes the reduction of X-inefficiency resulting from freer trade as part of static efficiency. X-inefficiency is typically defined as directly unobservable production inefficiency, which results from organizational slack. It is hypothesized that in protected industries managers have few incentives to reduce this slack due to the lack of competition. Consequently, opening up the economy should have a positive effect on X-inefficiency. Dijkstra classifies it as static, since this should be a one-

time transitional improvement. Then, dynamic efficiency should consist of technological improvement of existing industries and opening up of new, higher value-added ones.

Unfortunately, static and dynamic efficiency effects are typically assembled under one variable in empirical studies on efficiency, mainly total factor productivity (TFP). TFP in empirical models accounts for all growth in output that cannot be explained by increases in factors of production, mainly labor of different skill levels, intermediate inputs, and capital (Muendler 2004). Thus, improvements in both technology and better allocation, as well as less X-inefficiency, fall under the TFP variable. For example, in a review of empirical studies about the effects of freer trade on productivity by Havrylyshyn (1990), virtually all studies use this model. This makes the case of Brazil even more suitable to analyze. The short-term nature of changes following abrupt liberalization allows separating static from dynamic efficiency gains in TFP. Due to the slow operation of technological change, it is unlikely that much of it happened in the years right after liberalization, so early increases are likely linked to static gains.

Many studies of the effects of Brazilian trade liberalization provide support for its effectiveness in the short term. Multiple pieces of research show significant improvement in TFP after liberalization. Hay (2001) found a 50% increase in TFP among large Brazilian manufacturers between 1990 and 1994, the years during and right after the liberalization. Of these, he attributes 45% to be the direct consequences of liberalization, which is a very substantial effect. Similarly, by studying 16 out of 21 Brazilian manufacturing sectors, Ferreira and Rossi (2003) discovered a falling TFP rate in the years before liberalization and a substantial increase at an average rate of almost 3% from 1991 to 1997. Lisboa et al. (2010) and Muendler (2004) confirmed the positive impact of liberalization on productivity.

Nevertheless, despite findings being favorable towards freer trade, long-term effects appear to be just the opposite. In the 30 years that followed liberalization in Brazil, its GDP per capita in constant dollars grew from 8 to mere 11 thousand dollars. Even more discouraging, this figure was higher in 2010 than in 2019 (World Bank 2021). To make sense of this development, it is worth considering the structural changes in the economy. In their paper, Britto et al. (2019) used a method, similar to Hidalgo et al. (2009), to discover the evolution of the economic complexity of Brazil. They looked at the export and import structure of the country and divided it into five categories: primary products, resource-based production, low-, medium-, and high-tech products.

The evolution of revealed comparative advantage (RCA) of Brazil appears to strongly correlate with the use and dismantling of industrial policies. After the implementation of industrial policy, the economy experienced rapid growth in complexity, as the share of primary products in Brazil's exports dropped from 74% in the early 1960s to just 22% in 1993[8], substituted mainly by medium-, low-, and high-tech products. This implies that industrial policies appeared to have achieved their goal of industrialization.

[8] This year had the historically lowest value of the share of primary products despite it being already five years after the beginning of trade liberalization. The likely cause for that is, as Dix-Carneiro and Kovak (2017) found,

Interestingly, the 1990s, which is when Brazil initiated a rapid liberalization, appear to be a point of reversal in the complexity of the economy. Characteristically of premature deindustrialization, the share of primary products in Brazil's exports began to rise again from 22% in 1993 to 30% in 2009, and even more strikingly the share of manufactured products in imports grew almost twice after liberalization. This reveals a rapid loss of complexity of Brazil's economy, which is what Britto et al. (2019) have confirmed using the method of Hidalgo and Hausmann (2009). These findings are further supported by the changes in the employment structure of Brazil's economy. Castillo and Neto (2016) found that the share of employment in primary sectors increased at the expense of the manufacturing sector in the 1990s and the 2000s.

Thus, we see that a pattern of development that largely follows the discussion in the previous section. Studies (Muendler 2004; Amann 1999) suggest that TFP increases in the first years following liberalization could not be attributed to technological change, which is understandable given the short-term nature of these changes. At the same time, these years experienced the highest TFP growth. This means that early TFP gains are linked to static gains from better specialization and reduced X-inefficiency. As expected, static efficiency increased after liberalization, caused by the re-specialization of Brazil's economy towards its comparative advantage in abundant primary goods and reduction of organizational slack. The magnitude of these effects was likely so high due to the redundant nature of the industrial policy.

