OECD DEVELOPMENT CENTRE

Working Paper No. 311

THE PRODUCT SPACE AND THE MIDDLE-INCOME TRAP: COMPARING ASIAN AND LATIN AMERICAN EXPERIENCES

by

Anna Jankowska, Arne Nagengast and José Ramón Perea

Research area:
Latin American Economic Outlook

April 2012

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ACKNOWLEDGEMENTS

The paper was prepared as a contribution to a publication on the middle-income trap by the Chinese Academy of Social Sciences.

The authors would first like to thank Christian Daude for initiating this project and for valuable comments and feedback.

Several people devoted their time to reviewing earlier versions of this paper and providing helpful comments: Kiichiro Fukasaku, Annalisa Primi and Helmut Reisen. The authors are grateful to their colleagues at the OECD Development Centre for insightful comments and feedback during an informal seminar at the Development Centre. The authors would also like to thank Rolando Avendaño and Montserrat Botey for help with the French abstract, and Daniel Adshead for proofreading the final draft.

Errors, shortcomings and the views expressed remain the responsibility of the authors.

PREFACE

Overcoming the middle-income trap, tackling poverty and inequality and creating equal opportunities remain major policy challenges for policy makers in Latin American countries and beyond. In this paper, we put the focus on Latin America in particular because, contrary to other regions, Latin America hosts very limited cases of effective transitions from middle to high income levels. This is particularly noteworthy given that several Latin American countries were middle-income long before many others in Asia or Europe. While these countries subsequently moved to the high income level in recent decades, Latin America persists in middle-income status suggesting they might be in a "middle-income trap". Robust economic growth and resilience to the international financial crisis observed in Latin America over the last decade has slightly reduced the distance with advanced economies, nonetheless, income convergence with the latter remains far on the horizon.

The difficulty for Latin American countries to break out of the middle-income trap has been explained from several angles. One of the most frequent explanations points to the low levels of productivity found in the region. This in turn can be traced back to a myriad of institutional and socio-economic deficiencies (education and vocational training, monopolistic structures on product markets, regulatory environment, etc.).

This paper adds to the discussion by looking at the issue from another perspective; namely tracing the evolution of structure of the economy over time, and its influence in facilitating income convergence through export-led growth. The focus on the economic structure of a country does not imply a deterministic view of the development path. On the contrary, productive transitions reflect the particular policies and institutions and history of a country and how these elements influence the economic specialisation of a country.

This analysis underscores that successful structural change is driven by proximity considerations – with expansion into related industries, making use of existing productive skills – while concomitantly accumulating more advanced capabilities. Policy co-ordination, particularly in the areas of education, infrastructure, innovation and financing, plays a strong role in promoting the simultaneous evolution in economic structure and framework conditions. A comparative analysis of Korea and Latin America underscores the importance of sound policy design and implementation.

This type of cross-country analysis facilitates the process of peer-learning and promotes policy dialogue in order to help middle-income countries build on one another's experiences and adapt policies and growth strategies to the new global economic context. The OECD Development Centre is committed to helping developing and emerging countries find new and innovative sources of growth, and ensuring that this growth is inclusive and sustainable. This paper is meant to feed the corresponding policy dialogue amongst the Centre's member countries.

Mario PEZZINI
Director
OECD Development Centre
April 2012

RÉSUMÉ

La croissance rapide et soutenue dans les économies émergentes a fait rentrer des nouveaux membres, dont la Chine, dans le groupe des pays à revenu intermédiaire. Cependant, atteindre ce niveau de revenu, a historiquement supposé pour ces pays de faire face à de nouveaux défis pour le développement, entraînant un ralentissement de la croissance et une situation de stagnation connue sous le nom de piège des revenus intermédiaires. La convergence toutefois limitée de l'Amérique latine est en partie expliquée par sa capacité réduite à s'engager dans des transformations structurelles vers une productivité plus élevée. En revanche, l'Asie émergente nous présente des exemples de ces vertueuses transformations productives. Tenant compte de ces deux différences, nous élaborons une analyse comparative basée sur les dimensions suivantes : D'abord, nous illustrons des différences dans le processus de transformation structurelle, à la fois par rapport à la productivité sectorielle et la relocalisation d'emplois. Par la suite, nous adoptons la méthodologie de *Product Space* pour comparer la transformation structurelle qui a eu lieu dans les deux régions. Finalement, nous considérons le rôle des politiques de développement productives (PDP) pour déterminer le processus de transformation structurel, à travers une révision comparative de ces politiques en Corée, au Brésil et au Mexique. En somme, l'analyse permet d'évaluer le rôle que la spécialisation économique d'un pays peut jouer pour faciliter la transition vers des phases de développement économique plus avancées.

JEL Classification: F10, F40, L5, O4.

Keywords: Exportations, piège du revenu intermédiaire, espace produit.

ABSTRACT

Rapid and sustained economic growth in the emerging world has brought new members, notably China, into the group of middle-income countries. Reaching this level of income, however, has historically presented countries with a new set of challenges to development, resulting in slowing growth and an entrapment in what is known as the middle-income trap. Limited income convergence in Latin America has at least partly been due to its reduced capacity to engage in a structural transformation conducive to higher productivity. In contrast, emerging Asia offers a few examples of these "virtuous" productive transformations. With these two references in mind, we build a comparative analysis based on the following points: First, we illustrate differences in the process of structural transformation, both with regard to sector productivity and employment absorption. Second, we adopt the Product Space methodology to compare the structural transformation that took place in both regions. Finally, we consider the role played by Productive Development Policies (PDP) in shaping the process of structural transformation, through a comparative review of these policies in Korea, Brazil and Mexico. In short, the analysis allows us to gauge the role that the economic specialisation of a country plays in facilitating transitions to more advanced stages of economic development.

JEL Classification: F10, F40, L5, O4.

Keywords: Exports, middle-income trap, product space.

I. INTRODUCTION

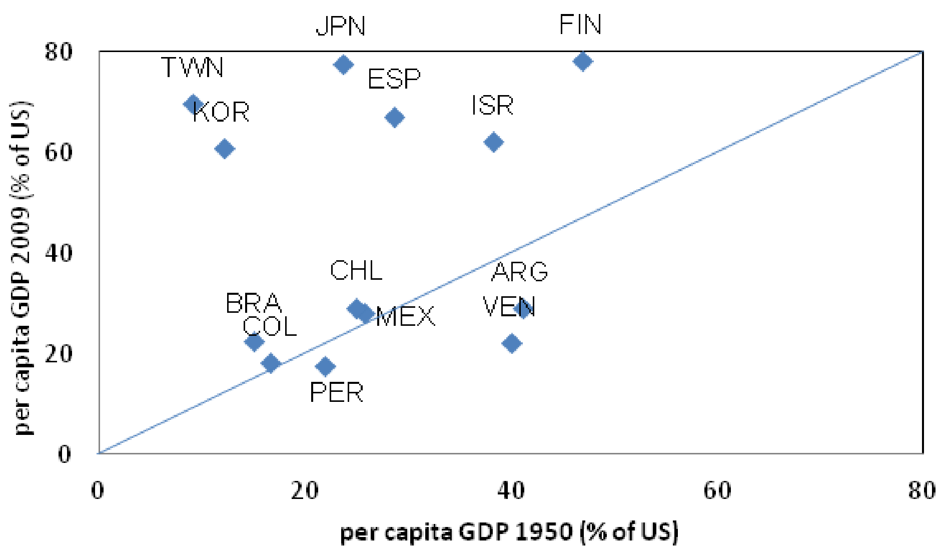
The first decade of the 21st century has been one of the most favourable for the economic prospects of developing countries. Much of the developing world enjoyed its first decade of strong growth in many years; contributing to a trend of increasing convergence in per capita incomes with high-income countries and the shift of the economic centre of gravity towards the south and east (OECD Development Centre, 2010). These trends also bring new economic challenges to the forefront. This is particularly true for countries entering the middle zone of the per capita income distribution.

Historically, few middle-income countries have been able to enter the group of high-income economies. This suggests that, at middle levels of income, economic growth becomes more arduous: on the one hand, these countries have reached a level of development high enough to prevent them from competing on the same grounds with low-income countries (*e.g.* labour costs); but at the same time, they still lack the fine-tuned institutional and factor endowment mix that would allow them to compete in knowledge intensive products, typical of high-income economies.

If we take the second half of the 20th century as the period of reference, most of the countries that joined the group of high-income economies are located in Europe. Asia provides a more reduced set of countries, including Japan and the Asian Newly Industrialised Countries (NICs: Chinese Taipei; Korea; Hong Kong, China; Singapore). In contrast to these examples, the middle-income trap firmly established itself in Latin America; not only because this region hosts very limited cases of effective transitions from middle to high income levels, but especially given relatively high income levels in the earlier part of the 20th century.

To illustrate this point, Figure 1 plots the per capita income levels in 1950 and 2009 for the seven largest Latin American economies, as well as a sample of European and Asian countries that have recently reached high income levels. Instead of choosing a monetary threshold for both years, we include per capita income as the percentage of that in the United States, to proxy for a representative high-income economy. This relative income framework highlights Latin America's difficulties in achieving income convergence. The main economies in the region varied between marginal improvements in the cases of Chile, Colombia or Mexico, and cases such as Argentina or Venezuela, which were both the richest middle-income countries in 1950 and then lost the most ground relative to US income during the period (12 and 17 percentage points, respectively). Against these trends, only Brazil made some progress (moving from 15% to 24% of US income levels), largely because of a much lower initial income and a later entry into middle-income status.

Figure 1. **Per Capita GDP in 1950 and 2009 (as % of U.S. per cap GDP)**



Source: Penn World Table Version 7.0.

Against the previous record, the sample of European and Asian countries under consideration drastically reduced their relative income gap with the United States, chopping an average of 42 percentage points between 1950 and 2009. This performance reaches unparalleled proportions in the case of Korea (KOR) and Chinese Taipei (TWN), both with an initial income lower than Brazil, yet reducing the gap with the income of the United States by 49 and 68 percentage points, respectively.

II. ESCAPING FROM THE MIDDLE-INCOME TRAP: PRODUCTIVITY AND STRUCTURAL TRANSFORMATION

Our introduction has placed Latin America and the Asian NICs at opposite extremes of the experience with the middle-income trap. While Asian NICs achieved convergence with high-income economies rapidly, the main Latin American economies have remained at middle-income levels for decades. In general, productivity considerations top the list of causal factors advanced to explain the failure of the region to achieve a sustained growth in per capita income. Daude and Fernandez-Arias (2010), for instance, trace the per capita income gap of Latin America on average to one in Total Factor Productivity (TFP) growth, while differences in factor accumulation are shown to be less important. This finding has been seconded by Solimano and Soto (2005), who show that productivity trends in the region followed a secular decline during the second half of the 20th century, reaching an all-time low with the debt crisis in the 1980s. During the years following this episode, productivity growth either collapsed or even turned negative. In contrast, factor accumulation provided a relatively stable contribution to growth, both during expansion and recession years.

More recent studies have drawn attention to additional causal factors. Daude (2010) considers an extended development-accounting framework that includes distortions in physical capital, the level of human capital, and participation rates in the labour market. TFP performance among Latin American countries is far from homogeneous, with countries like Chile and Costa Rica having a level of TFP around 75% of that of the United States, whereas in Honduras and Peru the proportion is between 30-40%. Furthermore, other factors play an important role: for example, human capital is found to explain 24% of the income gap between Latin America and the United States.[1]

The critical role played by human capital has also been suggested by studies that take a look at differences in labour productivity. Cole *et al.* (2004), for instance, find that the labour productivity gap between Latin America and the United States was not reduced during the second half of the 20th century (moving from 33% in 1950 to 32% in 1998). In contrast, Asian labour productivity jumped from 15% to 54% of the US level over the same period. Along the same lines, Restuccia (2008) finds that neither working hours nor employment rates can account for the per capita GDP differences between Latin America and the United States. The typical day shift in the region tends to be longer than in most advanced economies. As a consequence

1. Physical capital distortion and labour force participation rates account for 11% and 8%, respectively. In all, TFP explains around 56% of the gap, lower than what was found in previous analyses. A later study (Daude, 2011) confirms that production factors tend to explain an even larger fraction of the development gap when one accounts for the differences in the quality of education.

employment rates fall behind those of advanced economies, but not enough to explain the bulk of the difference in income per capita.[2] This contrasts with the prevailing evidence in Asian countries, where labour productivity growth improved tremendously during the second half of the century.

A more subtle aspect of labour productivity is the existence of large differences in productivity across industries. The theoretical grounds of these sector gaps go back to the work of Kuznets (1955), who sees them as a catalyst for structural transformation, as they foster the reallocation of production factors towards the most productive sectors. According to Kuznets, this process takes place in a sequential manner: an initial stage shifts resources from agriculture into industry and services, while in the second stage both agriculture and industry channel resources to services (*i.e.* tertiarisation). Along the same lines, Lewisian models point to the existence of differences in labour productivity between sectors as the main driving force behind this reallocation process. Labour rearrangement continues until the disappearance of the productivity differential between the traditional and modern sector. In this process, two other developments take place: first, the shift to more productive activities leads to welfare gains. Second, manufacturing starts to play a bigger role in the economy particularly in the tradeables sector.

The previous rationale is able to characterise the developmental stage of a country along three dimensions: in general, advanced economies are characterised by a roughly similar level of productivity across sectors, higher per capita income levels, and a diversified and sophisticated export profile. The opposite applies to developing economies, which face substantial labour productivity differentials between industries, low per capita income levels, and an export base concentrated in goods with little value added.

How well does the previous framework match the actual experience of developing economies? McMillan and Rodrik (2011) examine the evolution of productivity differentials between sectors, and the circumstances that hindered the movement of labour between sectors from contributing to higher per capita income. One of the main findings is that countries well endowed with natural resources are more likely to face growth-reducing effects from labour relocation, given that they usually operate within an enclave economy: while these capital-intensive sectors reach high levels of labour productivity, they are unable to absorb excess labour coming from the traditional sector.

We use the same dataset[3] as McMillan and Rodrik (2011) to compare Latin America and Asia.[4] Figure A1 (see Annex) shows the evolution of labour productivity in constant prices for the three tradeable sectors included in the database (agriculture, mining, manufacturing), against their associated employment shares. The plots show that the two Asian NICs depart from the

2. According to these studies, the employment-to-population ratio in Latin America is about 70% of the one in Europe and the US.

3. Timmer and de Vries (2009), a dataset on sector productivity that covers countries in Asia, Europe, Latin America and the United States.

4. Specifically, we take the seven largest economies in Latin America (Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela), to compare them with the experience of the two largest Asian NICs (South Korea and Chinese Taipei).

theoretical models described above as the productivity gap between traditional (agriculture) and modern (manufacturing) sector persists, and actually increases in more recent years. However, the key aspect for successful structural transformation is the capacity of the modern sector to absorb a relevant share of workers from the traditional sector. In Korea and Chinese Taipei, labour shares in manufacturing increased dramatically until the 1990s, alongside a continuous decrease in agriculture. Subsequently, labour shares in both agriculture and manufacturing decreased while labour share in services increased, in line with Kuznets' sequence of structural transformation.

Our sample of Latin American countries differs in several respects from the experience of the Asian NICs. Latin America is characterised by a manufacturing sector unable to compensate for the decreasing labour share in agriculture. In Brazil, Colombia, Peru and Venezuela the share in manufacturing remained stable around 10% during most of the period under study. Argentina and Chile show a staggering decline in manufacturing shares after 1973, much like in agriculture. Finally, Mexico appears as the case most similar to the Asian experience, insofar as employment in manufacturing showed a timid but sustained increase until the early 1980s, to later hover around levels between 15% and 20%. As in Asia, extractive sectors have the highest average labour productivity,[5] while having a marginal representation in the labour market.

Asian NICs are characterised by a process of structural transformation that is conducive to per capita income gains, as the modern sector simultaneously satisfies two important conditions: productivity is higher than in the traditional sector, and it is sufficiently labour-intensive so as to transmit these productivity gains to a sizeable share of the wage sector. By contrast, the coexistence of these two elements is nowhere to be found in Latin America's tradeable industries, with none of the three sectors surveyed absorbing relevant shares of excess labour. Under these circumstances, structural transformation in Latin America followed a different path than the one suggested by theory: the region leapfrogged the first developmental stage advanced by Kuznets, showing no relevant transfer of labour from agriculture to manufacturing. Instead, displaced workers tend to move into the services sector. This transition increases the degree of informality in the economy and limits potential for per capita income convergence.

In sum, the role of the structure of the economy is key for generating sustained economic development. Almost without exception,[6] the countries that effectively escaped the middle-income trap during the post-war era underwent a deep transformation of their economic structure, away from primary activities and into manufacturing. The limited structural transformation of economies in Latin America can be attributed to an industrial sector that did not absorb a sizeable share of the workers coming from the shrinking agricultural sector. By and

5. Venezuela shows a dramatic reduction in the labour productivity of extractive industries after 1970, but the sector remains with a sizeable productivity advantage over manufacturing and services.

6. This is not to say that all middle-income countries that entered the group of advanced economies did so through industrialisation. The exceptions are mainly from natural resource exporters that had a disproportionate source of natural wealth compared to their population (*i.e.*, small oil exporters in the Gulf), or land-abundant countries whose initial income levels were already very close to those of advanced economies (*e.g.* Australia, New Zealand).

large, institutional features (education, investment in innovation, institutional barriers to entrepreneurial competition, etc.) are at the core of this outcome.[7] In this study we do not aim to review the myriad of institutional and socio-economic hurdles that have affected the course of economic development in Latin America. Instead, we aim to provide a systematic portrait of the type of structural transformation that took place in Latin American countries *vis-à-vis* other developing economies. With these objectives in mind, the remainder of the paper is organised as follows: Section III describes the methodology and analytical approach, the so-called Product Space; Section IV outlines the data used in our empirical analysis. Section V covers the definition and description of the Product Space variables, some of them incorporated from previous works (*e.g*. the degree of export diversification and upgrading, capabilities), others being an original contribution of this study (*i.e.* connectivity of the export profile, step size of transitions to other industries, degree of export "clustering"). An additional contribution to the Product Space literature is our focus on individual country experiences, by analysing country trajectories and identifying different patterns of export structure development. Sections VI and VII investigate the role played by economic policy in shaping country experiences with the Product Space, considering the case studies of Korea, Brazil and Mexico. Finally, Section VIII briefly considers China's product space profile.

