Policy Determinants of Structural Change in Developing Countries *

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Abstract

This paper analyzes the policy determinants of structural change in developing countries, including structural policies and macroeconomic stabilization ones. To this end, the paper proposes a large set of novel measurements to capture these policies. The measurements relate to structural policies (antimonopoly policy, financial policy, labor policy, trade policy and macroeconomic institutions) and macroeconomic policies (exchange rate management, fiscal and monetary policies). The paper uses the pooled mean group estimator technique to distinguish between the short and long-term impacts of policies on structural change. Furthermore, structural change is measured using different ways (productivity growth decomposition, value-added shares by sector and exports diversification). Results show that the within-sector productivity improvements have been the main driver of productivity growth in only two regions, East Asia and Sub-Saharan Africa. Furthermore, structural change has been growth reducing in the Middle East and North Africa (MENA) and Latin America. As per the empirical findings, they show that structural policies improve structural change over the long run, yet their effect is mostly insignificant over the short run. The results also indicate some deindustrialization trends since structural policies tended to increase the share of services in value added whereas a similar effect on manufacturing could not be found. As per macroeconomic policies, the results highlight the importance of countercyclical fiscal policies and undervalued currencies in inducing structural change.

Keywords: Structural Change, Developing Countries, Macroeconomic Policies, Structural Policies, Pooled Mean Group Estimator.

JEL Classification: L16, O11, O23, O24

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1 Introduction

Structural change tends to occur when resources from traditional and typically low productive activities shift to modern and more productive ones, with higher productivity growth (Lewis, 1954; McMillan et al., 2016). Countries that have experienced such growth-enhancing productivity were more likely to witness sustained economic growth and economic development (Lopes et al., 2017). However, not all developing countries were able to achieve structural change. The different patterns of structural change can largely explain the variation of total labor productivity growth among developing countries. For instance, some Asian countries have experienced a successful structural change whereas the pace of the latter in other developing countries was slow which explain their prolonged periods of low and volatile economic growth (Diao et al., 2017).

In this context, it is important to identify the drivers of successful structural change in developing countries. However, with most of the existing literature focusing on developed countries, there is still no consensus on underlying supportive policies for structural change in developing countries. Two types of policies can be considered to promote the movement of resources from low to high productive sectors. On the one hand, macroeconomic policies (such as exchange rate management, fiscal and monetary policies) should provide pro-investment macro conditions since labor movement to productive sectors depend on investment decisions. Initially, macroeconomic stability was thought to be a necessary yet insufficient prerequisite to accelerate structural change (Ayadi et al., 2020; Cusolito & Maloney, 2018; Lopes et al., 2017; UNECA, 2016; Zaki et al., 2020). Hence, developing countries can adopt a developmental approach for macroeconomic stabilization policies to make them induce structural change. This entails going beyond macroeconomic stability and undertaking countercyclical policies that help facing challenges related to external financing and fluctuations in commodity prices (Ocampo, 2011). On the other hand, structural rigidities preventing resources allocation within and across sectors can explain the persistent inter-sectoral productivity gaps across and within countries (Konté et al., 2021). Therefore, structural policies (such as antimonopoly, financial, labor, trade and macro institutions) are supposed to improve inter and intra sectoral allocative efficiency by eliminating market rigidities, correcting market failures, and removing the impediments to the efficient allocation of resources (Gersbach, 2004; Kouamé, 2019; Pichelmann & Roeger, 2004; Solow, 2004).

Moreover, the literature showed that the impact of structural policies on productivity, economic growth, and employment differed between the short and long runs. Indeed, while structural policies tend to induce higher growth and productivity as well as better allocative efficiency in the long-term, their short run gains remain uncertain. The latter often hinged on business cycle or initial conditions. These gains are also slow to materialize and face policy implementation hurdles that entail short run costs (Hollweg et al., 2014; IMF, 2019; Swaroop, 2016).

Against this background, this paper explores the policy determinants of structural change in developing countries. The paper makes several contributions to the literature. First, it

investigates the role of both structural and macroeconomic stabilization policies in driving structural change. Most previous empirical work has addressed the role of these policies separately. Second, the paper proposes a large set of novel measurements to capture the policies that are likely to influence structural change. These measurements relate to structural policies (antimonopoly policy, financial policy, labor policy, trade policy and macroeconomic institutions) and macroeconomic policies (exchange rate management, fiscal and monetary policies). Finally, the empirical work relies on the pooled mean group (PMG) estimator technique to distinguish between the short and long run impacts of the policies on structural change. We also measure structural change with different ways (productivity growth decomposition, value-added shares by sector and exports diversification).