At the same time, these gains also implied the destruction of manufacturing activities. Both re-specialization and reduction of organizational slack operated to a large extent through the exit of inefficient firms. Muendler (2004) and Dix-Carneiro and Kovak[9] (2017) show that trade liberalization was followed by a significant increase in the exit of Brazilian manufacturers. Both the number of firms and their size declined.

In addition, the magnitude of exit correlated with the strength of tariffs reduction. During liberalization, tariffs in Brazil decreased unevenly across industries, with some industries, particularly technologically more complex ones, seeing larger reduction than others. Since industries were unevenly dispersed across regions, forming a certain production mix in each region, Dix-Carneiro and Kovak (2017) were able to calculate the average tariff reduction for each region. Regions with a larger share of industries strongly affected by liberalization would have had higher tariff reduction. Consequently, they tested the effect of tariff reduction on the exit of firms. The study found that regions stronger affected by the removal of protection saw higher rates of exit, which on a very detailed level illustrates that exposure to international competition caused deindustrialization in Brazil.

producers' decisions to wait for the full depreciation of assets before closing down. The pattern of investments that they discovered to have dropped immediately after liberalization, supports this conclusion

[9] They do not explicitly distinguish between manufacturing and other types of production. However, they show that exit was higher in regions with larger share of manufacturing. See next paragraph

This general pattern is well-illustrated by the history of the IT industry in Brazil. After receiving significant protection during the 1970s and 1980s, the industry was exposed to international competition in the 1990s. Through protectionist measures, such as import barriers, restrictions on the use of foreign technology, and encouragement of local input linkages, Brazil from scratch built its IT industry (Paulo Bastos Tigre 2001). It became a largely self-sufficient producer of both hardware and software, reaching the annual production of US$7 billion. Nevertheless, the industry almost exclusively produced for the domestic market and sold at higher prices compared to the Western countries (computer prices were 15% higher than in France and England).

The liberalization had strong effects on the Brazilian IT industry. While some government support remained in the form of tax breaks, import as well as technology restrictions were lifted. This soon led to a significant restructuring of the industry. While before the liberalization, the industry engaged in production of all levels of complexity, after the liberalization the more complex hardware production almost entirely disappeared or has been bought up by foreign companies. This led to a reduction of prices and adoption of better technologies by the surviving production, generally leading to higher efficiency and benefits for the consumers. However, it also reduced the complexity of production as well as the amount of R&D activity in the country. IT industry became confined to niche, primarily low-complexity sectors, as the more complex hardware production almost entirely disappeared and local production linkages have been broken. Foreign firms, despite introducing the better technology, preferred to engage in R&D at home. They recruited Brazilian specialists to move overseas for R&D, while limiting activity in Brazil to lower-skilled operations.

The IT industry also declined in the absolute production numbers, which is reflected in the falling employment and growing trade deficit. From 129 thousand people in 1988, employment fell to mere 100 thousand ten years later. While part of it is attributed to growing efficiency, this is nevertheless an illustrative trend, given the rapid development of IT industry worldwide. Even more illustrative, the trade deficit in IT and electronics grew from US$1 billion in 1992 to US$6,5 billion in 1997, reflecting the loss of competition on the domestic and scarcely any gains on the foreign markets for Brazilian IT producers (Paulo Bastos Tigre 2001). Thus, despite the gains in efficiency and consumer benefits from trade liberalization, Brazilian computer industry experienced a similar to the economy-wide manufacturing decline in complexity as well as size.

Altogether, the case of Brazil supports the arguments made in the previous section. First of all, protectionism, despite failing in many respects, helped Brazil to develop substantial economic complexity. Given the findings of Hidalgo and Hausman (2009) that complexity is predictive of GDP in the future, it could be seen as potentially dynamically efficient development. At the same time, protectionism also created vast static inefficiencies, resulting in poor productivity of Brazilian

manufacturers[10]. Trade liberalization indeed generated large gains in static efficiency, as is evident from the substantial short-term increase in TFP right after its implementation.

On the other hand, these gains came at a cost of changing Brazil's productive structure. Re-specialization in comparative advantage and elimination of inefficient firms initiated premature deindustrialization in Brazil. Its economy experienced a decline in manufacturing employment, increased exit of manufacturing firms, and rising share of primary products in their exports. Productive capabilities achieved through protectionism in complex industries such as IT have been eliminated by liberalization. Generally, the economic complexity of Brazil substantially declined in the two decades that followed trade liberalization.