7. For a comparative study on the determinants of labour productivity, see Choudhry (2009).

III. THE PRODUCT SPACE: A TOOL FOR EVALUATING STRUCTURAL TRANSFORMATION

Our analysis relies on a novel strand of the trade literature, the Product Space, developed through contributions by Hausmann and Klinger (2006), Hausmann *et al.* (2007), and Hidalgo *et al.* (2007). In essence, the Product Space is an analytical framework that allows for categorising relationships between export industries, as well as evaluating the export profile of a country at a given time. Within this framework, two considerations are critical: the notion of relatedness, or proximity,[8] between industries; and the quality or value embedded in a country's exports.

Our basic variables on proximity and value are directly taken from earlier contributions to the Product Space literature. Proximity is defined as the minimum of the pairwise conditional probabilities that a country exports one good with revealed comparative advantage (RCA) given that it exports the other with RCA (Hidalgo *et al.* (2007). Thus, good A will be close to good B, if the countries that are competitive exporting A tend to be so in B as well.

$$\varphi_{ij} = min\{P(RCA_i > 1 \mid RCA_j > 1), P(RCA_j > 1 \mid RCA_i > 1)\}$$

RCA is calculated following Balassa (1977) as the ratio of the export share of product i in country c, to the world's export share of product i. Hence, a country will be competitive in exporting good i if its RCA with respect to product i is greater than 1, *i.e.*, if the share of good i in a country's export basket is greater than the share of the same good globally.

$$RCA_{ci} = \frac{x_{ci} / \sum_i x_{ci}}{\sum_c x_{ci} / \sum_c \sum_i x_{ci}}$$

With regards to the concept of export value, we adopt the PRODY variable originally suggested in Hausmann *et al.* (2007). For each product, the index is composed of a weighted average of the per capita GDP of the countries that export it, with the weights being the RCA associated with that country and good. As stated by the authors, the PRODY variable "represents the income level associated with that product". A higher PRODY corresponds to goods that are exported by high-income countries. Therefore, the variable is an estimate of the level of sophistication, or value-added embedded in the good.[9] Algebraically, the expression is given by

8. In the Product Space, two industries are close if they use the same type of skills or resources.

9. PRODY is only a proxy for the capabilities embedded in a product. In certain cases, high-income economies are exporters of scarce natural resources such as oil resulting in high PRODY values not necessarily representative of the capabilities required for production. In a later section we use a more

$$Prody_i = \sum_c [RCA_{ci} \cdot GDP_c]$$

$$x_{ci} = exports\ i\ in\ country\ c$$

$$X_c = Total\ value\ of\ exports\ for\ country\ C$$

We compute PRODY as an average of the annual values for the years 2000-05. This interval covers the period with the most comprehensive reporting of trade series across countries, covering around 770 different industries, out of a possible maximum number of 854.[10]

Hausmann *et al.* (2007) also use PRODY to construct a variable called EXPY, which is the weighted average of the PRODY of the goods exported by a country, with the weights being their relative export shares. Accordingly, EXPY is an estimate of the degree of sophistication of a country's export basket, and was shown to be a strong predictor of per capita GDP growth (Hausmann *et al.*, 2007). We remark that EXPY can either increase through additional new sectors of high PRODY, or simply by increasing the export share of current high PRODY sectors (*i.e.* extensive vs. intensive upgrading[11]).

$$Expy_c = \sum_i \left[\frac{x_{ci}}{X_c}\right] Prody_i$$

Admittedly, there are some limitations resulting from the data available for this type of analysis. First, we note that trade data is only a proxy for the productive structure of an economy, and in some cases can substantially deviate from actual sectoral contributions to GDP. Differences in market structure across countries make export performance a better or worse estimate of productive capacities depending on trade openness, domestic market size, and other related factors. In particular, recent studies have drawn attention to the potential importance of services exports in fostering economic growth (Mishra *et al.*, 2011). Nevertheless, services trade data has neither the level of disaggregation nor the time coverage to allow for the type of analysis undertaken in the current study.[12] Furthermore, trade data may not reflect actual value added of final exports due to geographically dispersed assembly industries (*e.g.* maquila) which could overstate the actual productive capacities of a country.

direct measure of capabilities proposed by Hidalgo and Hausmann (2009) which corrects for this discrepancy.

10. Sizeable breaks are found early in the series around 1974 and to a lesser extent 1984 which show significant increases in the reporting of trade statistics, both in terms of new industries being reported, as well as in terms of global trade value. Both years correspond to revisions of the SITC classification (version 2 in 1974, and version 3 in 1984).

11. For an analysis of extensive vs. intensive margins in international trade see Hummels and Klenow (2005).

12. Section VI looks at some of the complementarities between services and goods exports particularly in transports, logistics and ICT services.

IV. THE DATA

We built our sample through a combination of two datasets that offer a highly disaggregated (4-digit SITC) breakdown of trade data across industries. The bulk of the sample, covering the years 1963-2000, relies on the World Trade Flows database (Feenstra *et al.*, 2005). For the years after 2000, we make use of the United Nations Commodity Trade Statistics Database (COMTRADE). In both cases, we take the export values measured in current US dollars. Series on annual real GDP, measured in PPP terms, are taken from the Penn World Tables version 7.[13]

13. We employ a population threshold resulting in a sample of 135 countries.

V. NAVIGATING THROUGH THE PRODUCT SPACE

V.1. Diversification and upgrading

First we consider the relation between export diversification[14] and export upgrading. By and large, all countries substantially increased the number of industries in which they have a revealed comparative advantage. This is in line with the dramatic expansion of international trade, the improved reporting of trade statistics, and the appearance of new product categories during this period.

Unlike diversification, export upgrading measured by EXPY is far less widespread. Figure A2 (see Annex) shows scatter plots of EXPY versus diversification for all countries and years highlighting the trajectories of individual countries in Latin America and Asia. Starting with Asia, the data suggests three country patterns of diversification and upgrading. The first group is comprised of Asian giants (China, India), and also smaller countries with sizeable internal markets (Indonesia and Thailand). These cases are characterised by a very gradual upgrading of exports with a simultaneous increase in diversification. With the exception of China, these countries start from very low levels of diversification. However, large internal markets facilitate a notable degree of diversification over time, which in the case of India and China results in exports in over 250 SITC categories by 2009.

A different pattern is illustrated in the second graph, which includes three Asian NICs (South Korea, Chinese Taipei and Singapore), Malaysia and the Philippines. First, South Korea and Chinese Taipei show an early and at times substantial increase in diversification, without any relevant upgrading. At a later time, the pattern shifts, characterised by large increases in EXPY with either few additions of new sectors to the export basket, or actual reductions. In other words, upgrading seems to be achieved through a concentration on higher quality industries, which in turn leads to abandoning those that contribute less to EXPY.[15] The resulting path delimits two different export developments over time. The other three countries mimic the same pattern, albeit with much lower gains in diversification during the first stage. The third graph for Asia includes some of the least economically developed countries in the region (Bangladesh, Laos and Nepal). A defining trait of this group is the extremely low initial number of sectors, which conditions the subsequent course in diversification and upgrading. Neither of these variables reaches the levels found for the previous subgroups.

14. Export diversification is computed as the number of industries where the country has RCA>1.

15. A later section will detail the evolution of Korea in the Product Space.

Replicating this analysis for Latin America, we observe similar patterns. First, Brazil and Colombia follow a path relatively similar to that of the large Asian markets, linking diversification with gradual increases in the value of their exports. This is particularly the case in Brazil, which encompasses the same characteristics as India and China (*i.e.* large internal markets and low initial levels of export diversification and value). Secondly, Mexico follows a sequence more in line with the experience of the Asian NICs, with a first stage characterised by diversification without upgrading, and vice versa afterwards. A more extreme example of this pattern is found in Venezuela. The initial stage resembles that of Brazil and Colombia, while in the second stage there is a reduction in diversification with a concomitant increase in EXPY. However, this increase in EXPY differs from the one seen in Mexico, which can be attributed to the manufacturing sector. On the contrary, it probably reveals a case of Dutch disease, where the growing relevance of oil in the export basket has limited the competitiveness of other tradeables, manufacturing in particular (Calderón Vázquez, 2010).

It is more difficult to accommodate the rest of Latin American countries in the previous categories. Argentina, Chile and Peru present some puzzling results. In these countries, upgrading seems to be disassociated from gains in diversification, leading to a relatively horizontal line in the scatter plot. Argentina seems to undertake the "wrong" kind of diversification in which the addition of new industries actually results in lower EXPY values. A slightly different pattern is observed in Central America. These countries have seen a moderate increase in both diversification and EXPY over time, but nowhere near the levels encountered in Brazil and Mexico.

V.2. Connectivity

Differences in the composition of countries' exports and their relative position on the Product Space map can help account for the pattern observed above where export diversification did little to enhance the value of exports. For instance, countries whose initial export base is located near the core of the Product Space (C. A. Hidalgo *et al.*, 2007), or otherwise closer to high-PRODY products, are in a better position to raise the value of their exports. Alternatively, a country with an export profile concentrated in a remote area of the Product Space and/or far from high value industries suggests a set of capabilities that are either too specific or not in line with the requirements of high PRODY sectors.

Consequently, the prospects for export upgrading depend on the relative location of a country's export profile in the Product Space, and in particular on its proximity to high value products. Therefore, we devise a variable, potential EXPY, which aims to evaluate the notion of connectivity to high value products in the export profile. This new index is a weighted average of the PRODY of all the products that are not part of the export profile of a country at a given time, with the weights being the minimum distance to a product that is exported by a country with RCA>1. Hence, the connectivity of a country in the Product Space will roughly depend on three broad determinants. First, the degree of diversification: in general, a more diversified export basket will be closer to a larger number of non-exported industries, raising potential EXPY. Yet, this relationship changes its sign overtime, simply because extremely diversified export baskets will leave few non-export industries to be connected to. In other words, there is an inverted-U shape relation between diversification and potential EXPY. In addition, the latter will be determined by the location of the Product Space that the country's export profile occupies, with export profiles placed in remote areas having lower potential EXPY. Finally, this variable will be affected by the value of the products that remain outside of a country's export basket, with higher-PRODY sectors raising its value.

Figure A3 (see Annex) shows that China and India have among the highest levels of potential EXPY in the sample, with China fully entering the range of diversification with diminishing returns to potential EXPY.[16] Middle-size economies (Korea, Chinese Taipei, Thailand and Indonesia) fare well in terms of potential EXPY, reaching values close to the Asian giants.[17] Finally, some of the less developed countries in the region are also to reach a relatively high value for potential EXPY, as they are still at levels of diversification that relate positively with connectivity. The Philippines and Pakistan fall within this range, with potential EXPYs around PPP$ 6 100 in 2009.

The high starting number of export sectors for China identified in the previous sub-section contributes towards a higher initial level of potential EXPY (PPP$ 6 200 as early as 1963). At a relatively short distance, Chinese Taipei and Korea show initial potential EXPYs around PPP$ 5 500. Interestingly enough, the two Asian NICs improved rapidly in terms of connectivity, at times surpassing China, and approaching their maxima around 1976. In short, this evolution is related to the rapid early increase in diversification that both countries experienced until that time. As we saw in the previous subsection, this did little to improve the quality of the export profile, with EXPY values remaining essentially unchanged during that period. However, it went a long way in raising the potential EXPY of the export profile of these countries, which would be subsequently exploited in the second stage of their structural transformation.

In Latin America, we find the same positive association between diversification and connectivity, with Brazil and Mexico reaching the highest levels of potential EXPY in the region (PPP$ 6 439 and PPP$ 6 268 in 2009). Argentina and Colombia come next, with potential EXPYs in the low 6 000s. And just as in the previous sub-section, some of the Andean countries show low values: Chile and Peru, reach a potential EXPY of PPP$ 5 350 and PPP$ 5 715 by 2009. This is roughly the level of potential EXPY found in Bangladesh, Laos and Nepal, and actually lower than smaller countries in Central America (*e.g.* Costa Rica, Dominican Republic, El Salvador, Guatemala and Honduras).

V.3. Transitions

So far we have only considered annual snapshots of the countries' export profiles, while in this section we focus on the characteristics of the new products that countries begin to export. On average, transitions into new products are more likely the closer the products are to currently exported goods (see also Annex Figures A7 to A10, which show the Product Space maps of Korea, Mexico, Brazil and China). Figure 2 shows a plot of the probability that a country increases the RCA of a product from below one at time t to above one at time t+1 against the proximity of the product to the country's export profile at time t. We make the assumption that,

16. In 2009, China reached a potential EXPY of PPP$ 6 650, which falls slightly below other Asian countries at much lower levels of diversification (*e.g.* Indonesia, with a potential EXPY of PPP$ 7 000).

17. Korea shows the lowest connectivity within this group, with a potential EXPY of PPP$ 6 200 in 2009.

when making a transition into a new industry, a country uses the skills and resources that are employed in the closest export industry (Hidalgo *et al.*, 2007). Hence we take the minimum distance (maximum proximity φ_{ij}) from the actual export base. There is an almost perfect monotonic relation between the proximity of goods and the probability of entering into a new industry.

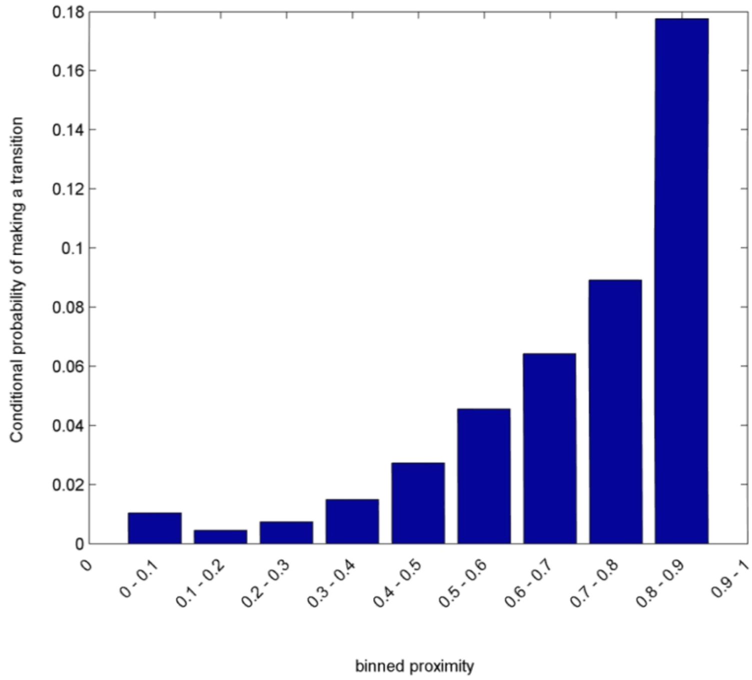
This highlights the fact that proximity considerations are important and seem to have some predictive power over which export industries countries enter into.[18] Proximity provides a measure of how likely a transition into a new industry is on average. Hence, the measure can be used to characterise whether countries made transitions that were more likely or less likely to occur than on average. For example, it is conceivable that countries that underwent a substantial transformation of their export profile have to transition into relatively more distant industries and undertake steps that are not very likely to occur. To evaluate this, we consider the average proximity of the transitions that a country undergoes:

$$Average\ proximity\ of\ transitions_{c,t} = \frac{1}{N} \sum_{new\ products\ j} \max_{current\ products\ i} (\varphi_{ij})$$

High values of this measure indicate that a country transitioned into relatively proximate industries and hence underwent transitions that were relatively likely to occur on average (for example, because the skills and competencies that were necessary in the new industry were similar to the ones that were already present in the country). Equivalently, low values of the measure correspond to transitions into relatively distant industries and hence transitions that are relatively less likely to occur on average (for example, because the capabilities in the new industry were more different from the previous export profile).

18. Note that this is mainly an in-sample prediction, *i.e.* using the export profiles from 2000-2005 (that are arguably a result of all the transitions in the past) to compute proximities between products and then using the same information to compute the proximity of transitions. However, the same picture emerges (data not shown) for out-of-sample prediction, *i.e.* using data from 1965-69 (1975-79 / 1985-89 / 1995-99) to predict transitions from 1970-1979 (1980-1989 / 1990-1999 / 2000-2009).

Figure 2. **Conditional probability of transition versus proximity**



Source: Authors' calculations.

Figure A4 (see Annex) shows the 5-year mean of the average proximity of transitions versus the diversification of a country's export profile.[19] A first general conclusion that can be drawn from the analysis is that less diversified countries are "farther" from all products and on average have to make less probable transitions to change their export structure. Similarly, more diversified countries are relatively "close" to everything else and make on average higher proximity transitions. Due to the relation between the average proximity of transitions and diversification, one can only meaningfully compare countries that have the same level of diversification, *i.e.* one needs to consider the average proximity conditional on the level of diversification.

The first observation is that countries like Mexico, Korea and Chinese Taipei (which were identified in the previous sections as having substantially transformed their export structure towards more sophisticated, higher value products) did not undergo improbable transitions given their level of diversification. If anything, in the last decades the average proximity of transitions in these countries was higher than the one of countries with a similar level of diversification. In contrast, countries that substantially diversified their export profiles, such as China, India and Brazil, tended to transition into relatively distant products.