Results show that the within-sector productivity improvements have been the main driver of productivity growth in in only two regions, East Asia and Sub-Saharan Africa. Furthermore, structural change has been growth reducing in the Middle East and North Africa (MENA) and Latin America. As per the empirical findings, they show that structural policies improve structural change over the long run, yet their effect is mostly insignificant over the short run. Our results also indicate some deindustrialization trends since structural policies tended to increase the share of services in value added whereas a similar effect on manufacturing could not be found. As per macroeconomic policies, our results highlight the importance of countercyclical fiscal policies and undervalued currencies in inducing structural change. Findings remain robust after we control for the endogeneity of policies.

The paper is organized as follows. Section 2 reviews the literature. Section 3 describes the data. Section 4 provides a summary of the stylized facts related to the patterns of structural change. Section 5 is dedicated to the methodology. Section 6 analyzes the empirical findings. Section 7 concludes and offers policy recommendations.

2 Literature Review

This literature review draws on the three following strands of the literature: (i) the determinants of structural change, (ii) the impact of structural policies on macroeconomic outcomes, and (iii) the developmental approach of macroeconomic policies.

With the recent emphasis on structural change, there is a fast-growing empirical and theoretical literature on the topic. Majority of studies focus on small country samples or small periods of time and there exists few studies on developing countries. This literature dates back to the 1950s and 1960s where early studies shed the light on the relationship between an economy's structure and its income (Chenery, 1960; Kuznets, 1955; Lewis, 1954). Overall, this early literature suggested that structural change is a key characteristic for economic development, and this was confirmed later by actual experiences of developed and emerging economies (Martins, 2019).

On the theoretical front, a number of explanations for the structural change process have been proposed. The theoretical challenge in this literature was to develop extensions to

the one sector growth models in order to account for the stylized facts related to structural change (Herrendorf et al., 2014). For instance, the Kuznet facts suggested that economic growth would go hand in hand with shifts in the sectoral structures of output, employment and expenditures. In contrast, the Kaldor facts suggested a balanced growth on the aggregate level. Hence, the challenge is to reconciliate the sectoral Kuznet facts with the aggregate Kaldor facts (Boppart, 2014)). The multi-sector growth theories focused accordingly on several determinants or driving forces of reallocation of activity across sectors, including changes in real incomes, changes in relative sectoral prices via technological progress, and changes in comparative advantages via international trade. First, income effects are generated by non-homothetic preferences (like Stone-Geary preferences generating non-linear Engel curves). When households' income rises, they tend to spend relatively less on agriculture goods and more on services. Second, the relative sectoral prices explanation goes back to Baumol (1967) work that formulated the cost disease hypothesis (recently generalized by Ngai and Pissarides (2007) work). According to Baumol cost disease, economic resources, particularly labor, move from the dynamic sectors characterized by a high rate of technical progress to the stagnant ones. These cross-sector differences in productivity growth will cause changes in relative prices which will accordingly induce structural change. It is worth noting that recent literature has made considerable effort to incorporate these two factors (non-homothetic preferences and cross-sector technology differences) in the same analytical framework (see Boppart (2014)). Third, Matsuyama (2009) is one of the first to have studied the impact of trade on structural change, particularly the drop in manufacturing employment. For instance, the fast productivity growth in manufacturing can lead to a decline of the manufacturing labor share in a closed economy as opposed to the manufacturing employment expansion that would result from specialization and competitive advantage (Herrendorf et al., 2014; Neuss, 2019).

This paper contributes to the strand of the literature which analyzes structural change determinants empirically on cross-countries level. This literature remains quite scarce, particularly for developing countries. It used different proxies to measure structural change: value added shares by sector (Dabla-Norris et al., 2013; Jha & Afrin, 2017), estimates for labor reallocation effect (Konté et al., 2021; Martins, 2019; McMillan et al., 2014; Morsy & Levy, 2020) and exports diversification (Rougier, 2016). To our knowledge, there is no study comparing these different measures. (Martins, 2019) considered sectoral value-added shares misleading since changes in employment lag behind and they are deemed essential for structural change process.