Based on the reasoning presented above, we would expect this development to have a dynamically negative effect on Brazil's economy. Elimination of complex production should hinder the country's ability to acquire competitiveness in complex production in the future, which is essential for development. This is indeed the case in Brazil. While Brazil's GDP moderately grew in the 2000s, its economic complexity has been continuously falling up until 2009, which is the latest year for which Britto et al. (2019) provided data. In the next decade, Brazil saw literally no growth in GDP per capita, which is exactly what one would predict based on the findings of Hidalgo and Hausmann (2009) about the convergence of GDP to economic complexity.

The case of Brazil vividly illustrates the static-dynamic efficiency trade-off. Substantial gains in static efficiency following rapid trade liberalization came at a cost of declining economic complexity, which greatly reduced the dynamic efficiency of Brazil's economy.

4 Two Processes of Competition

Finally, we can relate our discussion to the two processes of competition introduced in the beginning. As we have seen, Schumpeter and, followingly, Blaug distinguished between competition, as the state of (perfect) competition, wherein firms are unable to influence the market, and competition as a behavioral process, whereby firms try to outcompete one another in price or quality[11]. The former definition corresponds to maximized static efficiency, as firms that cannot influence the market have to choose to produce the socially efficient quantity. The latter is an essential source of dynamic efficiency since it is in competition with one another that firms innovate and upgrade the economy.

This paper adopts this distinction, applying it to the level of international competition between countries. It fully retains the understanding of competition as a behavioral process and particularly focuses on

[10] Evidence about falling TFP (Ferreira and Rossi 2003) in the years prior to liberalization could also suggest an eventual exhaustion of the positive effects of protectionism on technological change. Redundant industrial policy that resulted in overprotection could incentivize rent-seeking behavior, impeding innovation. This topic, however, deserves a treatment of its own.

[11] Quality also includes product differentiation here

competition through innovation of products and means of production, as emphasized by Schumpeter (2003). Thus, competition as behavioral process primarily refers to the process of gaining competitiveness rather than price competition. The paper further defines the second understanding of competition somewhat differently due to the focus on international competition. Unlike the domestic competition models, where competition increases static efficiency by ensuring the socially optimal quantity of production, in the international trade models higher static efficiency is achieved via competitive allocation of production[12].

It operates in an intuitive way. On well-functioning competitive markets, consumers choose products with the best price-quality characteristics, thereby transferring resources to the most efficient producers. Consequently, after some time it results in the most efficient allocation of productive resources, as inefficient producers go out of business. Competitive allocation is a well-acknowledged quality of markets, yet it is important to specify it as a process that always operates on well-functioning markets. It may result in an end-state, where resources are allocated to the most efficient producer, however, it is not its primary characteristic. As we will see, this definition of competition is not limited to economics. Any process through which the best (most efficient) actor gets resources allocated to him can be called competition. An example of that will follow in the next section. Henceforth, I will call competition as the process of most efficient allocation *C1* and competition as behavioral process *C2*.

4.1 Competition on the 'Level Playing Field'

One of the particular instances of C1 is the allocation of production according to countries' comparative advantage. We have already discussed its potential effects on developing countries. Now, the previous arguments will be analyzed in terms of two competitions, and more general conclusions about the relationship between free trade and competition will be made.

Chang (2009), in his book, in an interesting way developed the 'level playing field' metaphor of the world trade. Barriers in world trade, free trade proponents argue, create an unfair situation for producers, akin to the football field being tilted, so that players of one team have to run uphill to score. To restore fairness, the argument goes, it is important to level out the playing field by removing the barriers. Chang adopts this metaphor but adds that the argument is valid only if there are *equal* teams on the field. A football match in the world trade, he says, instead resembles a competition between a professional football team and 11-year-olds. In this case, Chang argues, it is only fair to have the field tilted to the benefit of 11-year-olds.

Chang uses this metaphor to discuss the fairness of competition, but it can also illustrate something about the meaning of competition itself. While the match between a professional team and children can be called competition in the sense of C1, it would hardly contain any C2. To repeat, C1 is defined as the process through which the most efficient in some area actor get resources allocated to her. Now, if the

[12] This characteristic, of course, also holds for the domestic markets. The models that Blaug discusses, however, focus on different aspects than allocation of production to the most efficient producer

outcome of this match somehow affected resource allocation (for example the ability to proceed into the next round), then C1 would exist between the teams. Moreover, C1 would be maximized on the level playing field. Chances that children[13] would somehow win the match and proceed into the next round would be minimized on the level playing field, so the allocation is efficient.