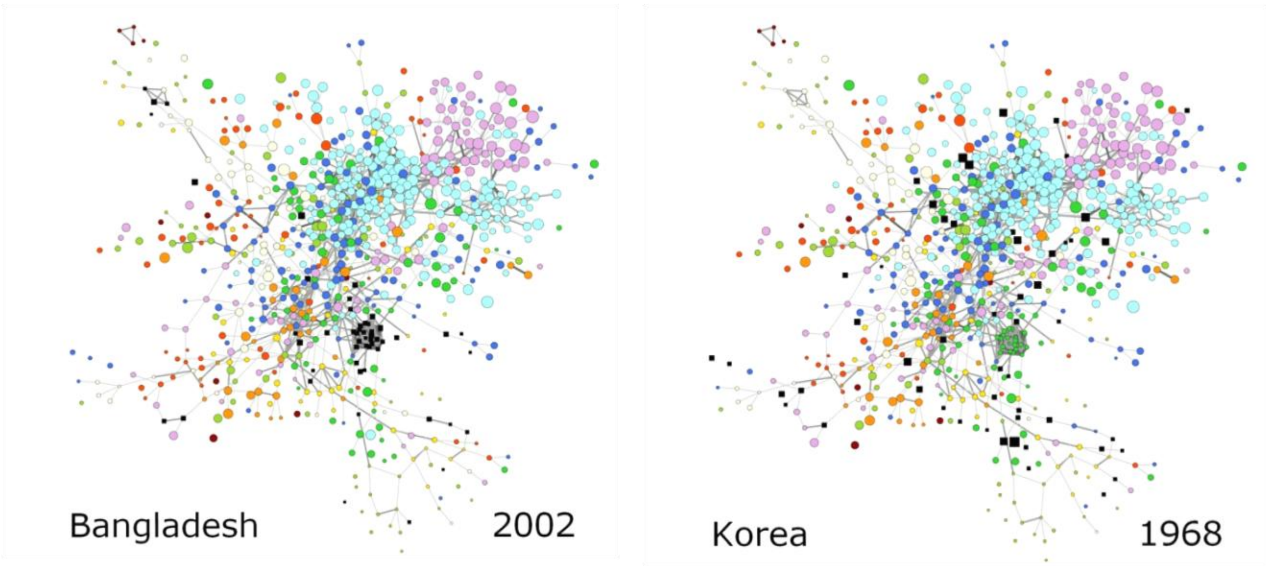
19. The mean across the following time intervals was taken: 1964-68, 1969-73, 1975-79, 1980-83, 1985-89, 1990-94, 1995-99, 2000-04 & 2005-2009. To avoid data issues resulting from SITC revisions, transitions in the years 1974 and 1984 were not considered.

A different pattern is observed for a group of countries with a relatively low diversification in Asia, such as Bangladesh, Laos and Nepal, and Central America and the Caribbean, such as Costa Rica, Guatemala, Honduras, El Salvador and the Dominican Republic. Instead of relatively distant transitions that are usually seen at these levels of diversification, these countries transition into relatively proximate products. By undergoing these relatively likely transitions, these countries have seen a substantial increase in diversification over time given their low starting point.

V.4. Clustering coefficient

To understand what differentiates the last group of countries from the rest, one needs to consider the structure of their exports in the Product Space. Let us take a look at the export profiles of Bangladesh in 2002 and of Korea in 1968. Both countries have a similar level of diversification (54 vs. 53 products), EXPY (PPP$ 6 728 vs. PPP$ 7 501) and potential EXPY (PPP$ 5 168 vs. PPP$ 5 425). However, considering a network representation of their export profiles (Figure 3) it becomes apparent that the two countries occupy very different parts of the Product Space. More than half of Bangladesh's exports are concentrated in a small region, which corresponds to export industries involved in the production of textiles and apparel. By contrast, Korea's export profile in 1968 is much more dispersed and its export products are positioned in widespread regions of the Product Space. Given that proximity considerations play a crucial role for changes in the export structure of countries over time, the spatial position that an export profile of a country occupies in the Product Space influences the ease and the probability by which transitions into new sectors can be made. For example, in 1968 Korea was already relatively well positioned in the Product Space. Even though its export structure underwent a tremendous transformation, it was able to do so by gradually transitioning into relatively proximate industries.

Figure 3. **Product Space representation of Bangladesh in 2002 and Korea in 1968**



Source: Authors' calculations.

To capture the notion of the structure of an export profile quantitatively, we propose the use of the average local clustering coefficient of the network representation of a country's exports. The clustering coefficient is commonly used in network analysis, and corresponds to the idea that many socio-economic networks (*e.g.* friends, location of firms, etc.) have a natural tendency to form a high density of connections around certain vertices. In an unweighted network (such as a network of friends, in which vertices correspond to individuals and links between two vertices indicate friendship) the local clustering coefficient of a vertex C_i^u is simply the number of triangles in which the vertex participates, divided by the maximum possible number of triangles in which it could participate in theory:

$$C_i^u = \frac{1}{k_i(k_i-1)/2}\sum_{j,k} a_{ij}a_{ik}a_{jk}$$

$$a_{ij} = edge\ indicator\ for\ vertex\ i\ and\ j\ \in \{0,1\}$$
$$k_i = total\ number\ of\ edges\ of\ vertex\ i$$

Since the Product Space is a weighted network (with the weights corresponding to the proximity between products), a weighted variant of the clustering coefficient has to be used in the current study. Several measures of clustering coefficients in weighted networks have been suggested in the literature (Opsahl and Panzarasa, 2009; Saramäki *et al.*, 2007). Here we employ the measure proposed by (Onnela *et al.*, 2005), in which the geometric mean of the weights of triplets replaces the binary notion of triangles:

$$C_i^w = \frac{1}{k_i(k_i-1)/2}\sum_{j,k} (\tilde{w}_{ij}\tilde{w}_{ik}\tilde{w}_{jk})^{1/3}$$

$$w_{ij} = weight\ of\ edge\ between\ vertex\ i\ and\ j\ \in [0,1]$$
$$\tilde{w}_{ij} = w_{ij}/\max(w_{ij})$$

All weights were scaled by the maximum proximity between any two vertices in the Product Space (which is equal to 0.86). To compute the measure itself, based on the Product Space we consider a reduced network that is made up only of the products that a country currently exports (with an RCA > 1) and all the links between them.[20] $C_{i,w}$ is bounded between zero and one, with higher values corresponding to greater clustering around a single product. Finally, to consider the average local clustering coefficient of the entire export profile, we take the simple average across all exported products:

$$\bar{C}_w = \frac{1}{n}\sum_i C_{i,w}$$

20. Products that are currently not exported and their links are not considered. Note that the use of the clustering coefficient in the current study differs somewhat from others, where comparisons between entirely different networks are made (*e.g.* comparing the clustering coefficient of a network of friends in school A with the clustering coefficient of a network of friends in school B). In our case, the same proximity matrix and hence network structure is used in all computations, but only the vertices (and the links between them) that correspond to the products that a country exports are considered.

The average clustering coefficient provides a network-motivated measure of the similarity and hence specialisation of an export profile. It gives some indication of how diversified a country's exports really are, which is not apparent by looking solely at the number of products that are effectively exported. For instance, going back to our example from before, Bangladesh has a value of 0.77 in 2002 and Korea 0.36 in 1968, which accords well with our visual analysis from above. Note, however, that in general a high clustering coefficient is not necessarily a reflection of unfavourable future opportunities since a country could also be specialised in high value industries and as a consequence have other high value sectors in close proximity.

Figure A5 (see Annex) shows the average clustering coefficient of all countries in the sample plotted against diversification. There is some dependence between the level of diversification and the average clustering coefficient. Very low clustering coefficients are only observed at low levels of diversification. For higher levels of diversification products are necessarily closer to each other. If a country exported all products under investigation it would have a clustering coefficient of 0.36, which is substantially below the clustering coefficient in our sample.

In Asia and Latin America, countries like China, India and Brazil, which strongly increased the number of exported products and have large internal markets, display a relatively low clustering coefficient and hence degree of specialisation. Their export structure is quite spread out with relatively little clustering of export industries in specific parts of the Product Space. In contrast, countries like Korea, Chinese Taipei and Mexico, which transformed their export structure towards higher value goods, have recently seen an increase in the clustering measure. In Korea, for example, this was reflected in particular by increases in the production of machinery and transportation equipment and the reduction of light manufactured goods in its export profile. Chile, Peru and Venezuela, with a high share of exports in commodity and primary resource related industries, also show high levels in the clustering measure.

Particularly noteworthy in this context are the very high clustering coefficients of Cambodia, Bangladesh, Laos and Pakistan in Asia, and Costa Rica, El Salvador, Guatemala, Honduras and the Dominican Republic in Latin America. Their exported products tend to be less diffuse and are relatively close to each other, somewhat overstating the countries' diversification. All the aforementioned countries export a range of products related to textile and apparel industries and some, like Bangladesh in 2002, have more than half of their effectively exported products in these sectors. Furthermore, in the previous analysis all these countries tended to transition into relatively proximate products, which is in line with the dense clustering of the export profiles of these countries. Presumably, the infrastructure and general capabilities that are required to be competitive in the world market in one garment product are similar to the ones for other garments, making transitions between industries in the garment sector relatively likely.

V.5. Capabilities

Using the data on exports of countries, it is also possible to directly obtain an estimate for the capabilities present in a country. Hidalgo and Hausmann (2009) proposed a network inspired measure of capabilities and showed that past values of this measure were predictive of future GDP growth. In this context, one should think of capabilities in abstract terms and the particulars are not further specified, but could include concepts as diverse as the rule of law, social norms, but also stable electricity supply, access to ports, etc. As a first approximation, the more products a given country exports, the more abundant capabilities are in that country. However, as we have seen above (Korea in 1968 vs. Bangladesh in 2002) it is insufficient to consider diversification only since it also matters which products a country exports. As a second approximation, products that are exported by relatively few countries, *i.e.* are not very ubiquitous, seem to require many or very particular capabilities.[21] Using the "method of reflections" (Hidalgo and Hausmann, 2009) these two sources of information can be combined using a bipartite network representation of countries and products, in which countries and products are connected if a country has an RCA greater than one in that product category.

$$K_{c,0} = \sum_p M_{cp} \qquad K_{c,N} = \frac{1}{K_{c,0}} \sum_p M_{cp} K_{p,N-1}$$

$$K_{p,0} = \sum_c M_{cp} \qquad K_{p,N} = \frac{1}{K_{p,0}} \sum_c M_{cp} K_{c,N-1}$$

Iterating the above equations gradually extracts more and more information about product sophistication, on the product side, and capabilities, on the country side, and this procedure was iterated until convergence (N = 20). The actual value of the measure is sensitive to the overall connectivity in the network, which changes over time, and hence only comparisons of the normalised measure are meaningful. To be able to capture changes over time, we consider a reduced sample of 68 countries for which data for the entire time period from 1963-2009 is available. The normalised capability measure is computed in the following way:

$$cap_{c,t} = \frac{K_{c,20,t} - \mu_{20,t}}{SD_{20,t}}$$

$$cap_{c,t} = normalised\ capability\ measure\ for\ country\ c, year\ t$$

$$\mu_{20,t} = mean\ of\ K_{c,20,t}\ across\ countries$$

$$SD_{20,t} = Standard\ Deviation\ of\ K_{c,20,t}\ across\ countries$$

A value of zero in this measure corresponds to a country having the same capabilities as the world average; a value of one corresponds to a country that is one standard deviation above the world average and so forth. When looking at changes over time in this measure, one can determine whether a country has improved its position relative to other countries, while of course it is likely that on average all countries have improved their "capabilities" over time.

Figure A6 (see Annex) shows the normalised capability measure versus the number of products that are effectively exported. Considering the large countries in Asia, a first noteworthy observation is that China already starts with a relatively high level of capabilities in the 1960s. While initially its substantial diversification did not lead to gains in its relative standing, since

21. Acemoglu *et al.* (2010) also address the ubiquity of a product through the related concept of standardisation.

the early 1990s China has progressively improved in the capability measure faster than the world average. Thailand and Indonesia, which have also substantially increased their diversification since the 1960s, have seen a gradual concomitant increase in capabilities. While India had a relatively high starting value, it has gained relatively less from its increase in diversification. With regards to the countries that have substantially transformed their export structure, the high starting values in the capability measure for Korea and Singapore stand out. Korea did not improve its standing until 1995, but since then has reached values substantially above the world average. Singapore displays a more gradual trajectory and in 2008 reached a value of almost 2 standard deviations above world average.

In general, Latin American countries have capabilities below world average throughout the sample period with the exception of Central America at the beginning of the 1960s, Brazil from 1980 onwards and Mexico at all times. Mexico has seen small increments in its relative performance and now has the highest level of the measure in Latin America with almost one standard deviation above average, although this is still lower than the value of Korea, for example. Brazil has a low starting value of one standard deviation below the average and has seen a gradual increase in the capability measure concomitant with its increase in diversification. Strikingly, in Argentina, Chile, Colombia and Peru the increases in diversification have not translated into improvements in the capability measure relative to other countries. The Central American countries under investigation, Costa Rica, Guatemala and El Salvador, all started off with relative high values in the 1960s. Thereafter, they substantially lost ground and it is only since the late 1980s that, simultaneously with increases in diversification, these countries have somewhat improved relative to the others.

VI. PRODUCT SPACE AND PRODUCTIVE DEVELOPMENT POLICIES

Aside from differences in institutions and relative factor endowments, the divergent trajectories that countries' export profiles followed in the Product Space suggest the instrumental role of Productive Development Policies (PDPs). To account for these sources of heterogeneity, the following section reviews the PDPs enacted by Korea, one of the most successful examples of structural transformation. We compare and contrast the Korean case with the experiences of Brazil and Mexico.[22] These three countries were broadly successful in creating revealed comparative advantages in the sectors targeted by their PDPs. However, there were notable differences in the extent to which these trade opportunities were harnessed towards income convergence. This divergence in outcomes is related to differences in market structure, policy consistency, mechanisms utilised, and coherence with other general framework conditions necessary for trade-led growth and productive upgrading. Finally, we briefly examine China's position in the Product Space, in light of its recent transition into upper middle-income country status.

VI.1. Korea

As shown in the previous section (see also Annex Figure A2), Korea's export structure has followed the trajectory of what we called a 'two-stage reformer', characterised by swift diversification followed by a sharp increase in EXPY. This pattern is not surprising upon examination of the PDPs that Korea put in place beginning in the 1960s, and the mechanisms Korea employed for trade-led growth and structural transformation. Korea's five-year Economic Development plans were inspired by the Japanese model of productive development, and began in 1962 with a strategy towards import substitution industrialisation (ISI). PDP was designed to co-ordinate the learning-by-doing process of firms. This was accomplished by putting in place the appropriate incentives for addressing 'self-discovery costs' which firms face when expanding into new industries (Hausmann and Rodrik, 2003). These costs include the risk associated with taking on new product lines, after which the benefits are non-excludable and can then be duplicated by other firms. This approach employed measures such as tariff protection, tax exemptions, and favourable access to foreign exchange and subsidised credit for domestic businesses, in order to shield domestic firms from international competition while productive capacities developed. Beginning in 1967, the focus was shifted to export-led growth, with strong financial incentives supporting export performance. Productive development began with the

22. Mexico and Brazil were chosen as illustrative cases in Latin America due to the relative prominence of their productive development programs. However, we recognise that their experiences are probably not representative of other countries in the region (*e.g.* Chile).

expansion of production in light manufacturing (wigs, garments, textiles) followed by a big push into heavy industries and chemicals in the 1970s, movement towards ship building, electronics and machinery in the early 1980s, and a consistent push towards technology-intensive products of increasing sophistication, such as Information and Communication Technologies (ICT), bio- and nanotechnology, in the following decades (ECLAC, 2009). The choice of target sectors and sequencing of productive development was a function of both availability of factors of production as well as the forward and backward linkages associated with target industries (Baik *et al.*, 2011).

Capacity for structural change was augmented by the large firm-dominated market structure. Entry into new industries was predominantly implemented through state-directed credit to chaebols, large conglomerates which undertook production in the target industries. The chaebols' large size and diversified structure was advantageous in limiting risks in taking on new industrial activities, as well as increasing capacity for achieving economies of scale. This is likely to have reduced the magnitude of self-discovery externalities, as firms with market power were able to internalise them.

Korea's outward-oriented ISI proved effective in protecting infant industries while simultaneously invoking market discipline on domestic firms. Through the coupling of tariff protection and state bank financing contingent on export performance, this strategy rewarded efficient firms facing productivity enhancing competition from international producers; effectively forcing mature industries to prosper independently or fail (such as the Kukuje group in the early 1980s (Fukagawa, 1997)). Substantial tariff barriers and import licensing schemes were used to protect nascent industries from external competition. Nonetheless, this protection was temporary and channelled to new industries over time in line with the evolving strategy for productive development. According to Lall (2003) the effectiveness of this model was bolstered by the strict selectivity and time limitation of government intervention, the centralisation of strategic industrial decisions in competent authorities, and a highly selective use of foreign direct investment (FDI). The policy shifted beginning in the 1990s towards facilitating productive development in skill intensive industries. Korea began to use government subsidised venture capital to SMEs in higher technology industries, invested in technology parks to spur research and development (R&D) activities, and worked to foster the links between firms and universities.

The evolution of the export profile in Korea from 1963 until 2009 (Annex Figure A7) is visible in the dramatic shifts of RCAs across the Product Space map in target industries. At the outset in 1963, Korea had a small number of industries with revealed comparative advantages (RCAs greater than one) in different parts of the Product Space. These were largely agricultural sectors such as fresh fruit and meat products as well as some minor industrial capacities particularly in the areas of iron and steel, small electric motors, silver mining, and glass related industries inherited from the Japanese occupation (Syrquin, 2003). By the early 1970s, the strong diversification across light manufacturing industries was evident in the increase in the number of products with competitive RCAs. This shows up in several areas including textiles, such as woven fabrics, manufactured wood items, bicycles, simple machinery including basic office machinery, sewing machines and calculators as well as some railway related fixtures and fittings. In line with its productive development strategy and the push towards heavier industries, between the 1970s and the 1980s the Korean Product Space map shows a substantial build up in export capacity in the garment cluster, the electronics cluster, vehicles, as well as in the iron and steel related area. This increase in core areas of the Product Space paves the path for developing export potential across a number of related products in machinery and electronics.

The scope of the structural shift becomes evident with the move into new products and diminishing production in industries in which Korea is no longer competitive (Ahn and Mah, 2007). Beginning in the 1990s, the RCAs in the garment cluster begin to disappear, accompanied by a movement out of some areas of electronics, towards new areas of core machinery such as electro thermal appliances, work trucks, tyres, textile machinery and a variety of iron and alloy steel products. The pattern of specialisation in more sophisticated machineries and electronics continued throughout the 2000s. By 2009, Korea had a diversified export structure with RCAs in various areas related to vehicles, iron and steel, electronics, machinery and chemicals. The increasing degree of sophistication was evident with an increasing presence of RCAs in areas such as computers, telephones, optical fibres, photosensitive semi-conductors, civil engineering equipment, cathode rays and other television and broadcasting related electronics (see also increased capability measure in Figure A6 (see Annex). Meanwhile, Korea had effectively lost its export competitiveness in agriculture and light manufacturing areas such as garments, textiles and wood products and mining related industries. This dynamic process of diversification into new industries and leaving behind sectors where the economy loses its competitive edge is clearly reflected in the dynamic and changing patterns of RCAs over time on the Product Space map.