This empirical literature suggested a variety of structural change determinants, ranging from country specific factors or initial conditions, macroeconomic stability and policy variables. In their seminal work, McMillan et al. (2014) studied structural change patterns and determinants in 38 developing and high-income countries. Their findings suggest that the latter component played an important role in many high-growth countries whereas it has been growth reducing in Africa and Latin America. Their cross-country regression showed that a lower share of natural resources in exports, undervalued real exchange, and flexible labor markets enhance structural change. In the same vein, Martins (2019) studied struc-

tural change patterns and determinants in 169 countries. He used the Shapley decomposition methodology while studying the patterns. His findings suggest that labor reallocations played an important role since the 2000s, yet they remain relatively less important than within productivity contributions. He added a time dimension (two periods) while analyzing the determinants. His main findings show that that the pace of structural change is significantly shaped by human and physical capital. Dabla-Norris et al. (2013) described the stylized facts on structural transformation around the world and empirically analyzed its determinants using data on real value added by sector in 168 countries over 1970-2010. Their findings suggested that GDP, demographic structure and some policy variables (such as product market reforms, openness to trade, human and physical capital, and finance) are able to predict such evolution.

Our paper is also close in spirit to the strand of cross-countries empirical literature examining the determinants of deindustrialization or sectoral shares in value added (Nickell et al., 2008; Rougier, 2016). Rodrik (2016) suggested that developing countries are turning into service economies without going through industrialization. They are also undergoing this deindustrialization earlier than historical norms. His findings suggest that labor saving technological progress explain these patterns in advanced economies whereas trade and globalization explain them in developing countries. Nickell et al. (2008) findings suggest that total factor productivity and changes in relative prices of manufacturing and non-manufacturing goods explain the decline in manufacturing shares in the United Kingdom and United States relative to Germany and Japan. In addition, educational attainment largely explains changes in service sector specialization.

The second strand of the literature to which our paper relates analyzes structural policies impact on economic performance. A large part of this literature suggest that these policies have positive long run effects on growth and employment (see Christiansen et al., 2013; Egert, 2018 on per capita income; Biljanovska and Sandri, 2018 on TFP growth; Dabla-Norris et al. (2016) on productivity growth in developing countries). Three main insights stem from this literature and represent an important motivation for our paper. First, this literature identified structural policies as an important determinant of labor productivity growth through enhancing reallocation of resources such as labor and reducing structural rigidities (Dabla-Norris et al., 2016; Prati et al., 2013). However, much of existing studies do not disentangle these policies impact on the two components of labor productivity growth, the structural change and the within productivity improvement. Konté et al. (2021) were the first to do this differentiation. Their findings for a sample of developing countries over 1975-2005 suggest that structural policies affect the within and structural change components differently and they work mostly through the intra-allocative efficiency. Second, most of existing studies do not account for the different approaches of structural policies (liberalization versus government intervention) and they rather focus on liberalization policies. Third, this existing literature is rather inconclusive as to whether structural policies improve economic outcomes and hence, there is no consensus on their impact. According to Babecký and Campos (2011), this variation arises from differences in methods, specification and measurement. Fourth, there exists a large literature on the impact of these policies in

advanced economies yet, evidence on developing countries is relatively limited (especially for some structural policies like antimonopoly policy, Prati et al., 2013).

The third strand of literature that we account for examines the role of macroeconomic policies from a developmental perspective. This literature is scarce and hence, it is an important motivation for our paper to fill this gap and to provide a quantification on that front. There is a disagreement on whether macroeconomic policies can serve development objectives. In fact, macroeconomic stability should not be only perceived as a narrow matter of price levels but also stability of economic activity and employment (Ocampo, 2011) . Macroeconomic policies impact on growth can be stronger in developing countries in contrast to developed economies. In developed countries, productivity growth relies mainly on technological innovation. In contrast, developing countries can achieve productivity growth by shifting resources from least productive to most productive sectors. This process depends on investments decisions and resource allocation thereby explaining the relevance of macroeconomic policies (Ocampo & Vos, 2008).