However, it is doubtful that any competition as C2 would ensue on the level playing field. Teams would be so unequal in their capabilities that no process of rivalry could emerge between them. It would be unexciting to watch but also useless to participate in for both teams in terms of their development. A better team would not have any incentives to improve, while the weaker team would not get a chance to practice, as they would not be able to possess the ball. In this sense, more competition (C1) is anti-competitive (C2). A much more pro-competitive (C2) arrangement would be to tilt the playing field or otherwise give the weaker team some kind of an advantage.

Of course, this is a crude metaphor to fully depict the complex process of international competition. However, it resembles its main features well. Liberalized international trade puts producers on the level playing field by ensuring that the most efficient producer will get resources and consequently production allocated to her. This, as we have seen, raises static efficiency. At the same time, allocation of complex production to more efficient producers implies the removal of it from the less efficient ones.

From the discussion above, we have seen that production creates important for increasing the competitiveness of related production externalities. Therefore, C2, the behavioral process that leads to upgrading of the economy, depends on having complex production in the country. By providing shared capabilities that make existing industries more competitive and increase the chances to successfully diversify into new ones, industries create a sort of an ecosystem. The presence of tacit knowledge, more productive organizational routines shared among firms, etc., make local firms engaged in related production more competitive, contributing to upgrading of the economy. Thus, existing production is an important constituent of C2, which is eliminated for developing countries in case of C1 allocation. Similarly to the football metaphor, C1 is anti-competitive (C2).

What is more, in complex and diversified economies of developed countries, developed ecosystems alone make their firms more competitive than those in developing countries, which by their definition do not possess such capabilities. In other words, competitiveness of industries is endogenous to the existing production. Consequently, developed countries will be able to outcompete the developing ones in more complex industries just by already having (more) complex production in place. Developed countries will have comparative advantage in more complex industries just in virtue of their structure of production. This is what Redding has argued with his concept of endogenously produced comparative advantage.

[13] Assuming that children are objectively worse players. Generally, a level playing field does not favor any team but improves the chances that the best will get resources allocated to them.

Furthermore, if we consider allocation purely based on C1 in the past as well, then the only way to have a comparative advantage in an industry today was to have a comparative advantage in it in the past.

In the most efficient allocation, having production in the past depends on being the most efficient in the past. At the same time, given the endogeneity of competitiveness to production, efficiency in the past also had to be based on past production and, in case of efficient allocation, on past comparative advantage. Thus, in the case of unfettered C1, comparative advantage is not only endogenously produced but also becomes a consequence of itself. Obtaining comparative advantage in a group of industries depends on already having related production, which itself is a consequence of having related production, which in the case of unfettered C1 is only possible by having a comparative advantage in them in the past.

Thus, there appears to exist an impossibility of developing via comparative advantage. Comparative advantage in complex industries is a precondition for development. At the same time, it is the consequence of having a comparative advantage in complex industries, that is being developed. Other things held constant, there is no way for a developing country to become as competitive as the developed one by following comparative advantage. It will have to develop institutions, infrastructure, and labor education *better* than those in the developed countries just to outweigh the competitive disadvantage of not having existing related production.

To rephrase it again in the football metaphor, assume that the only way to become competitive is by practicing, and the only opportunity to practice is by proceeding further in the tournaments. This means that the precondition for practicing on the level playing field is being competitive and able to proceed further in the tournament in the past. This, however, is only possible if a team was competitive in the past, which is the result of past competitiveness, itself dependent on practicing; this can go on to infinity. Systems that ensure the highest C1 are anti-competitive (C2) in cases of high inequality between competitors. Then, if engaging in C2 is an important condition for development, systems that result in the highest C1 are potentially damaging to development. In football, both C1 and development are preserved by separating the teams into ages and divisions, thereby making competitors more equal. Unfortunately, this is hardly possible in the global economy.

4.2 Sources of Conservativeness and Dynamicity of Markets

Another way to depict largely the same point, which, however, can help us understand its causes better, is to view market allocation of production as inherently conservative. Conservativeness in this use means that it reinforces existing structures of production. By allocating resources and consequently production to the already efficient producers, markets allocate based on *past* economic conditions. The producer that was *already* able to become the most efficient receives resources in market allocation. This way, markets reproduce the existing patterns of economic activity. To understand this point better, it is worth considering other systems of resource allocation.