VI.2. Latin America

In Mexico and Brazil, the experience with PDP began a few decades earlier than in Korea, and while it employed ISI, it differed somewhat in its mechanisms as well as its evolution. Initially, Latin American countries used broadly similar strategies for facilitating structural change by protecting infant industries during capabilities accumulation with tariff and non-tariff barriers. ISI began in the 1930s, and intensified throughout the 1950s with higher rates of tariff protection and stricter import licensing regimes. Like Korea, Mexico and Brazil also pursued industrialisation in the core areas of the Product Space such as steel, iron, heavy chemicals, and machinery industries during the 1970s.

While the policies for facilitating structural change were generally similar, there were some notable differences in the mechanisms used to implement PDP, as well as the sequencing of policies. Firm structure was more varied in Latin America. Whereas in Korea productive development was primarily entrusted to large diversified conglomerates, in Latin America government support was spread to a larger number of firms of varying sizes. This decreased the efficiency of productive development and opened the door for increased lobbying activities on the part of firms which faced greater difficulties in attaining economies of scale and internalising the risks associated with moving into new productive areas (Edwards, 1994). Another key difference in Latin America was the lack of clearly defined performance criteria for financial support to firms, resulting in widespread inefficiencies (Adams and Davis, 1994). Without the influence of external competition or measurable performance criteria, Latin American governments were prone to rent-seeking behaviour from domestic firms with limited incentives for productivity growth. Export promotion was put in place in Latin America later in the productive development process at which point macroeconomic imbalances (negative trade balance and current account deficit) were already significant. Latin American governments were also keen to benefit from spillovers from FDI. Foreign firms played a larger role in the Latin American context, particularly in Mexico through its Border Industrialisation/Maquila program. In addition, sequencing in Latin America was less aligned with the underlying factor endowments in the economies. Latin American countries tended to move more quickly toward capital intensive and skill intensive industries, not entirely in line with their latent comparative advantage which shifted more gradually.

In addition to differences in the mechanisms employed, there were also disparities in domestic constraints. Latin American countries faced stronger challenges to the competitiveness of their manufacturing sectors than those in Korea. The relatively elevated cost of labour, combined with the often overvalued exchange rates, had a strong dampening effect on competitiveness (Adams and Davis, 1994). According to Edwards (1994), while productive development policies were successful in building up the industrial sector in Latin America, success came at a very high cost. The drain on Latin American economies became unsustainable as a consequence of uncompetitive exchange rates, distortions in the economy, the volatility of commodity prices, and numerous firms competing for government support and resources.

Korean and Latin American PDPs also varied in terms of policy continuity. Following the debt crisis of the early 1980s, there were dramatic shifts in productive policies towards widespread trade liberalisation, privatisation and deregulation (Khan and Blankenburg, 2009). According to Peres (2011), since the 1990s, policies have focused more on enhancing the productivity and efficiency of existing sectors. Building up productive capacities in new activities appeared sporadically as a policy objective, mainly driven by international trade negotiations aimed at increasing market access and attracting FDI. These policy initiatives included the expansion of Mexico's export platform in NAFTA (automobiles and transport components, electronics, clothing), the promotion of basic assembly activities (*maquiladoras*) in a number of Central American and Caribbean countries (clothing), as well as investments in privatised firms in the services and commodity sectors in South American countries. The new strategy had several limitations such as low value added in the assembly activities, weak linkages to the domestic economy, and the limited generation of endogenous technological capabilities (Peres, 2011). This policy shift was accompanied by a dramatic rupture with previous manufacturing growth. While manufacturing output in the region had grown 6.8% per annum between 1945 and 1980, in the following two decades this figure was reduced to 1.4% in Latin America and the Caribbean (Khan and Blankenburg, 2009). While the region has experienced gains in macroeconomic stabilisation, there has also been an acceleration of the de-industrialisation process (Khan and Blankenburg, 2009) which had important implications for productivity gaps within the economy. As highlighted previously in Figure A1 (see Annex), the labour displaced from the manufacturing sector was generally not absorbed into the high productivity mining sectors, but instead moved into lower productivity services.

In response, there has been resurgence in sectoral policies in Latin America during the last decade. This is best exemplified in Brazil which put in place the Guidelines for an Industrial Technology and Foreign Trade Policy (PITCE) in 2003. These guidelines set out the strategic sectoral alternatives in four knowledge-intensive activities: semi-conductors, software, pharmaceuticals and medicines, and capital goods. This was followed up in 2008 with the Productive Development Policy: Innovate and Invest to Sustain Growth program. This program included fiscal measures and strategic technological programs in sectors including aeronautics, oil, natural gas and petro-chemicals, bio-ethanol, mining, steel, automobiles, capital goods, textiles and garments, civil construction, services, shipbuilding leather, footwear and leather goods, agribusiness, and biodiesel (Ferraz *et al.*, 2009; Government of Brazil, 2008).

Figure A8 (see Annex) shows the evolution of the Product Space profile in Mexico from 1963-2009. The 1963 Product Space map reveals RCAs in products including chemical compounds, lead, mineral metal manufactures, and wood manufactures as well as agricultural products such as fruits, nuts and coffee. By the late 1970s, following the push into heavier industries and the start of the Border Industrialisation program, Mexico showed RCAs greater than one in a diverse spectrum of areas including electronics, machinery, vehicles, chemicals, garments, and iron and steel. Diversification and movement into new areas of the Product Space decreased after the 1980s and Mexico displayed a pattern of increasing specialisation in certain electronics, and vehicle related machinery. Overall, the Mexican Product Space images resemble those of Korea, demonstrating RCAs in a large number of products and an increasing specialisation in core machinery over time, but the country appears to begin to lose its comparative advantage in certain electronics by 2009.

The evolution of Brazil's export profile during this period differs markedly from the experiences of Mexico and Korea. As seen in Figure A9 (see Annex), Brazil begins with a more diffuse pattern of RCAs across the Product Space in 1962 ranging from inorganic chemical products and railway coaches to coffee and edible nuts. By the late 1970s, Brazil had built up more capacities in iron and steel, printing machinery, electrical resistors, tractors, broadcasting devices, and certain chemicals, while maintaining significant RCAs in agricultural products and mining. Throughout the 1980s, the push towards heavier chemicals and industries is evident in the increasing number of products with RCAs greater than one in these areas. Similar to the experience in Mexico, there is a strengthening specialisation and narrowing of the export profile throughout the 2000s. In Brazil this is particularly visible in machinery, mining related activities, vehicles, iron and steel related industries and in oil refining. In contrast to Mexico and Korea, while Brazil managed a gradual diversification into a greater number of products, it did not manage to develop significant comparative advantages in the garment and electronics clusters.[23]

Despite the similarities in export potential across numerous industries and products reflected in the Product Space maps of Brazil, Mexico and Korea, there are significant differences between export potential (as reflected in RCAs>1) and actual export performance. This gap is indicative of the degree to which productive development strategies contributed to export-led growth. Differences in trade openness, as measured by total merchandise trade to the value of GDP, put the relative trade performance in perspective. Between 1960 and 2010, these values increased by 78% in Korea, 44% in Mexico, and 1% in Brazil. Mexican and Brazilian export values[24] exceeded those of Korea until 1973; however, due to rapid growth during this period,

23. While Brazil's garment industry has not been very active in cross-border trade, the sector is growing in importance as a domestic industry.

24. World Bank World Development Indicators 2011.

the value of Korean exports rose to a level 1.5 times greater than those of Mexico by 2010. While the value of total exports increased dramatically in each of the three countries; Korean exports grew substantially faster at an average annual rate of 21.6%, relative to 12.9% and 10.9% in Mexico and Brazil, respectively. This impressive export performance helps explain some of the differences in GDP growth.

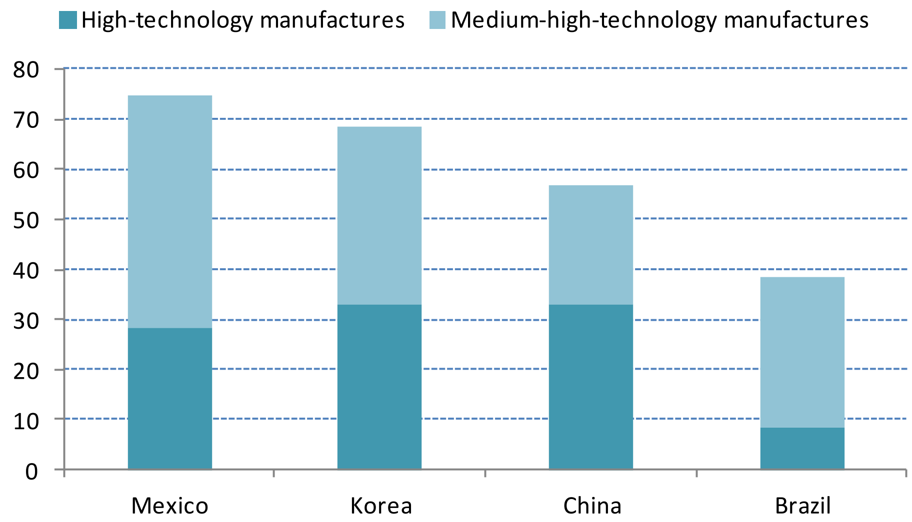
Table 1. **Top exports by value, 1963-2009**

		Brazil	Export share		Mexico	Export Share		Korea	Export Share
1963	1.	Coffee	58.7%	1.	Cotton	29.9%	1.	Raw silk	13.8%
	2.	Cotton	10.1%	2.	Coffee	6.8%	2.	Base metal ores	9.5%
	3.	Wood	3.9%	3.	Silver	5.5%	3.	Live swine	9.3%
	4.	Agave Textile Fibers	3.0%	4.	Beef	5.2%	4.	Materials ofanimal origin	8.9%
	5.	Cocoa beans	2.9%	5.	Lead	3.5%	5.	Cotton gauze	8.8%
1973	1.	Coffee	24.5%	1.	Silver	8.12%	1.	Clothing accessories	22.0%
	2.	Oil Cake	9.3%	2.	Cotton	7.78%	2.	Light manufactured goods	5.8%
	3.	Soybeans	8.9%	3.	Coffee	7.45%	3.	Iron/steel	5.6%
	4.	Sugar	8.5%	4.	Tomatoes	6.0%	4.	Woven fabrics of silk	5.3%
	5.	Cotton	4.5%	5.	Sugar	4.9%	5.	Raw silk	4.5%
1983	1.	Coffee	14.2%	1.	Parts for sound recording equip.	7.6%	1.	Ships	5.0%
	2.	Oil-Cake	11.9%	2.	Silver	5.7%	2.	Footwear	4.6%
	3.	Iron ore	4.0%	3.	Internal combustion engines	4.4%	3.	Tugs	4.1%
	4.	Footwear	2.5%	4.	Natural gas	4.1%	4.	Fabrics	3.9%
	5.	Juices	2.2%	5.	Coffee	3.7%	5.	Electronic microcircuits	3.9%
1993	1.	Oil-Cake	6.7%	1.	Petrol oils	7.35%	1.	Electronic microcircuits	8.88%
	2.	Footwear	5.6%	2.	Passenger cars	6.46%	2.	Passenger cars	4.57%
	3.	Iron ore	3.4%	3.	Insulated Electrical wire	4.52%	3.	Fabrics	3.43%
	4.	Iron/Steel alloy	3.2%	4.	Car parts	3.55%	4.	Ships	2.97%
	5.	Coffee	3.1%	5.	TVs	3.18%	5.	Footwear	2.03%
2003	1.	Soybeans	6.10%	1.	Petrol oils	10.3%	1.	Passenger cars	9.41%
	2.	Passenger cars	3.78%	2.	Passenger cars	7.7%	2.	Electronic microcircuits	8.23%
	3.	Oil cake	3.70%	3.	Car parts	4.3%	3.	Electronics (radio, telephone)	7.47%
	4.	Iron ore	3.24%	4.	Trucks	4.1%	4.	Ships	5.56%
	5.	Petrol oils	3.02%	5.	TVs	3.9%	5.	Automatic Data processing machines	4.46%
2009	1.	Soy beans	7.8%	1.	Petrol Oils	11.7%	1.	Ships	11.1%
	2.	Iron ore	7.2%	2.	TVs	8.2%	2.	Electronic microcircuits	7.2%
	3.	Petrol oils	6.4%	3.	Passenger Cars	6.8%	3.	Optical instruments and apparatus	6.9%
	4.	Sugar	4.1%	4.	Phone and Radio Electronics	4.5%	4.	Passenger cars	6.7%
	5.	Poultry	3.4%	5.	Car parts	4.2%	5.	Electronics (radio, telephone)	5.4%

Source: Feenstra *et al.* (2005) and UN Comtrade.

In addition to export values, there are also discernible differences in the evolution of sophistication of top exports; reflecting the scale of export upgrading. Table 1 displays the evolution of top 5 exports for these countries over time. In the 1960s, agricultural and primary products dominated the top export baskets of all three countries. However, over time distinct patterns emerge. In the case of Brazil, aside from the entry of iron ore in the 1980s and passenger cars in the early 2000s, the top 5 exports remain largely agricultural products and natural resources throughout the decades. Mexico's top export pattern displays a greater level of upgrading. By the 1980s, vehicles, televisions and petroleum have become leading exports, and persist in their dominant positions for the following two decades. By contrast, the Korean example shows a steady progression of upgrading from agricultural and primary products, towards light manufacturing, and then into increasingly sophisticated electronics and machinery. While not necessarily reflected in the EXPY measures which are similar in the cases of Mexico and Korea, this continued progression marks a clear distinction from the Brazilian and Mexican cases where structural transformation of main exports was either limited altogether or stunted in the mid-1980s following the debt crisis. This may be partially attributed to differences in market structure, and the greater efficiency of large Korean firms in undertaking productive activities in new target sectors, as well as the shift towards productivity enhancing policies in already existing sectors.

Figure 4. **Share of high and medium-high technology products in total manufacturing exports, 2007**

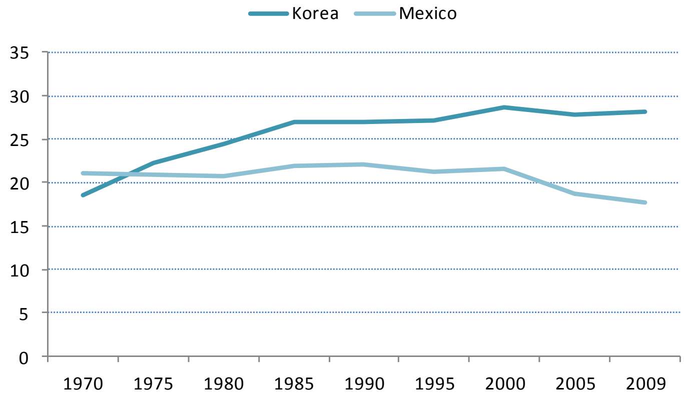


Source: OECD, 2009b.

Korea vs. Mexico

The comparison between Korea and Mexico is particularly interesting due to the similarities in Product Space maps between the two countries. Both countries built up RCAs greater than one in the areas of core machinery, vehicles and electronics and achieved similar levels of sophistication. Figure 4 provides a measure of the technology embedded in manufacturing exports. Both Korea and Mexico have high shares of medium and high-technology products as a share of total manufacturing exports. Interestingly, Mexico's share of combined medium and high-technology products exceeds that of Korea, although Korea maintains an advantage in the share of high-technology products in line with its higher capabilities measure previously noted (see Annex Figure A6). Despite these apparent similarities in the sophistication of manufacturing exports, there are diverging trends in productive activity with the value-added of manufacturing in these two economies moving in opposite directions (see Figure 5). Manufacturing is declining steadily in Mexico, as noted previously with the decrease in manufacturing employment since 1980 (see Annex Figure A1 for Mexico). Similar patterns emerge with respect to value added. Whereas the value-added of the manufacturing sector in Mexico was higher than that of Korea in 1970, it has since decreased from a level of 21% to 17.6% by 2009. The decreasing trend in value added in Mexico may be due to the increasing influence of *maquila*, or subcontracted final assembly activities. According to Durán Lima (2008) in Mexico and Central America the share of maquila exports over total exports has increased from 10% in 1980 to over 40% by 2007. This suggests Mexican manufacturing industries are less active in the value creating activities upstream and downstream in the production process such as product development, design and marketing. Conversely, Korean value added of the manufacturing sector has steadily increased over this time from 18.5% in 1970 reaching a level of 28% by 2009. The larger contribution of manufacturing to value added in the economy as well as the stronger export performance noted above underscore the extent to which Korea has been more effective in exploiting its export profile and facilitating structural change towards higher productivity economic activities.

Figure 5. **Manufacturing share of value added, 1970-2009**

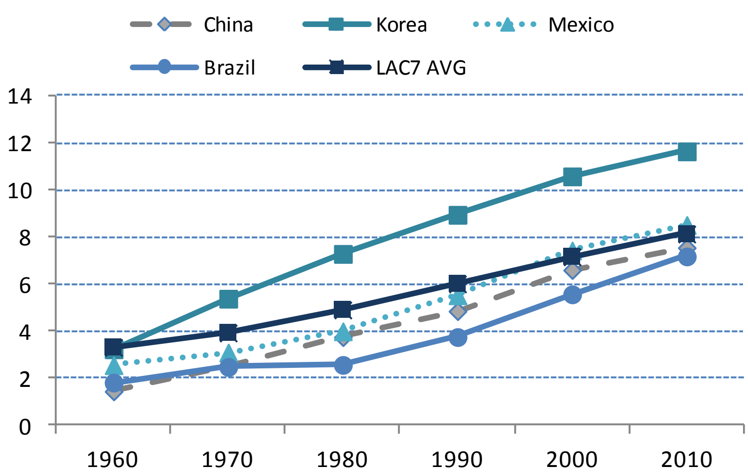


Source: OECD STAN Structural Analysis Database.