The literature suggested that well-designed macroeconomic policies connected to structural transformation agenda should go beyond conventional macroeconomic stability. A developmental approach of macroeconomic policies requires mitigating the procyclical effects of financial markets and strengthening domestic financial governance and thereby coming up with policy space for countercyclical policies. Policy cyclicality can be defined as the policy stance in relation to the growth rate of the economy. Sustainable countercyclical policies help facing challenges related to external financing and fluctuations in commodity prices. Domestic policies usually respond procyclically to commodity price volatility (for example by increasing expenditures during booms and reducing spending when prices are down). The implementation of countercyclical fiscal policies in developing countries can be undermined by the lack of finance during recessions, the pressure from markets and possibly the IMF, and the difficulty of justifying austerity policies in good times (Ocampo, 2011; Ocampo & Vos, 2008). These factors altogether explain why macro policies in developing countries tend to be procyclical. Procyclical policies are very costly since they can lead to uncertainty in the real economy, inefficient resources allocation in upturns and weaker accumulation of infrastructure and human capital in downturns (Ocampo, 2011; Ocampo & Vos, 2008). On the empirical front, the literature provided evidence that countercyclical policies can enhance growth on the economy wide level (Aghion & Marinescu, 2007) and industry level (Aghion et al., 2014). The exchange rate can be also used to establish links between macroeconomic policies and structural transformation. Maintaining a competitive exchange rate is a proactive policy to diversify the production sector. An undervaluation of the exchange rate can serve as a partial substitute for production sector development policy or industrial policy. The development effect of exchange rate is related to the externalities generated by the development of tradable sectors which would thereby affect the diversification of exports structure (Islam & Kucera, 2013; Ocampo, 2011).

From the above review, we could, thus, conclude that the literature on structural change determinants in developing countries remains quite scarce. Existing literature used different

proxies to measure structural change. To our knowledge, no study compared these measures. As per structural policies, they mostly improve economic outcomes on the long run and their impact on the short run is rather inconclusive. Finally, the literature advocated for the role of countercyclical policies in driving structural transformation, though without providing a quantification.

3 Data

The analysis of this paper includes 152 low- and middle-income countries over the period 1991-2019 (Annex Table A1). [1] This period allows having the largest sample of developing countries. Furthermore, developing countries undertook important policy reforms in this period and they were affected by globalization and became more integrated to the world. Hence, it is interesting to study the implications of this context on economic transformation.

- **Structural change data**

The structural change term for a country i in a year t results from the following productivity growth decomposition equation (McMillan et al., 2014; McMillan and Rodrik, 2011)

$$\frac{\Delta P_t}{P_{t-k}} = \frac{\sum_{j=1}^{n} \theta_{jt-k} \Delta P_t}{P_{t-k}} + \frac{\sum_{j=1}^{n} P_{jt} \Delta \theta_{jt}}{P_{t-k}} \tag{1}$$

Where j is the sector, P_t economy wide labor productivity ((real value added divided by employment)); P_{jt} total labor productivity; θ_{jt} share of sector j in total employment; Δ change between t-k and t (k=5). The first term in this decomposition exercise is the within component of productivity growth and the second term is the structural change term. This exercise helps studying the patterns of structural change by region. In addition, the resulting structural change term is used in the cross-country empirical analysis (see section 5).

This decomposition exercise requires data on value-added and employment by sector. We use the UN Statistics National Accounts for the value added by sector (at constant 2015 prices) and the International Labour Organization (ILO) data for employment by economic activity. [2] The value added is available for seven sectors as follows: 1. Agriculture, hunting, forestry, fishing; 2. Manufacturing; 3. Mining and utilities; 4. Construction; 5. Wholesale, retail trade, and restaurants and hotels; 6. Transport, storage, and communication; 7. Other activities. Employment is available for fourteen sectors as follows: 1. Agriculture; forestry and fishing; 2. Mining and quarrying; 3. Manufacturing; 4. Utilities; 5. Construction; 6.

[1] We include low- and middle-income countries according to the World Bank income classification in 1990 and 2019. These are 163 countries. Yet, we end up with 152 countries since we exclude 11 countries which do not have sufficient observations (American Samoa, Antigua and Barbuda, Dominica, Kiribati, Kosovo, Marshall Islands, Micronesia, Fed. Sts., Samoa, Seychelles, St. Kitts and Nevis, Tuvalu).

[2] ILO defines employed as follows: comprise all persons of working age who, during a specified brief period, were in the following categories: a) paid employment (whether at work or with a job but not at work); or b) self-employment (whether at work or with an enterprise but not at work). Data are disaggregated by economic activity, which refers to the main activity of the establishment in which a person worked during the reference period.

Wholesale and retail trade; 7. Transport; storage and communication; 8. Accommodation (restaurants and hotels); 9. Financial and insurance activities; 10. Real estate; business and administrative activities; 11. Public administration and defense; compulsory social security; 12. Education; 13. Human health and social work activities; 14. Other services. We aggregate the employment data into seven sectors in order to match it with the value-added data (Annex Table A2).