One example could be the allocation based on political power. In this case, resources for production would be allocated to the political elite. Such allocation is based neither on the past conditions nor on the

future ones. It can only randomly align with them if the political elite appeared to be the most efficient producer in the past or potentially in the future. There can also be resource allocation based on the expected efficiency of producers or industries in the future. Typical examples are industrial policy and stock exchanges, wherein people allocate resources based on expectations they have about future returns. In contrast, unfettered product (to distinguish it from financial) markets allocate resources exclusively based on the past efficiency of producers.

The root of this lies in the exchange-based nature of markets. Markets are exclusively a system of exchange of already produced goods, not of production itself. Reinert and Daastol (2007) criticized neoclassical economics for treating the economy as a barter-like exchange and economic agent as either a trader or a consumer. They argued that excluding production from consideration causes neoclassical economics to be static, making it impossible for economists to explain the most important economic developments, mainly upgrading of productive capacities. Indeed, neoclassical models are primarily based on presenting the economic processes as happening on the market (Swedberg et al. 1987), which excludes the productive sphere from them.

The most illustrative for this matter is the neoclassical theory of the firm. Its essential characteristic is either perfect or probabilistic information, based on which firms make their decisions. That is, profit-maximizing firms make their decisions about investment from the already available to them choices, they do not create anything that is not predetermined by exogenous factors (Baumol 1968). Even making investments is based upon calculating the optimal pattern based on existing information about the potential returns, not creating brand new opportunities for profitable investment. In this way, firms are also 'consumers' on the market of production, they 'buy' options that have already been brought onto the market by some external forces in the past. This is why, due to the absence of any endogenously produced change, decisions of the firms in these models tend to come to a steady end-state, waiting forever for external forces to disrupt it.

The absence of the sphere of production from the market also means that resources are allocated in a way that disregards future production. Instead, only considerations of the most efficient exchange are present, and these can only reflect the past efficiency of production. To visualize that, a simple real-world marketplace can be used as an analogy. Assume that no considerations of future production or other types of resource allocation are present on the marketplace – people solely exchange goods there. Then, to such a marketplace, producers arrive with an already premade set of goods, which they exchange for other, similarly premade goods.

Maximizing their gains, people will buy goods with the best price/quality ratio and thereby exchange resources with those producers who were able to produce the goods most efficiently. However, this efficiency is determined *before* coming to the market and does not reflect anything besides it. In the absence of other mechanisms of allocation or any accumulated wealth, only efficient producers will stay

in business in the next period, and the statically efficient[14] allocation of production will arise. At the same time, producers that were less efficient before coming to the market, yet have the potential to develop in the future, will be driven out of business, reducing dynamic efficiency. International product markets operate in this way, and the allocation of resources on them reflects solely the past efficiency of producers/countries.

Counteracting the conservative tendency of the markets is, therefore, an important precondition for development. One way of doing that is by utilizing other than product markets systems of allocation. It appears that what is typically considered essential parts of market economies, mainly stock exchange or banks, are engaged in counteracting the C1 conservative forces of the markets. Every time financial institutions provide resources for new companies that are making losses, they act against the C1 and increase the static inefficiency. Every loss of a profit-oriented firm implies that either the same product can be produced better by other firms or that this product is not (yet) valued enough by consumers, both of which are cases of reduced C1 that result in static inefficiency.

The allocation of resources via financial institutions, in this case, is anti-competitive (C1), for it provides resources to those who currently would not have deserved it in open competition (C1). Companies that make losses would not be able to continue production in the next period in case of perfect C1, which is the same as saying that these resources could have been utilized more statically efficiently. Moreover, the scale of such anti-competitiveness (C1) is vast in market economies, as evidence suggests that most firms that enter markets make losses right from the beginning and continued in the first years of their existence. In addition, 80% of the entering firms exit the market after ten years, and every such case contains static inefficiency (Geroski 1995).

From this fact, it is clear that private actors and financial institutions do not possess any particular type of knowledge that would prevent them from creating inefficiencies in resource allocation. Nevertheless, few proponents of the markets would argue against strategic investment in companies that are currently making losses, and for a good reason. Entering firms are one of the main sources of innovation and efficiency increases (Geroski 1995). The problem is that they do make essentially the same argument against government intervention in trade. By saying that protectionism will distort the market competition (C1) and lead to investments in the unsuitable to local factors of production industries, they mean the same thing as that financial markets distort the competition (C1), leading to allocation of resources to currently inefficient firms.