VII. GENERAL FRAMEWORK CONDITIONS

As shown above, Brazil and Mexico have not managed to harness their comparative advantages to the same extent as Korea. This hindered potential is due to their relative weakness in a number of general framework conditions which enhance connectivity in the economy, decrease transport and logistics costs faced by firms, and help co-ordinate the supply of factors of production in line with the productive development aspirations. These general framework conditions include a number of services, which are of critical importance in light of the complementarity between trade in goods and services; particularly in the areas of production, distribution, and marketing of goods (Nordas, 2010).[25] Exploiting the benefits of trade-led growth and structural change is contingent on the availability and quality of infrastructure, policies supporting innovation, and efficient services providing financing to the private sector and facilitating human capital accumulation. The following section compares the policies and outcomes across these areas and sheds light on some of the policy challenges that Brazil and Mexico continue to confront.

Figure 6. **Average years of total schooling, 1960-2010**



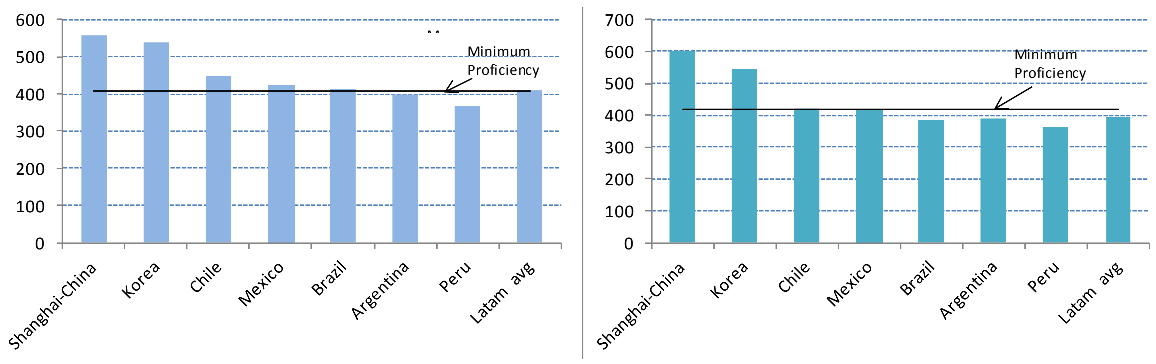
Source: Barro and Lee, 2010.

25. As noted in Nordas (2010), in OECD countries in 2000, intermediate services accounted for 3-30% of total manufacturing costs.

VII.1. Education policies

Education policy plays an important role in shaping factor endowments and shifting latent comparative advantage towards higher productivity and skill-intensive industries. In particular, the level of education of the labour force has a strong bearing on technology absorption (Keller, 1996). Human capital formation was a clear strategic priority for the Korean government to facilitate structural change and productive upgrading. This is evidenced by the strong coherence between factor endowment and productive structures in Korea. During the initial diversification into light manufacturing sectors, the government focused strongly on the universalisation of primary education. With the shift to machinery and more capital intensive industries, the Korean government facilitated access to secondary education and extensive vocational schooling relevant to the development of productive capacities in new target industries. The progression towards more skill intensive industries was accompanied by a stronger focus on tertiary education with quotas and incentives for study in engineering and science related fields. Furthermore, the growing demand for labour in new sectors fuelled the virtuous circle of increasing demand for and the rewards to further education (Lee, 1994). By contrast, education policy in Latin America was less coherent with productive development, and fell short in terms of quality of education. Interestingly, while investments in Mexico and Korea in education were very similar as shares of their respective GDPs, the allocation of public expenditure on education by level of education was different, with Latin American funding fluctuating erratically over the years (Kim and Hong, 2010). The coherence between stages of productive development and focus on education policy strongly differentiated the positive growth experience in Korea from those of Latin American contexts, such as Mexico. Despite beginning from similar levels of average education in 1970 (see Figure 6), Latin America and Korea show a substantial disparity in the length of average schooling over the subsequent four decades. This is driven primarily by the strong growth in tertiary enrolment rates in Korea. The difference in the quality of schooling as measured by international PISA test scores also reveals significant gaps between Latin American and Asian students (see Figure 7). Latin American students score much lower than their Korean counterparts in reading and below the minimum proficiency level in the area of mathematics. This gap in performance, when standardising the quality of education, is equivalent to 3.28 and 3.85 years less of schooling in Latin America in reading and mathematics respectively (Daude, 2011; OECD, 2010).

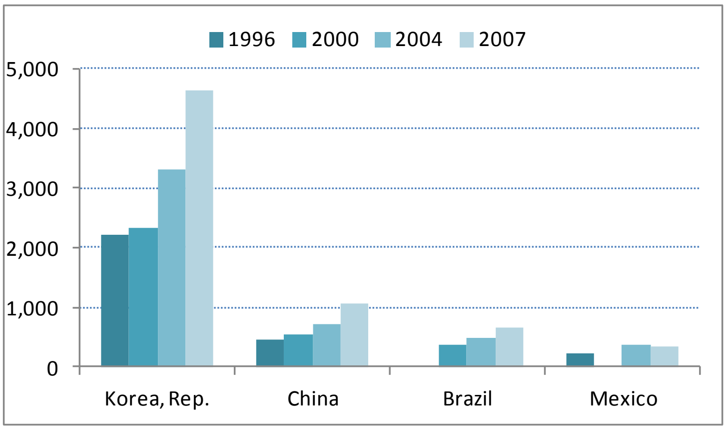
Figure 7. **PISA 2009 reading and math scores by country**



Source: OECD Pisa 2009

There is also a notable difference in the linkages between education and the private sector. In Korea, the government invested substantially in research institutes and industrial parks, which channelled research into new sectors of the economy and also increased potential for knowledge transfer into the private sector (OECD, 2009a). This focus on applied research is evident in the respective research capacities across regions as seen in Figure 8. Korea has nearly ten times more researchers relative to their population than Brazil or Mexico.

Figure 8. **Researchers per million inhabitants**



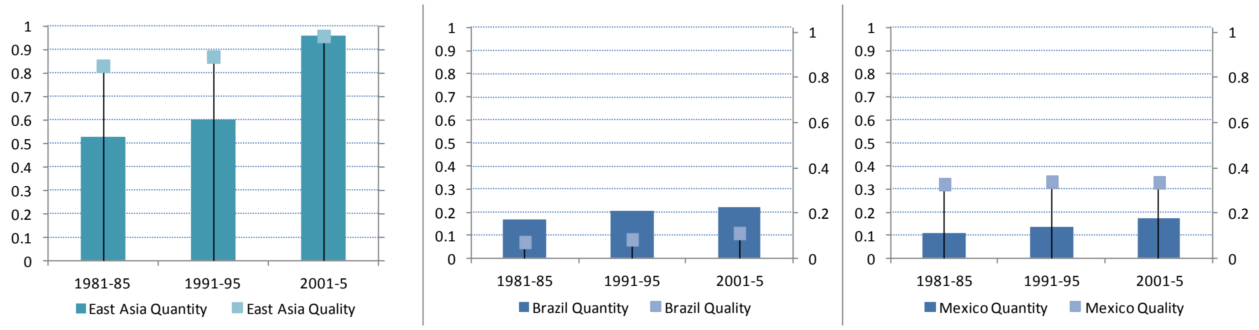
Source: World Bank WDI.

VII.2. Infrastructure policies

Infrastructure plays a central role in the connectivity of the economy, as well as a direct bearing on transport and logistical costs. Korinek and Sourdin (2011) show that enhancements in transport infrastructure have strong and positive impacts on trade, with a particularly large impact in upper middle-income countries. Logistics services, including customs and administrative procedures, organisation and management of international shipment operations, tracking and tracing, play an important role in facilitating export performance. For instance, a 10% increase in the Trade Enabling Index, (which proxies trade logistics quality), is associated with 36% increase in trade with a larger effect on exports than imports (Korinek and Sourdin, 2011).

Korea's systematic infrastructure development began with its first Five Year Plan from 1962-66 and expanded steadily throughout the decades in response to trade-led needs; moving into new forms of transport, and then into "soft infrastructure" such as access to ICT. While both Korea and Latin America invested in hard infrastructure provision from the 1950s through the 1970s, there has been a growing deviation in infrastructure outcomes. Figure 9 shows the quantity of roads with respect to country surface, and provides a quality indicator measuring the share of paved to total roads. This figure displays the growing gap in both of these aspects of road infrastructure between East Asia and Mexico and Brazil. This sizable gap is partly due to differences in investment in infrastructure. While in Asia infrastructure spending is between 5-7% of GDP, in the LAC-6 this share has dropped from 3.6% during the 1980s to 2% during the last decade and has not been offset by private spending (Carranza *et al.*, 2011). As indicated by (Guasch, 2004), poor infrastructure and inferior performance in transport and trade services has a significant bearing on logistics costs which account for approximately 25% of product value in Latin America.

Figure 9. **Quality and quantity of roads**

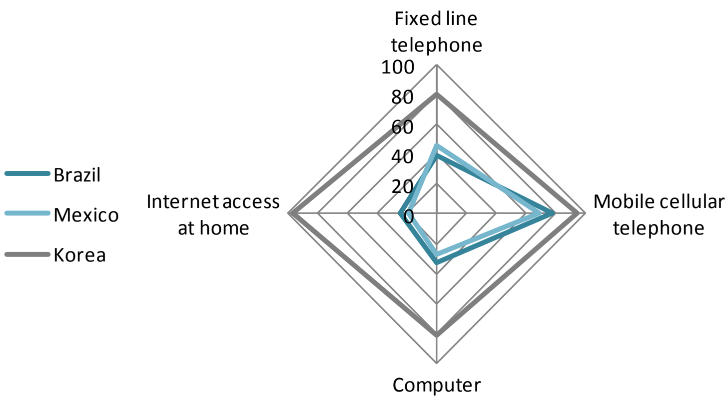


Source: Calderon and Serven, 2010.

Note: Road quantity is the log of the length of roads per sq. kilometre of country surface area. The quality index ranges from 0-1, is the share of paved roads in total roads.

In addition to the transport and energy infrastructure, the Korean government also prioritised the provision of 'soft infrastructure', making broadband access a particular priority. One prominent feature of the Korean Information Infrastructure (KII) development policy was the effective inclusion of the private sector. While the government invested over USD 900 million in backbone infrastructure, this was a relatively small share of the USD 33 billion invested overall (Kim *et al.*, 2010). By comparison, the gaps between Korea and Brazil and Mexico are even wider in the areas of soft infrastructure. Figure 10 shows the share of households with access to internet, computers and telephony. Mexico and Brazil only approach Korean rates of access in mobile telephony but trail in all other areas.

Figure 10. **ITU Core household telecoms indicators**



Source: International Telecommunications Union, World Telecommunication/ICT Indicators Database.

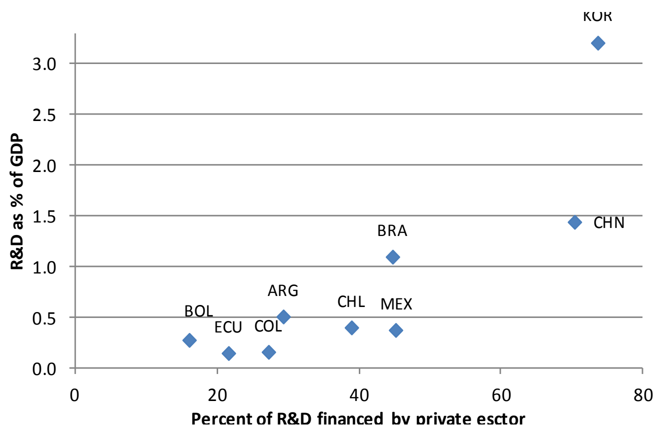
Note: Share of total households with access.

These gaps have serious implications for market access, business efficiency, inclusiveness, and upgrading into more innovative productive sectors. ICT infrastructure eases the movement of capital, facilitates the logistics and co-ordination of global production and transport, as well as creating new opportunities for trade in modern services. According to Clarke and Wallsten (2006), greater internet penetration boosts export performance, particularly in developing countries. This study, which looked at 27 advanced economies and 66 developing economies, found that a 1 percentage point increase in the number of internet users is correlated with a boost of exports of 4.3 percentage points and a stronger impact on exports from developing to high-income countries. In addition to trade impacts, broadband penetration also contributes to economic growth. According to a study by Qiang *et al.* (2009), for each 10 percentage point increase in broadband penetration, advanced and developing economy GDP per capita grew an additional 1.21% and 1.38% per annum respectively. With its relatively strong position in broadband infrastructure with the highest penetration rates in the world, Korea is particularly well positioned to benefit from these ICT externalities.

VII.3. Innovation policies

Beginning in the 1940s, public firms and research institutes were created in several Latin American countries to promote capability accumulation in various sectors. During the ISI period public funding played a paramount role in science and technology expenditure, reaching levels exceeding 80% of total expenditure (Katz, 2000). These initiatives spanned many different industries including EMBRAPA in Brazil working on agricultural innovation, the Mexican Petroleum Institute (IMTA), and the Brazilian Aerospace Technology Center (CTA) (Di Maio, 2009). However, with the debt crises and macroeconomic instability of the 1980s continuing through the 1990s, public funding in R&D diminished and private funding remains limited (Figure 11).

Figure 11. **R&D as a share of GDP and share finances by private sector**



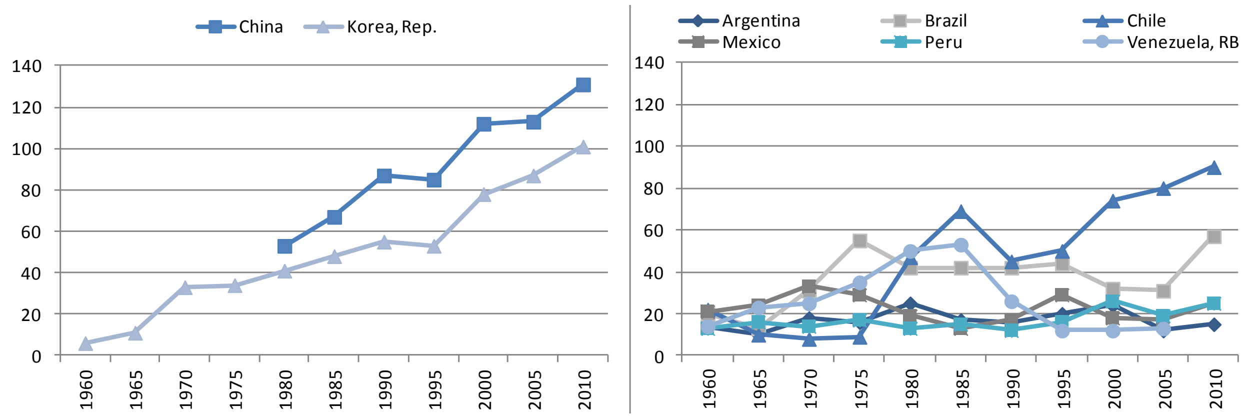
Source: OECD/ECLAC, 2011.

Korean innovation policy developed later than in Latin America but has been administered with greater consistency. The Technology Development Promotion Law was implemented in the early 1980s, at which time the government introduced criteria which made financing and fiscal benefits contingent on the establishment of central R&D laboratories (Ahn and Mah, 2007). With the K4D (Knowledge for Development) Program which began in the late 1990s, the Korean government sought to put in place an effective innovation system bringing together firms, universities, and research centres to adapt new knowledge to local needs. Korea incentivised an increase in innovation activities through venture capital funds and fiscal benefits for high technology start-ups, government investment in relevant soft infrastructure, and increasing R&D activities (OECD, 2009a). As noted in the previous section, Korea's capabilities indicator, which started relatively high to begin with in 1960, increased notably after 1995 reaching a level substantially above world average, perhaps reflecting the fruits of these innovation policies. The differences in the level of R&D and the share of R&D financed by the private sector, clearly demonstrate some of the limitations in upgrading potential in the Latin American context relative to the Korean experience (Figure 11).

VII.4. Access to finance

The availability and continuity of funding to the private sector has strong implications for productive development. While Korea, Mexico and Brazil employed a great deal of government and development bank funding for their PDP, access to finance for private firms appears to have been relatively limited for Latin American countries, particularly following the debt crisis of the early 1980s. Figure 12 shows the availability of domestic finance to the private sector over time and the disparate general trends between the Asian and Latin American economies. Whereas domestic credit to private enterprises increased steadily over time in Korea, even following the Asian Financial Crisis of 1997, the trend is more volatile and uneven in Latin America. Limitations in financing can severely reduce movement into new productive activities, and may further explain the stronger specialisation in existing products in Latin America following the debt crisis. These divergences reflect the impact of differences in macroeconomic stability as well as domestic savings rates which were substantially higher in Korea.

Figure 12. **Domestic credit to the private sector (% of GDP), 1960-2010**



Source: World Development Indicators.

In sum, the coherence of general framework conditions with PDPs allowed Korea to benefit to a greater extent from its Product Space positioning by taking greater advantage of trade-led growth, and developing a highly skilled and integrated economy. By gradually building up its productive capabilities, Korea managed to align its productive development trajectory with the factors and resources at its disposal. Furthermore, the sequencing of sectors and relative proximity in the Product Space map facilitated its substantial diversification and subsequent upgrading.

VIII. CHINA

In closing, we turn our attention briefly to a very particular case, but a relevant one, as China just crossed the World Bank's threshold of upper middle-income GNI per capita of USD 4 400 in 2010. Looking at China through the Product Space lens highlights some of its outstanding features. As noted previously, even in 1960, China began with a relatively diversified Product Space profile of high connectivity and high capabilities. In addition to these strong starting conditions, China also benefits from a large internal market allowing for gradual and deep diversification into a large number of products.

Figure A10 (see Annex) shows the development of China's Product Space profile over time. China began with RCAs in a number of agricultural, light manufacturing, chemical and vehicle-related products including livestock, soybeans, fresh fruits, corn, sugar, railway locomotives, silk, dyes, ceramics and glass mirrors. By the late 1970s, it expanded its comparative advantage in textiles, garments and chemicals, and began to enter into electronics. Throughout the 1980s, it strengthened its RCAs in the electronics cluster, vehicles and related machinery and continued to diversify in these areas throughout the 1990s. By 2009, China displays widespread RCAs across the Product Space map, exhibiting greater diversification than found in the Product Space maps of Korea, Mexico or Brazil. This Product Space profile shows that China has a great deal of potential for productive development in numerous industries.

China's trade performance has grown considerably over the last two decades. In 2010, China accounted for over 10% of global exports, making it the largest merchandise exporter in the world, and second largest merchandise importer (WTO, 2011). In 2010, China's top 5 exports included electrical machinery and equipment, power generation equipment, apparel, iron and steel, and optics and medical equipment demonstrating a broad range of product sophistication (US-China Business Council, 2011).