In addition to the term resulting from the productivity growth decomposition, we also measure structural change as real value-added shares in agriculture, manufacturing and services (following Dabla-Norris et al., 2013; Jha and Afrin, 2017; Nickell et al., 2008) as well as exports diversification (Theil index of export diversification following Rougier, 2016). Exports diversification is related to the transformation of an economy's structure as follows. Developing countries in early development stages are usually specialized in a narrow range of agricultural or resource-based activities. Hence, structural transformation through resource reallocation involves a diversification into a balanced domestic production structure and thereby more diversified export structure (IMF, 2014). Indeed, export diversification reduces aggregate volatility since countries specialize in a wider range of less volatile sectors and would make use of a broader range of inputs into production (Henn et al., 2020; Rougier, 2016). Accordingly, diversification is supposed to support growth and economic transformation in developing countries (Giri et al., 2019). The Theil index (overall index) is obtained from the IMF Export Diversification and Quality Database (Henn et al., 2020). Higher values of the index indicate lower diversification. Annex B provides the methodology details of this index.

- **Structural policies data**

Following Kouamé (2019), structural policies can be defined as follows: "Government policies aiming to address market failures and to reduce or remove impediments to the efficient allocation of resources". We consider structural policies in five areas: antimonopoly policy, financial policy, labor policy, trade policy and macroeconomic institutions. We employ a set of novel indices in each area. Table A2 provides variables detailed definitions and sources.

First, antimonopoly policy is accounted for from de jure and de facto perspectives as follows. On the de jure front, we use the age of competition law (using Petersen, 2013 and our compiled dataset) or competition law dummy (taking the value 1 if the country has a competition law and zero otherwise). On the de facto front, we use the Economist Intelligence Unit competition indices.

Second, financial policy is accounted for on the domestic, international and public fronts. We use Abiad et al. (2010) domestic financial reforms index to account for the domestic financial policy and the de jure financial integration index of Fernandez et al. (2016) to account for the international front. The public finance is accounted for using the public

development banks database by mandate, age or dummy (Institute of New Structural Economics).

Third, for the labor policy, we consider the following variables: the index of hiring and firing regulations and index of hiring regulations and minimum wage (sub-indices of economic freedom index, Fraser Institute), the index of labor law restrictiveness from Economist Intelligence Unit, the ILO Employment Protection Legislation index.

Fourth, regarding trade policy, we construct several indices reflecting the enforcement and depth of content preferential trade agreements using use the World Bank deep trade agreements database (Annex C). We also use export promotion agencies age or dummy (using the survey data on export promotion agencies of Lederman et al., 2010; Olarreaga et al., 2019), the WTO membership (CEPII gravity dataset), the simple mean applied tariff, and the share of tariff lines with international peaks (World Development Indicators, World Bank).

Finally, macro institutions are accounted for using fiscal rules from the IMF Fiscal Rules Dataset, the presence of inflation targeting from the IMF Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) and the central bank transparency index of Dincer and Eichengreen (2014).

- **Macroeconomic policies data**

The macroeconomic policies are analyzed as follows. Macroeconomic outcomes include the fiscal deficit from the IMF Fiscal Monitor database, inflation from the World Development Indicators of the World Bank, and the exchange rate misalignment (an overvaluation index, CEPII EQCHANGE database) (Table A2.2).

As previously mentioned, the literature advocated for the importance of countercyclical policies in enhancing structural transformation. However, this literature has been mostly descriptive. This is why we complement this literature by providing a quantification on that front. Following Frankel et al. (2013), we measure cyclicality as the correlation between the cyclical components of real government expenditure or real government primary expenditure and real GDP on a 20-year rolling window (to introduce a time dimension to correlation coefficients by country). The cyclical components are estimated using the Hodrick–Prescott Filter. A positive (negative) correlation indicates procyclical (countercyclical) fiscal policy. Real government expenditure is defined as general government expenditure deflated by the GDP deflator. Similar definition applies for real government primary expenditures.

- **Other Controls**

The rest of the determinants of structural change and other macroeconomic controls (human capital, physical investment, GDP per capita, share of raw material exports in total exports and macroeconomic controls) will be obtained from the World Development

Indicators of the World Bank, Penn World Tables (version 10.0) and the World Integrated Trade Solutions (WITS, World Bank). We also use Barro and Lee educational attainment dataset for schooling and ILO data for skilled labor (as percentage of total labor).