Financial markets are an instrument of reducing competition (C1) since they (temporarily) provide resources to inefficient firms with the expectation of future returns. Trade protection is essentially an instrument that accomplishes the same goal of reallocating resources to less efficient industries today with

[14] However, not the most statically efficient. There would still exist a slight discrepancy between efficiency before coming to the market and efficiency in the next period of production. For our purposes this difference is not important, since the much larger discrepancy is between past efficiency and efficiency in the medium/long-term.

the expectation of return in the future. Of course, there also differences between them. Financial markets themselves operate on a competitive basis, which ideally leads to better information in determining the future returns and prevents rent-seeking. However, protectionism is capable of reallocating resources dynamically efficiently in cases, where financial institutions fail. To see that, we shall return to endogenous growth models.

In the two models (Romer 1986; Redding 1999) considered, spillovers are external to the firm, which means that firms producing them cannot entirely appropriate gains from them. Knowledge becomes (partially) publicly available, which benefits the society at large but not the firm that produced this knowledge. Since spillovers are external to the firm producing them, the private sector will always tend to underinvest in their production. Despite the benefits that accrue to society, no private investor will be motivated to invest at the socially optimal level because his private returns would always be lower (Redding 1999). Therefore, even the most developed financial market cannot supply the socially optimal level of knowledge spillovers, which makes government intervention necessary[15]. The same case can be made for other types of positive externalities, be it labor skills or organizational routines.

To summarize, a reduction of C1 is an important form of competition as C2, which can be accomplished via multiple mechanisms, including trade protection. If we strived towards maximum C1 and static efficiency, very little competition as C2 would occur given the endogeneity of competitiveness to production. In the case of unrestricted C1, resources would have been allocated solely based on past production, and firms that are less competitive simply in virtue of not having experience in production would never be able to compete. This case is even stronger on the international level due to localized externalities. The most competitive (C1) allocation will always hinder the ability of less developed countries to compete (C2) by depriving them of an essential constituent of ability to compete (C2), mainly positive externalities from existing production. For this reason, protectionism is not necessarily anti-competitive but is an important mechanism for competition (C2) that works by restricting competition (C1).

Now, an important question has to be answered. Suppose protectionism is beneficial for C2, and generally, the C1 tendency of free markets is detrimental for C2. Why do then free markets possess such a spectacular history of innovation and growth, that is of C2? Following Schumpeter in his book, Baumol (2004) attributes the historical success of markets to perpetual competitive pressure that routinizes R&D and innovation. Yet we have just seen that unrestricted markets frequently hinder C2. While these two conclusions might appear contradictory, it is by resolving this contradiction that we can better understand the source of innovativeness of the markets.

[15] Here, I limit my analysis to the knowledge spillovers from production without arguing that this is a single source of knowledge in the economy. There are obviously other sources, such as (government-funded) research institutions but my argument is exclusively about the knowledge spillovers from production, which I hopefully have shown to be important for development.

Vickers (1995), in his lectures, criticized the Schumpeterian separation of competition into the theoretical state and behavioral process. In his view, the two are related, since being in the state of (perfect) competition motivates firms to consider the actions of others when making a profit-maximizing decision. Therefore, while it does not maximize competitive behavior, the state of perfect competition is the opposite of fully monopolistic decision-making, wherein the single producer can act exclusively based on his interests, resulting in no competitive behavior at all. According to this argument, some state of competition is necessary for the existence of competitive behavior, and this is the point of their relatedness. This paper has delineated C1 and C2 slightly differently from Schumpeter and Blaug. However, it agrees with Vickers that the two are closely interrelated and that C1 is a necessary condition for C2.

It appears that what has been called the conservative tendency of markets to allocate resources to the already efficient producers is precisely the factor that motivates producers to become more efficient. The possibility to reap benefits from allocation to the statically efficient producer provides incentives for innovative behavior, increasing the dynamic efficiency of the economy. Being an exchange-based system, markets allocate resources disregarding the sphere of production, which leads to dynamic inefficiency. At the same time, they provide incentives to the sphere of production to innovate, making the economy more dynamically efficient.