While our snapshots of general framework conditions in China present some encouraging results in the areas of availability of finance, innovation and quality of urban education, China's capacity to evade the middle-income trap will depend on a number of factors outside of the scope of this paper. Nevertheless, China's Product Space map highlights a strong foundation for continued trade-led growth across many sectors.

IX. CONCLUSION

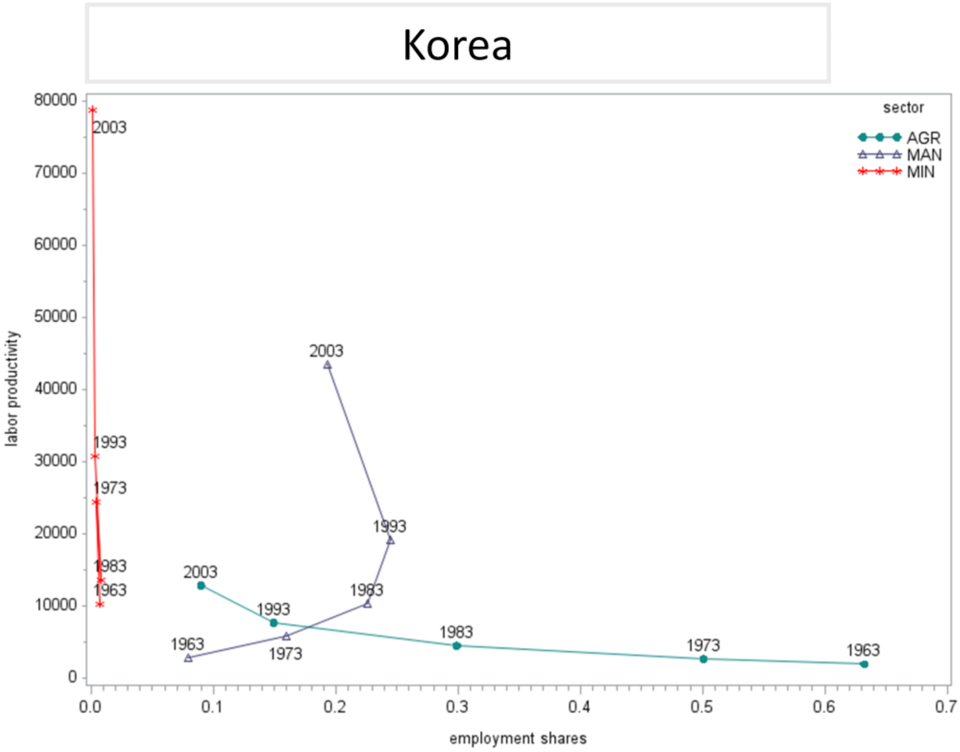
Contrary to other regions, Latin America hosts very limited cases of effective transitions from middle to high income levels. To better understand this persistent lack of income convergence, this study used the Product Space methodology to compare structural transformation in Asia and Latin America.

The focus on the economic structure of a country does not imply a deterministic view of the development path. On the contrary, productive transitions are the result of policies, particularly those that aim to influence the economic specialisation of a country. Successful structural change is driven by proximity considerations- with expansion into related industries, making use of existing productive skills- while concomitantly accumulating more advanced capabilities. This idea is related to the Growth Identification and Facilitation Framework (GIFF) developed by Lin *et al.* (2011), which encourages policy makers to sequence structural transformation, taking gradual steps in line with latent comparative advantage.

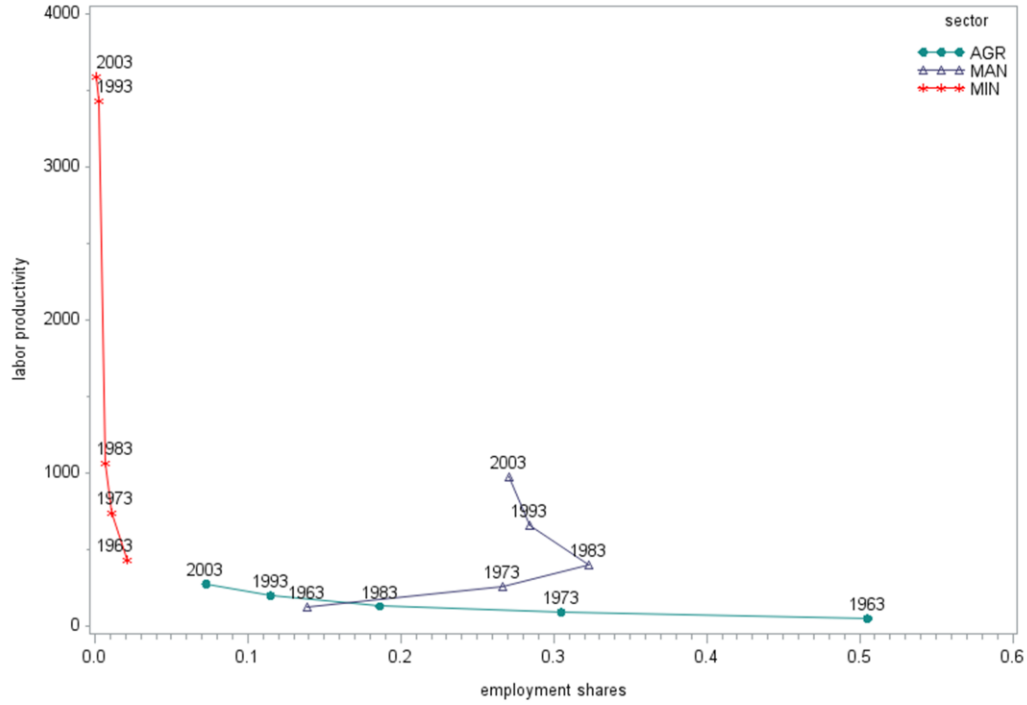
Policy co-ordination, particularly in the areas of education, infrastructure, innovation and financing, plays a strong role in promoting the simultaneous evolution in economic structure and framework conditions. A comparative analysis of Korea and Latin America underscores the importance of sound policy design and implementation. For small and medium-sized developing countries which are dependent on external markets for driving their productive development, PDPs need to be guided by the appropriate temporary incentive structures, in line with factor endowments, and be coherent with other relevant complementary policy areas.

ANNEX

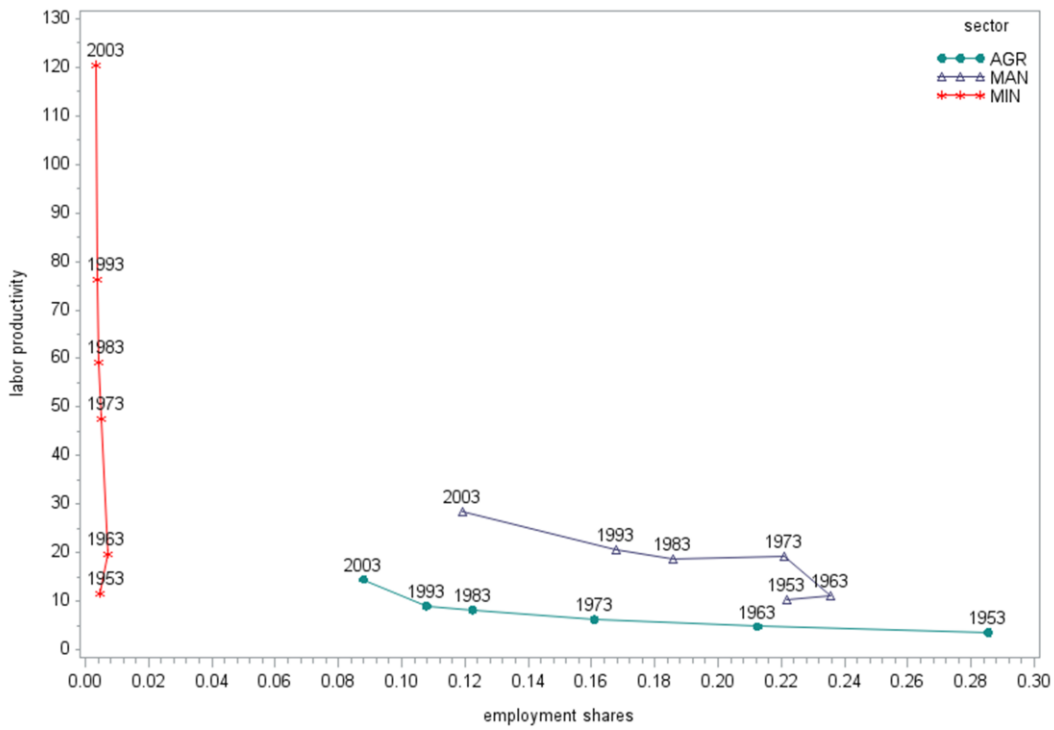
Figure A1. **Average Labour Productivity vs. Employment Shares (by sector; 1963-2003)**