The latter point is rather obvious and well-acknowledged. It is, however, typically less acknowledged that incentives to innovate that increase the dynamic efficiency sprout from the dynamically inefficient conservative allocation of resources. Paradoxically, if resources were always allocated in the most dynamically efficient way, which is to the producers with the largest potential to contribute to economic growth, little growth would occur. Producers would prefer not to exhaust their potential, and therefore innovation would diminish.

Thus, the conservativeness of allocation resulting from C1 is indeed the necessary condition for C2. Nevertheless, the dependency of C2 on the costly and frequently statically inefficient process of production means that a large part of it consists of defying the C1-based allocation or the C1 itself. In other words, C1, by providing incentives, constantly reproduces the process that contradicts and defies the C1. Then, it is on this contradiction that a large part of the dynamic efficiency of the market economies is based upon. An important conclusion of this analysis is that both C1 and instruments to defy the C1-based allocation are necessary to maximize the dynamic efficiency of the economy.

To achieve the highest dynamic efficiency, markets should allocate resources in a competitive (C1) way to the most efficient producer to incentivize competitive (C2) behavior. At the same time, there have to exist additional instruments that counteract the purely C1-based allocation for C2 to operate successfully. Some of the instruments are financial institutions that allocate resources based on future expectations of the success of a single (or limited number of) producers. While efficient on the firm's level, they are less efficient on the level of regions and countries because the presence of externalities creates differences

between private and social returns. In this case, other instruments such as trade protection should supplement financial institutions. To maximize C2, governments should use them with caution to find balance in both preserving and, to some degree, counteracting C1.

The case of Brazil is a good illustration to this last point. Moving from one extreme of trade regime to another, its economy virtually stagnated for the last 50 years. During the period of excessive protectionism, local producers had little incentives to improve their efficiency or even engaged in rent-seeking practices (Hay 2001). Clearly, overly restricted C1 hindered C2 in this case as well. This resulted in stagnation and highly inefficient production, as the studies showing rapid TFP increases after liberalization show. On the other hand, rapid and excessive liberalization damaged the ability of the Brazilian producers to engage in C2 by depriving them of resources to sustain production, which resulted in the loss of economic complexity. In this case, excessive C1 hindered C2 and dynamic efficiency.

5 Conclusion

In this paper, I have attempted to revise our understanding of the relationship between competition and protectionism. This attempt was motivated by the existing misunderstanding of the relationship, which is typically viewed as a dichotomy. This misunderstanding confuses the economic debate surrounding the desirability of free trade for the developing countries by providing a poor conceptual framework for the analysis and potentially creating unfounded biases against protectionism. Therefore, resolving it provides opportunities for future study of the question of openness to trade. To accomplish the goal of this paper, I utilized an interdisciplinary approach that employed the philosophical analysis of the economic concepts and used historical evidence to support and illustrate the arguments made.

The departure point for this paper was Blaug's and Schumpeter's criticism of the concept of competition, which the paper adopted with slight adjustments. It was argued that the concept of competition in economics includes two different processes that are frequently conflated into one, which is the reason for the competition-protectionism dichotomy. The first process was identified as the allocation of resources to the most efficient producer. The second process was defined as the behavior of people, whereby they try to outcompete one another, particularly through innovation in case of economic competition. The central argument was that competition as allocation of resources (C1) can hinder competition as a behavioral process (C2), which makes protectionism pro-competitive (C2) by being anti-competitive (C1). Before making this conclusion, however, an analysis of the economic effects of trade regimes had to be undertaken. For this, the closely related to the two processes of competition notions of static and dynamic efficiency were introduced.

Static efficiency refers to the ability of an economic system to maximize the output, given the current productive capabilities. Dynamic efficiency measures the ability of an economic system to upgrade its productive capabilities and lead to higher output in the future. It is well-acknowledged that openness to

international trade maximizes static efficiency, and it is also frequently assumed to promote dynamic efficiency by incentivizing competitive behavior. This paper, however, discussed the cases where openness to trade can decrease dynamic efficiency while at the same time increasing static efficiency. Showing the contradiction between the two efficiencies helped illustrate the contradictions between the closely related competition processes.

Free trade maximizes the static efficiency of the economy by allocating production to the places with most suitable for production endowments, according to the principle of comparative advantage. However, in the process of (re)allocation, it changes the productive structure of the economies. On the example of endogenous growth models, it has been shown that if the ability to produce more complex goods depends on the productive structure of the economy, then allocation according to comparative advantage can be detrimental for dynamic efficiency. Particularly, if different types of production create varying amounts of positive externalities, such as knowledge spillovers, then specializing in products that create little externalities can hurt dynamic efficiency.

To support this claim, empirical studies from Economic Geography were introduced, which show that existing production creates positive externalities for related industries in the country by building shared capabilities. Shared capabilities, presumably tacit knowledge, labor skills, etc., strongly affect the chances of success of related industries. In other words, the ability to successfully innovate and upgrade the economy by diversifying into more complex production depends on the presence of externalities from related complex production. Thus, specializing in low-complexity industries can hinder the ability of the economy to engage in more complex and higher-income production, reducing dynamic efficiency. In this case, increased static efficiency from trade liberalization will interfere with dynamic in developing countries.

This argument has been illustrated on the historical development of Brazil, a country that rapidly shifted its trade regime from strong protectionism to largely free trade. Despite having accumulated significant productive capabilities under protectionism, Brazil's complex industries were not efficient enough to survive the open international competition. Therefore, trade liberalization led to the re-specialization of Brazil in its comparative advantage in low-complex and primary goods, which is evident in its employment and import structures. While it increased the static efficiency of the economy in the first decade, the loss of economic complexity hindered Brazil's ability to innovate and grow in the longer term, which is evident in a recent decade-long stagnation of its economy. This way, Brazil is a good illustration of the contradiction between static and dynamic efficiency.

Discovering the contradiction between static and dynamic efficiencies helped clarify the relationship between two processes of competition. By using the metaphor of the level playing field as a tool of interdisciplinary integration, it was possible to conduct a philosophical analysis of the concept of competition. It has been shown that increased C1 improves static efficiency by competitively allocating resources to the most efficient producer. At the same time, possessing resources to sustain (complex)

production is necessary for C2 since, as shown, the ability to innovate and diversify depends on the presence of positive externalities from related production. Thus, by depriving less developed countries of resources to sustain complex production, C1 hindered the ability of these countries to engage in C2, reducing their dynamic efficiency.

Looking from this perspective, it appeared that C1-based allocation is inherently conservative, for it allocates resources to the already efficient producers while neglecting the potential to develop in the future. For this reason, other mechanisms of allocation exist to counteract the C1-based allocation. One of them is financial markets, which allocate resources to the currently inefficient producer to allow them to engage in C2 and become more efficient in the future. Another has been shown to be protectionist policies. Similar to financial markets, they counteract C1 allocation to allow local producers to engage in C2 by building up shared productive capabilities that act as positive externalities, which improve the local producers' ability to compete and innovate.

Based on this, it has been concluded that protectionism does not exist in a dichotomy with competition. While it always reduces C1, it can nevertheless be conducive to C2 by providing resources to currently inefficient producers to sustain their production and development. This way, the philosophical analysis of the economic concept helped broaden our understanding of the economic processes and open new perspectives to look at the question of openness to trade.

This conclusions of this paper have significant implications for the future academic research and public discourse. In academic research, distinguishing between different processes of competition while conducting research on this or related topics would contribute more clarity and rigor to the investigation. In public discourse, rejecting the competition-protectionism dichotomy can provide a better framework for discussing trade policy. In addition to the obvious benefits of clarity and preciseness, it can minimize the negative connotations typically associated with the allegedly anti-competitive nature of protectionism. Instead of viewing protectionism as necessary fostering rent-seeking and idleness, it is more productive to discuss its potential to contribute to dynamicity and competitive behavior.

Nevertheless, one has to carefully interpret this conclusion. While it has been argued that C1 can interfere with C2, this paper has also shown that C1 is an essential source of C2. By allocating resources to the statically most efficient producer, C1 creates incentives for producers to compete and innovate, stimulating C2 and improving dynamic efficiency. Thus, maximizing dynamic efficiency requires finding a balance between restricting C1 to ensure that producers get resources to engage in C2 and letting C1 operate to create incentives for producers to innovate.

The imprecise nature of the conclusion that does not provide any particular guidelines for economic policies is the biggest limitation of this paper. The argument has been confined to conceptual and theoretical analysis, merely supported by empirical cases. Consequently, it is impossible to draw any conclusions about the desirable level of openness to trade, either generally or for a specific country. The right balance would have to be discovered using empirical methods. However, I hope that this analysis

broadened the understanding of competition in international economy and showed that protectionism and competition do not have to be viewed as a dichotomy.

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