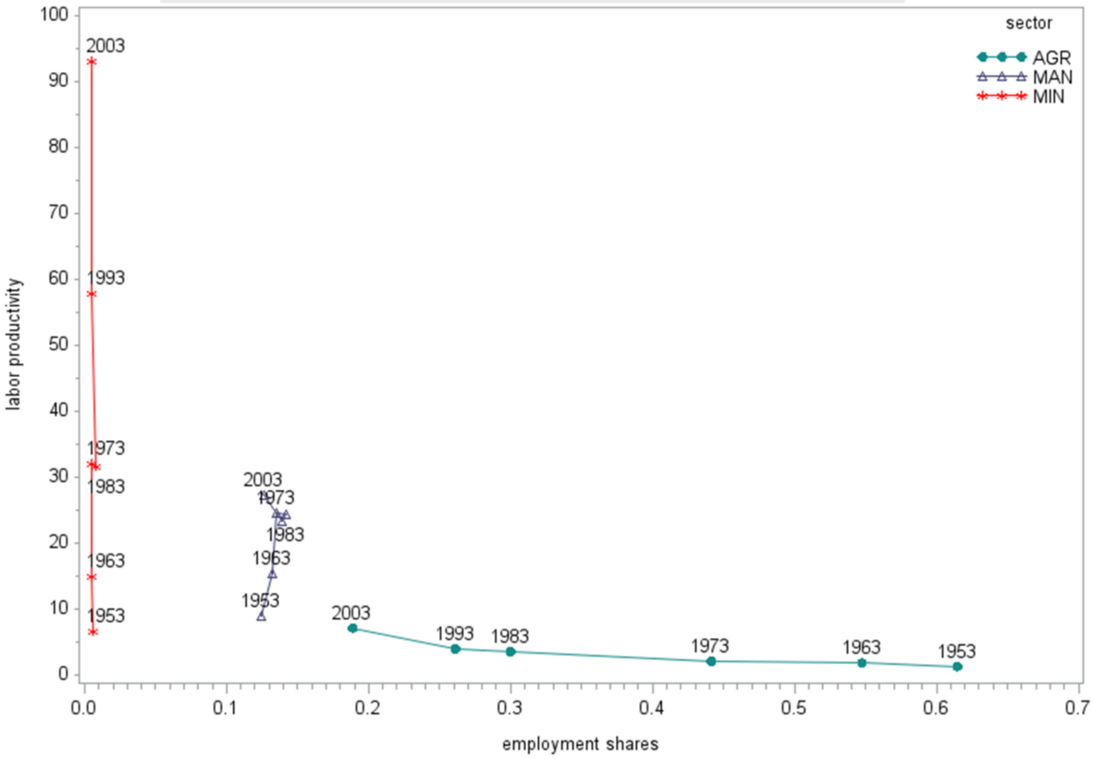
Chinese Taipei



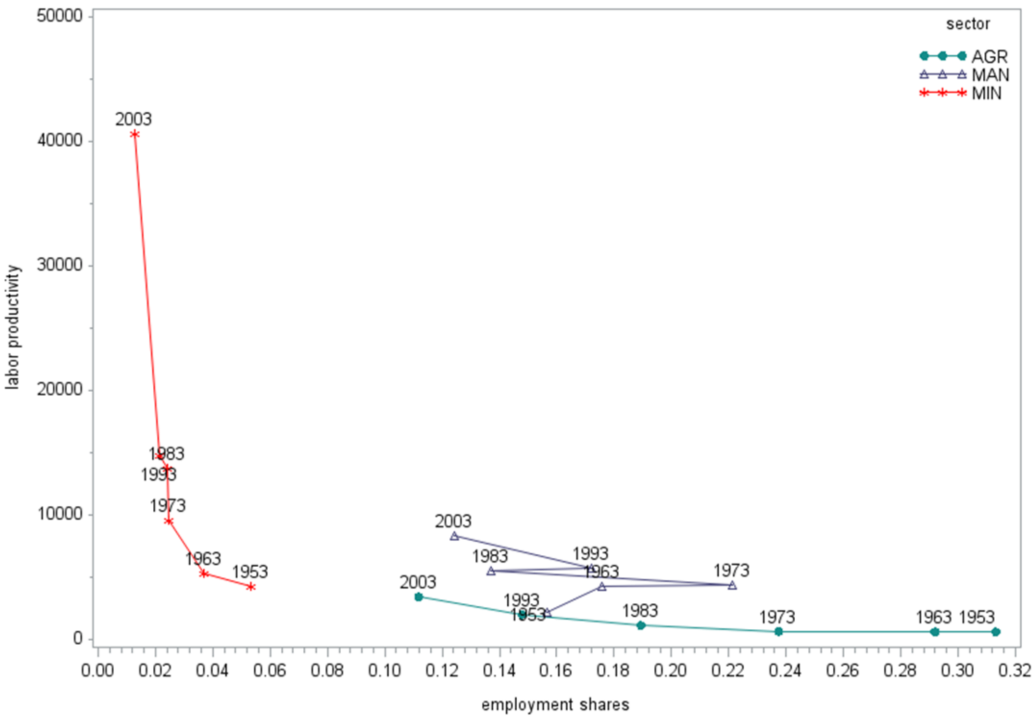
Argentina



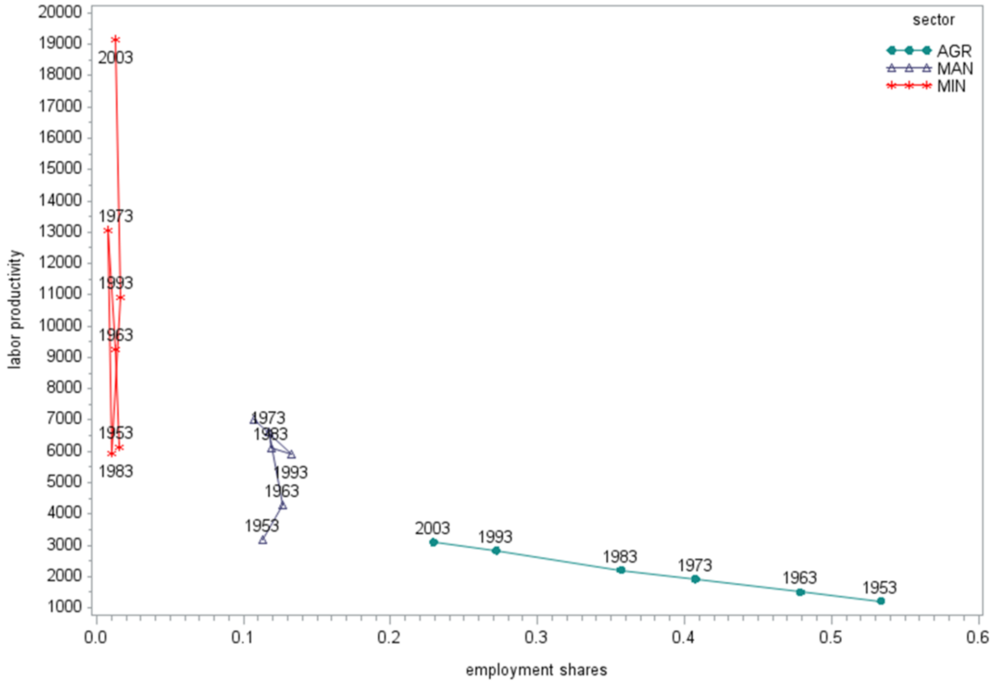
Brazil



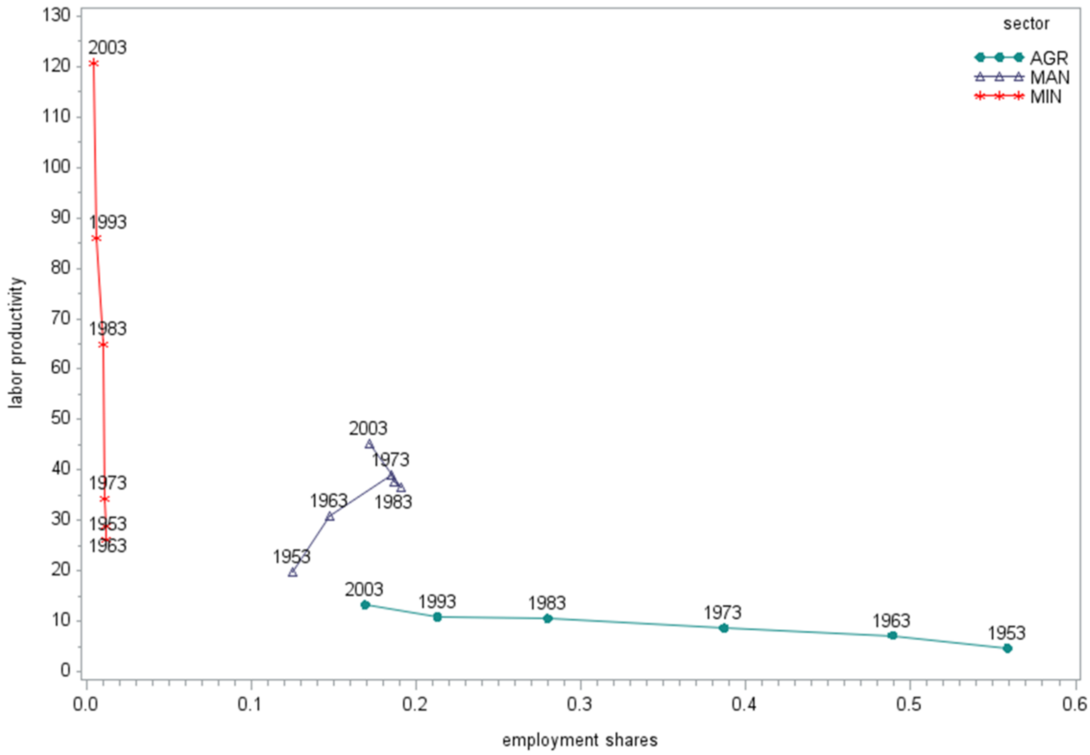
Chile

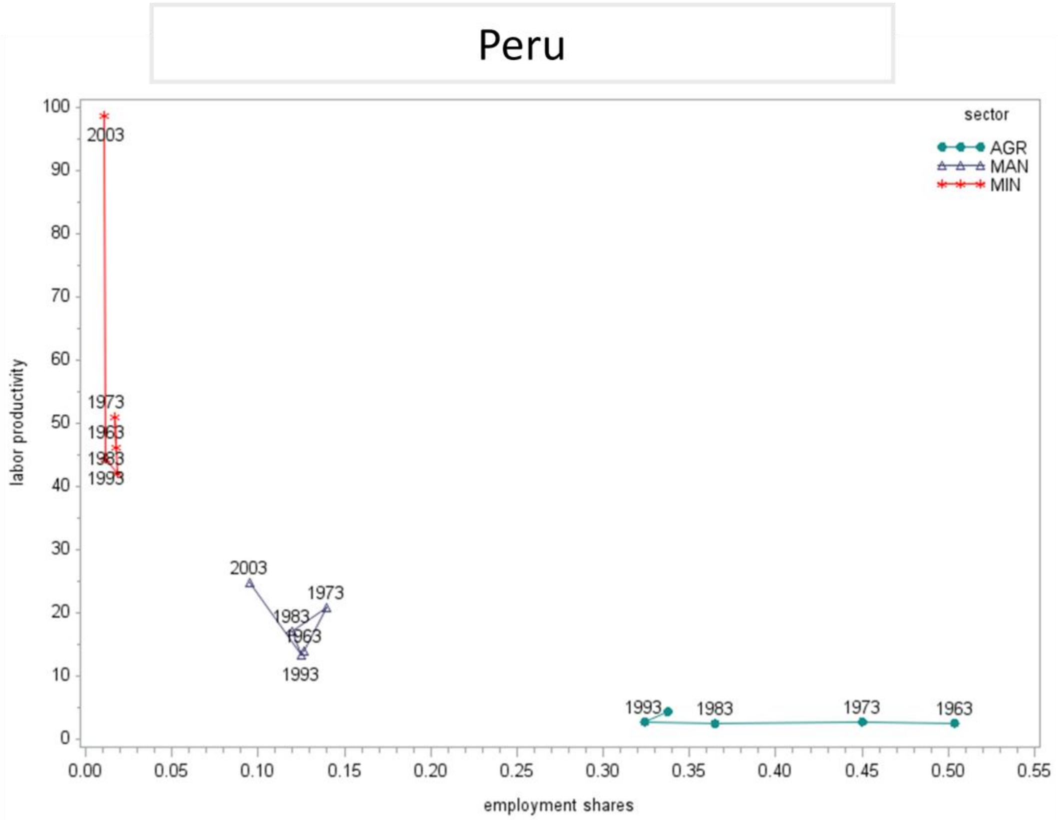


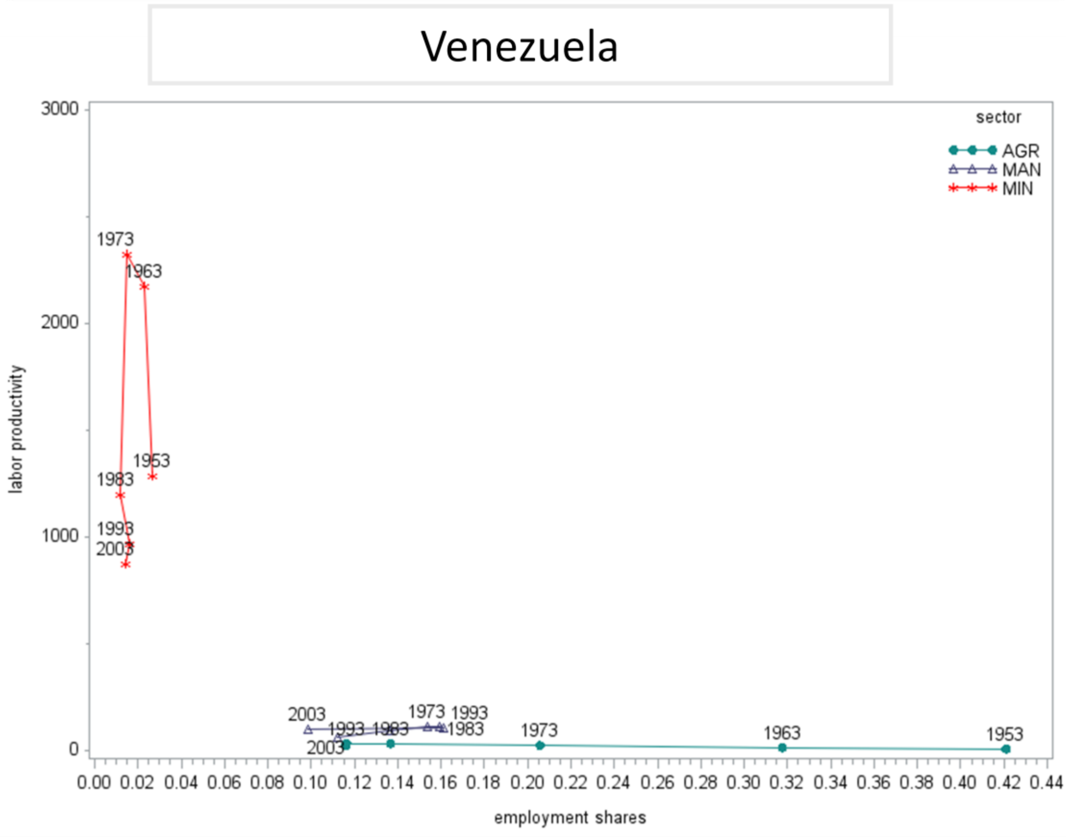
Colombia



Mexico

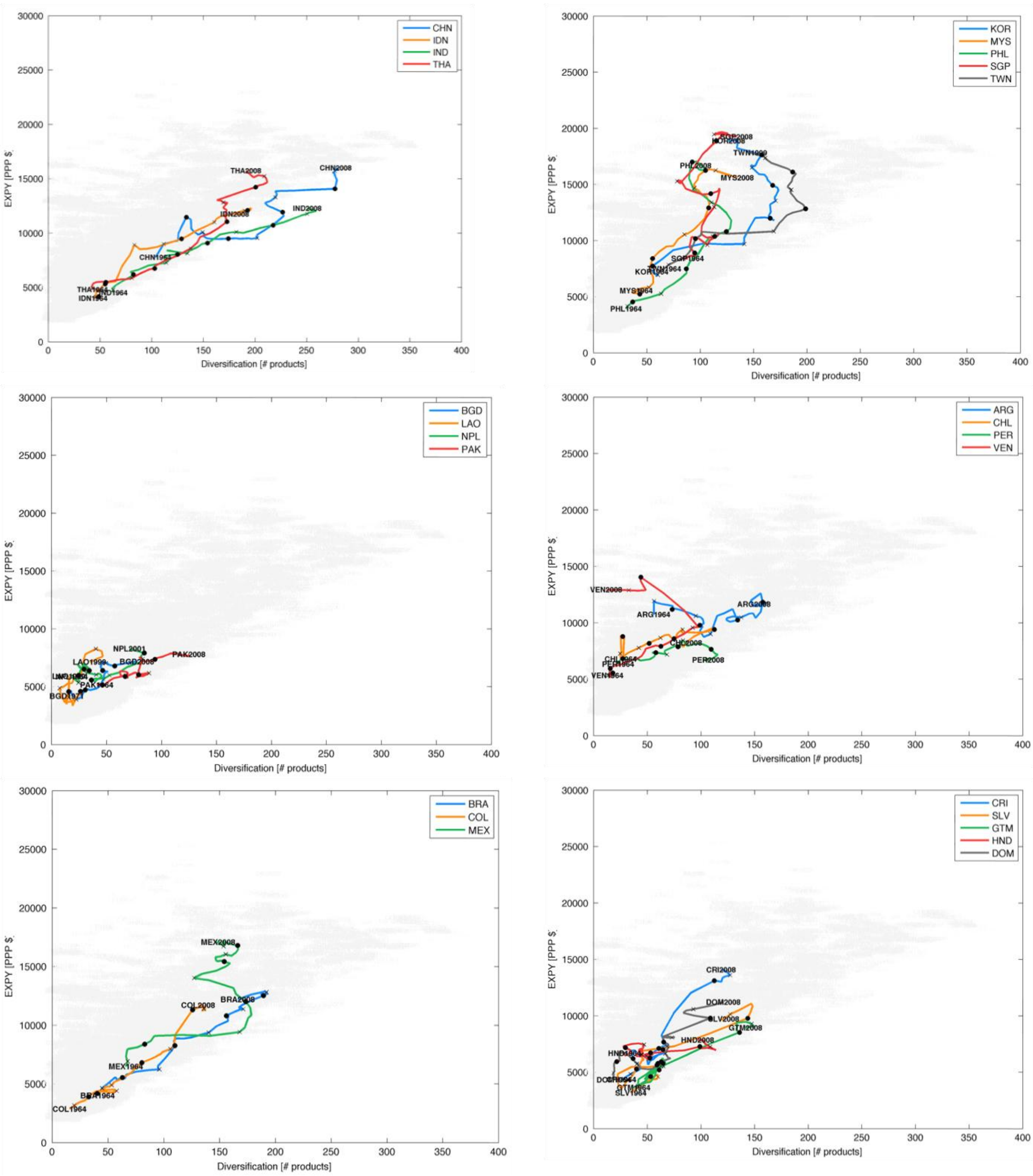






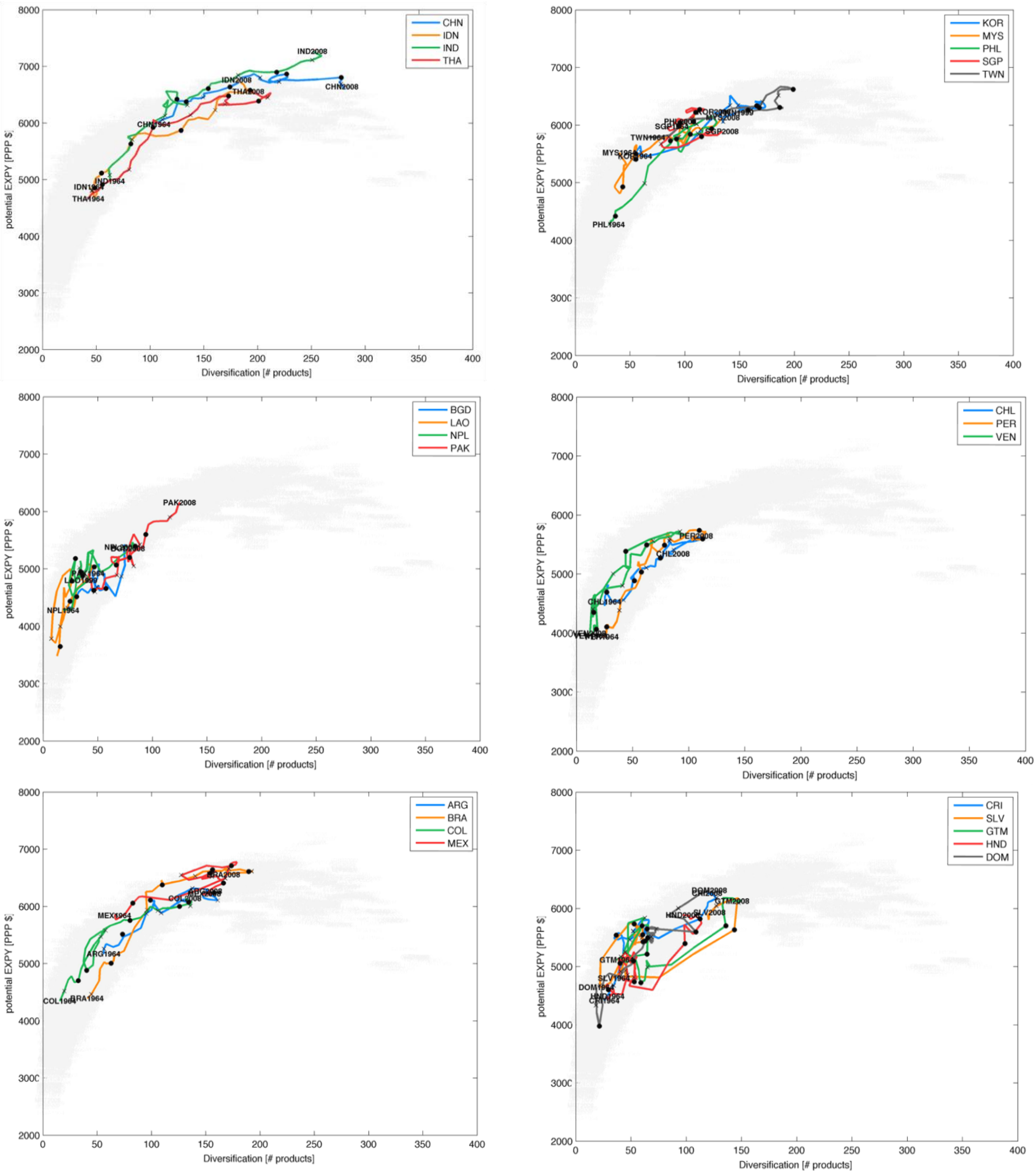
Source: Authors' calculations.

Figure A2. **EXPY versus diversification**



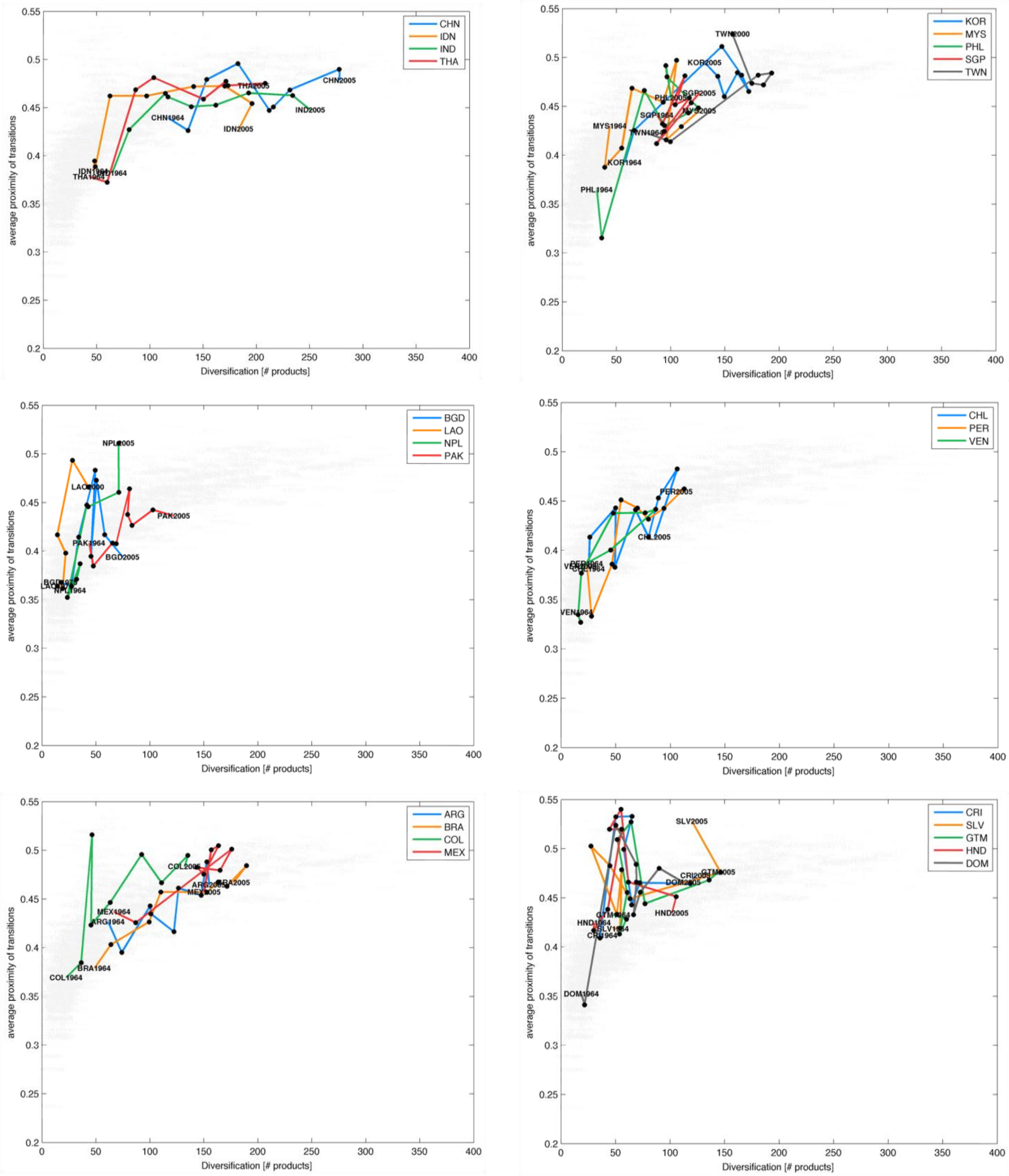
Source: Authors' calculations.

Figure A3. **Potential EXPY versus diversification**



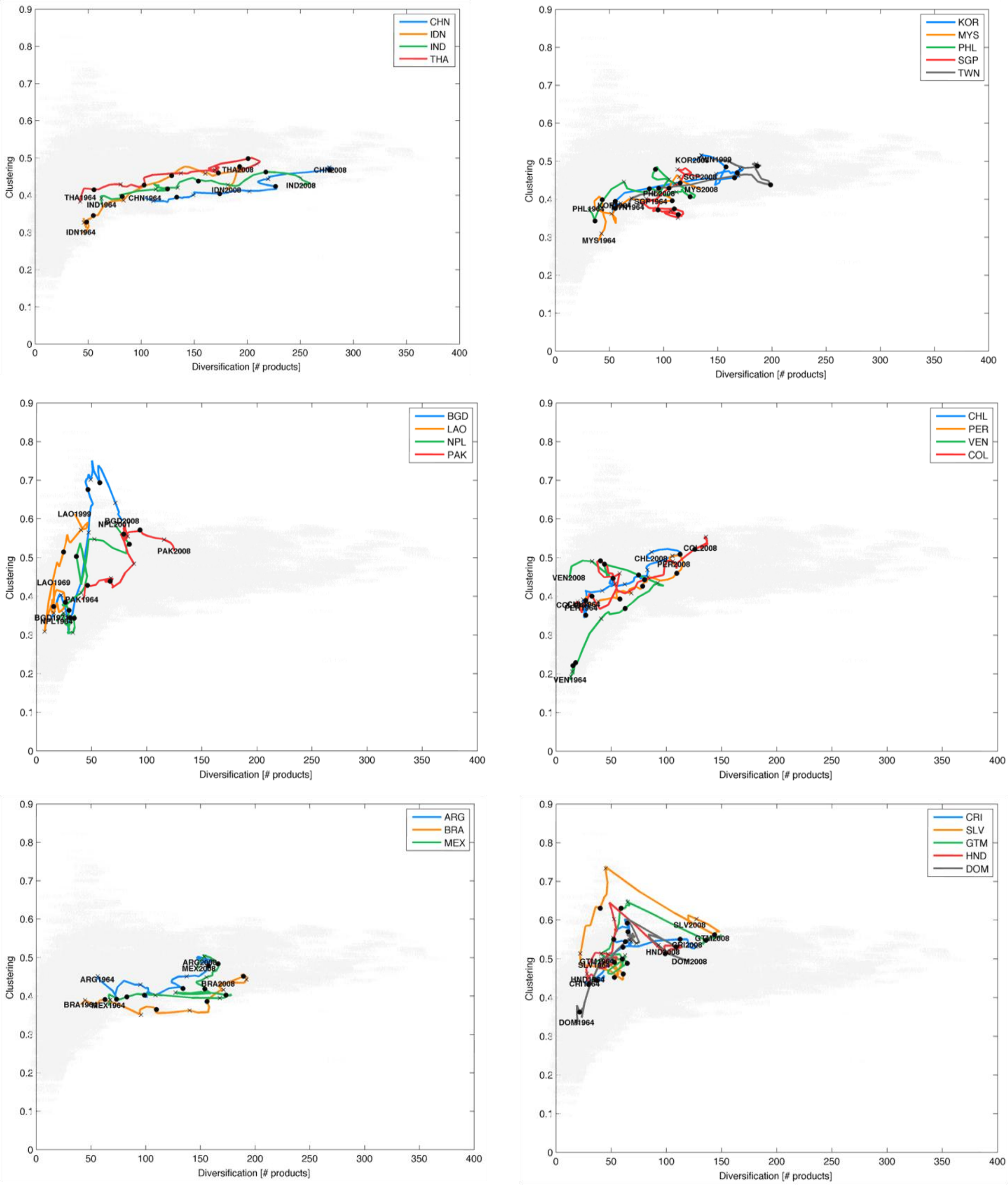
Source: Authors' calculations.

Figure A4. **Average proximity of transitions versus diversification**



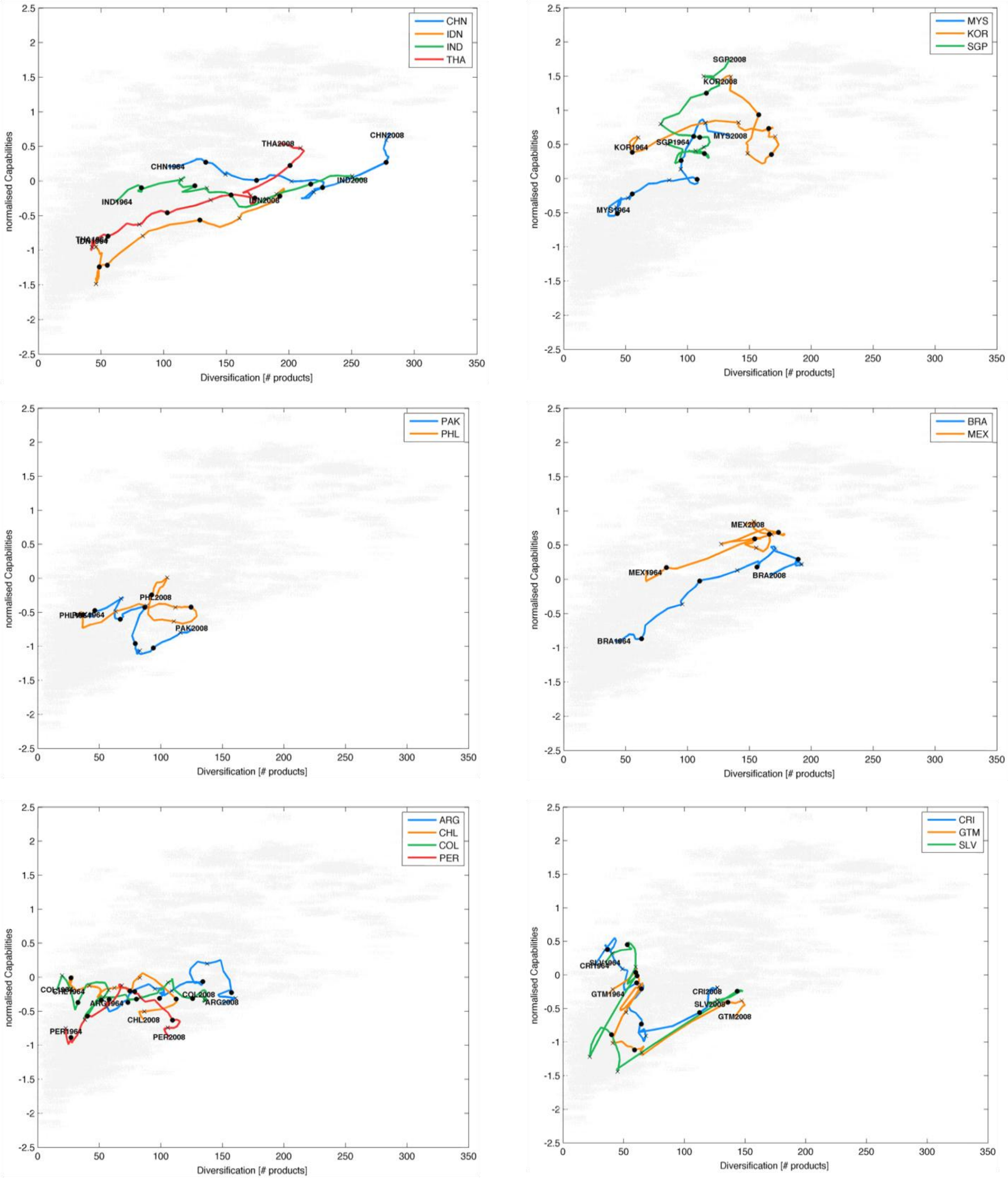
Source: Authors' calculations.

Figure A5. **Average clustering coefficient versus diversification**



Source: Authors' calculations.

Figure A6. **Normalised capabilities versus diversification**



Source: Authors' calculations.

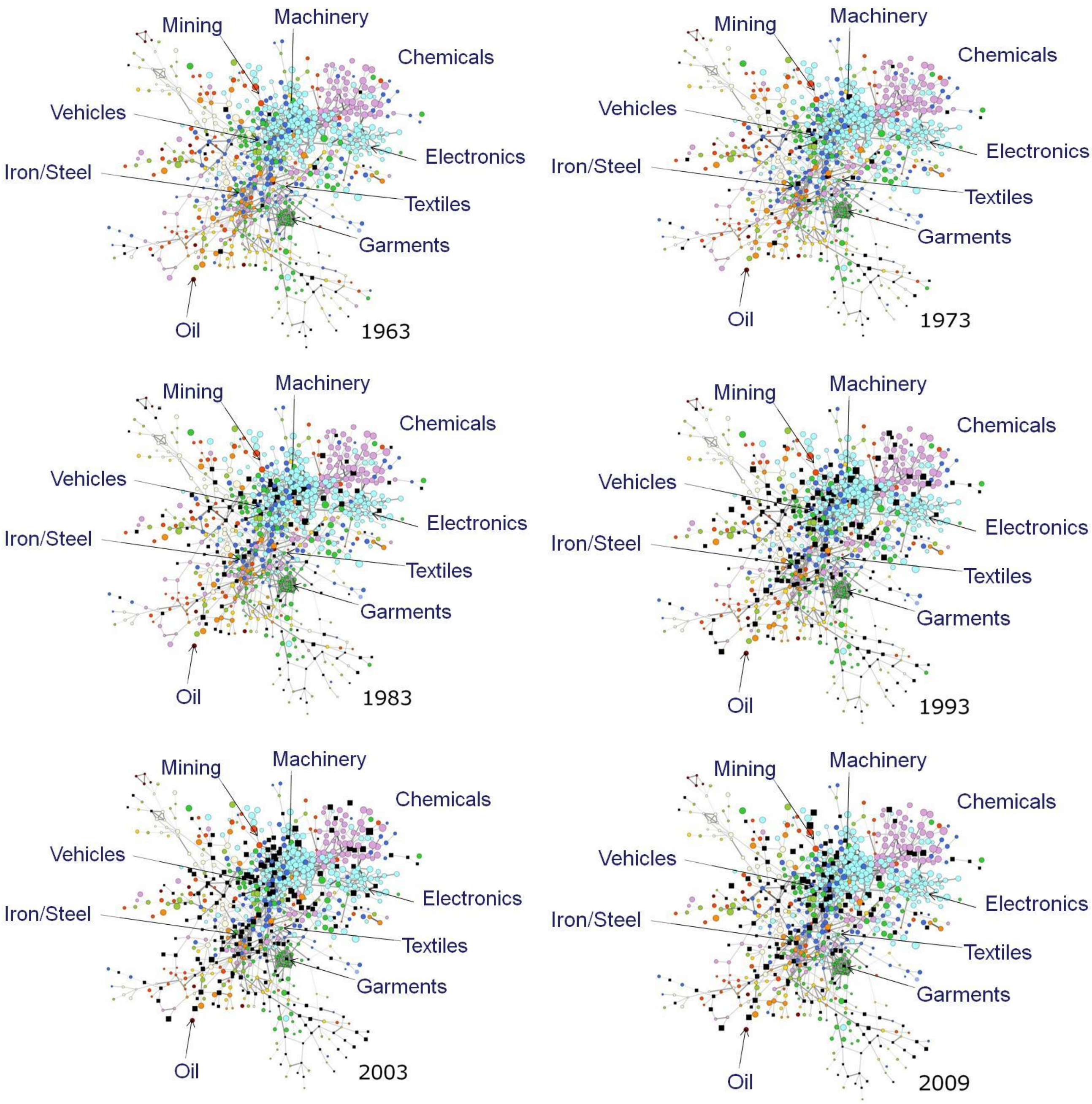
Figure A7. **Korea Product Space Maps**

Source: Authors' calculations.

Figure A8. **Mexico Product Space Maps**

Source: Authors' calculations.

Figure A9. **Brazil Product Space Maps**



Source: Authors' calculations.

Figure A10. **China Product Space Maps**

Source: Authors' calculations.

REFERENCES

ACEMOGLU, D., G. GANCIA and F. ZILIBOTTI (2010), "Competing Engines of Growth: Innovation and Standardization", *Journal of Economic Theory*.

ADAMS, F. G. and I. DAVIS (1994), "The Role of Policy in Economic Development: comparisons of the East and Southeast Asian and Latin American experience", *Asian-Pacific Economic Literature*, 8(1), 8-26.

AHN, H.-J. and J.S. MAH (2007), "Development of technology-intensive industries in Korea", *Journal of Contemporary Asia*, 37, 364–379.

BAIK, C.J., B.K. KIM and E.F. VOGEL (2011), *The Park Chung Hee Era: The Transformation of South Korea*, Harvard University Press.

BALASSA, B. (1977), "'Revealed' Comparative Advantage Revisited: An Analysis of Relative Export Shares of the Industrial Countries, 1953-1971", *The Manchester School of Economic and Social Studies*, 45(4), 327-344.

BARRO, R. and J.W. LEE (2010), "Educational attainment in the world, 1950–2010".

CALDERÓN VÁZQUEZ, F.J. (2010), "Círculos y Cuadraturas: Presiones inflacionarias y Enfermedad Holandesa en la Venezuela Bolivariana", *Entelequia: revista interdisciplinar*, 12.

CALDERON, C. and L. SERVEN (2010), "Infrastructure in Latin America", The World Bank.

CARRANZA, L., C. DAUDE and M. MELGUIZO (2011), "Public Infrastructure Investment and Fiscal Sustainability in Latin America: Incompatible Goals? ".

CHOUDHRY, M. (2009), "Determinants of Labor Productivity: an Empirical Investigation of Productivity Divergence", Working paper, University of Groningen.

CLARKE, G. R. G. and S. J. WALLSTEN (2006), "Has the Internet Increased Trade? Developed and Developing Country Evidence", *Economic Inquiry*, 44(3), 465-484.

COLE, H. L., L.E. OHANIAN, A. RIASCOS and J.A. SCHMITZ JR. (2005), "Latin America in the Rearview Mirror", *Journal of Monetary Economics*, 52(1), 69-107.

DAUDE, C. (2010), "Innovation, Productivity and Economic Development in Latin America and the Caribbean", *OECD Development Centre Working Paper* No 288.

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DI MAIO, M. (2009), "Industrial policies in developing countries: history and perspectives", *Industrial Policy and Development* (pp. 107–143), Oxford University Press, Oxford.

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ECLAC (2009), "Theory and Practice of Industrial Policy. Evidence from the Latin American Experience".

EDWARDS, S. (1994), "Trade and Industrial Policy Reform in Latin America", *National Bureau of Economic Research Working Paper Series*, No. 4772.

FEENSTRA, R. C., R. E. LIPSEY, H. DENG, A. C. MA and H. MO (2005), "World Trade Flows: 1962-2000", *National Bureau of Economic Research Working Paper Series*, no. 11040.

FERRAZ, J. C., A. NASSIF and R. OLIVIA (2009), "Avancos, desafios e oportunidaded para politica de desenvolvimiento productivo na. América Latina", BNDES.

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GOVERNMENT OF BRAZIL (2008), "Política de Desenvolvimento Produtivo: Inovar e Investir para Sustentar o Crescimento", BNDES, ABDI, MF, MDIC.

GUASCH, J. L. (2004), "Granting and Renegotiating Infrastructure Concessions: Doing It Right", World Bank Institute of Development Studies.

HAUSMANN, R. and B. KLINGER (2006), "Structural Transformation and Patterns of Comparative Advantage in the Product Space", *CID working paper*, no. 128.

HAUSMANN, R., J. HWANG and D. RODRIK (2007), "What You Export Matters", *Journal of Economic Growth*, 12(1), 1-25.

HAUSMANN, R. and D. RODRIK (2003), "Economic development as self-discovery", *Journal of Development Economics*, 72, 603-633.

HIDALGO, C. A., B. KLINGER, A.L. BARABÁSI and R. HAUSMANN (2007), "The Product Space Conditions the Development of Nations", *Science*, 317(5837), 482–487.

HIDALGO, A. C. and R. HAUSMANN (2009), "The building blocks of economic complexity", *Proceedings of the National Academy of Sciences*, 106(26), 10570–10575.

HUMMELS, D. and P. KLENOW (2005), "The Variety and Quality of a Nation's Exports", *American Economic Review*, 95(3), 704-723.

KATZ, J. (2000), "Pasado y presente del comportamiento tecnólogico del América Latina", ECLAC.

KELLER, W. (1996), "Absorptive capacity: On the creation and acquisition of technology in development", *Journal of Development Economics*, 49(1), 199–227.

KHAN, M. and S. BLANKENBURG (2009), "The Political Economy of Industrial Policy in Asia and Latin America", *Industrial Policy and Development; The Political Economy of Capabilities Accumulation*, Oxford University Press.

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KUZNETS, S. (1955), "Economic Growth and Income Inequality", *The American Economic Review*, 45(1), 1-28.

LALL, S. (2003), "Reinventing industrial strategy: The role of government policy in building industrial competitiveness", *QEH Working Paper Series*.

LEE, J.-W. (1994), "Economic Growth and Human Development in the Republic of Korea, 1945-1992", *Occasional Paper 24*.

LIN, J., C. MONGA, D.W. TE VELDE, S.D. TENDULKAR, A. AMSDEN, K.Y. AMOAKO and H. PACK (2011), "Growth Identification and Facilitation: The Role of the State in the Dynamics of Structural Change", *Development Policy Review*, 29(3), 259-310.

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OECD (2009a), OECD *Science, Technology and Industry Scoreboard* 2009, Paris.

OECD (2009b), OECD *Reviews of Innovation Policy: Korea*, Paris.

OECD (2010), *PISA 2009 Results: What Students Know and Can Do*, Paris.

OECD (2010), *Perspectives on Global Development*, Paris.

OECD/ECLAC. (2011), *Latin American Economic Outlook 2012 Transforming the state for development*, OECD Publishing, Paris.

ONNELA, J.-P., J. SARAMÄKI, J. KERTÉSZ and K. KASKI (2005), "Intensity and coherence of motifs in weighted complex networks", *Physical Review E*, 71(6), 065103. doi:10.1103/PhysRevE.71.065103

OPSAHL, T. and P. PANZARASA (2009), "Clustering in weighted networks", *Social Networks*, 31(2), 155 – 163.

PERES, W. (2011), "Industrial Policies in Latin America", UNU-WIDER.

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SOLIMANO, A. and R. SOTO (2005), "Economic growth in Latin America in the late 20th century: Evidence and interpretation", ECLAC.

SYRQUIN, M. (2003), *The Rise of the Rest: Challenges to the West from Late-Industrializing Economies*: ALICE H. AMSDEN, ZZZ: Oxford University Press, NY 2001, pp. vi+405. Journal of Development Economics, 71(2), 625–628.

TIMMER, M. and G. DE VRIES (2009), "Structural change and growth accelerations in Asia and Latin America: a new sectoral data set", *Cliometrica, Journal of Historical Economics and Econometric History*, 3(2), 165-190.

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