4 Stylized facts

This section provides an overview on structural change patterns in our group of low and middle income countries over 1991-2019.

Sectoral value added and employment are the most common production related measures of structural transformation (Herrendorf et al., 2014). [3] Figure 1 depicts average sectoral shares of value added and employment. The following conclusions can be drawn. First, structural transformation pace differs across regions. Yet, all regions witnessed resources reallocation away from agriculture and its share in value added and employment declined. This reallocation process is well evidenced in the literature (Figures 2 and 3 also confirm this: when GDP per capita increases (or the level of development increases), the shares of employment and value added in agriculture decreases while the share of employment in industry and services increase (Herrendorf et al., 2014)). With the development process, workers migrate to cities to find opportunities in the industry or services sectors instead of agriculture (Bustos et al., 2016). Second, the value-added share of agriculture is considerably lower than its respective employment share in all regions. This can explain the large disparities in living standards across countries. Agriculture productivity in developing countries is much lower than developed countries. Yet, developing countries continue to devote a large share of employment to this sector (Caselli, 2005; Herrendorf et al., 2014). Agriculture employment share remains relatively important in East Asia, South Asia, and Sub-Saharan Africa. In Asian countries, agriculture can be the largest employer but not necessarily the largest sector in terms of value added (Briones and Felipe, 2013). Third, the typical structural change path entails a reallocation from agriculture to industry and subsequently to services. Yet, some developing countries followed a different path with a shift from agriculture directly to services without witnessing much industrialization. This seems to be the case in most of the regions where industry share in employment and value added remained somehow unchanged, despite the decline in the respective shares in agriculture. Structural change path of developing countries, with this leap of industrialization or manufacturing phase and whether services can substitute manufacturing, is debatable. On the one hand, manufacturing can be essential for inducing structural change given its increasing returns to scale, tradability and linkages with agriculture and services. On the other hand, services still induce structural change, especially those related to innovation and knowledge (Martins, 2019).

[3] Another common measure for structural transformation is the final consumption expenditures. For data availability reasons, we focus on production measures of structural transformation. Consumption measures of structural transformation can exhibit different patterns other than production ones (Herrendorf et al., 2014).

[Figure 1 about here]

[Figures 2 and 3 about here]

Ideally, the labor moving out of agriculture should be directed to sectors with productivity levels above than average. Sectors with rising employment shares are those with a relative labor productivity above than zero. This does not seem to be the case in several regions (Figure 4). Labor moved to retail and accommodation sector in all regions while the sector has productivity level below the economy wide average. The same applies on construction in East Asia, MENA and South Asia. In addition, labor moved to other services sector yet this sector productivity level is only marginally higher than the economy wide average (especially in Europe and Latin America).

[Figure 4 about here]

Sectoral productivity provides evidence on the pace of structural transformation by region as follows (Figure 5). First, agriculture has the lowest productivity in all regions whereas mining and utilities has the highest (by noticeable margins, similar to Martins, 2019 findings). Second, developing countries exhibit large differences among sectors productivity (except for Latin America). These productivity gaps remain large after excluding mining and utilities sector. On a positive note, these gaps suggest that workers reallocation from low to high productivity sectors can induce labor productivity on the economy wide level (Doemeland & Schiffbauer, 2016). Yet, the employment generation potential of some high productivity sectors can be limited given their capital intensity and their limited capacity to absorb labor (Martins, 2019).

[Figure 5 about here]

These productivity gaps are indeed a sign of underdevelopment, and they diminish as a result of economic growth. Figure 6 confirms this, and it shows that the relationship between the coefficient of variation of the log of sectoral productivities and the average labor productivity is negative. This confirms the role of structural change in inducing convergence and that the reallocation from low productivity to high productivity sectors should raise economy wide productivity (Dabla-Norris et al., 2013; McMillan et al., 2014).

[Figure 6 about here]

Figure 7 reveal the following conclusions on the reallocation process in different regions. First, productivity growth on average has been largely increasing in East Asia and to a lower extent in Sub-Saharan Africa across the three studied periods. In both cases, the within-sector productivity improvements have been the main driver of this performance. Second, structural change component has been relatively important in driving productivity in East Asia relative to other regions. Third, in Sub-Saharan Africa, structural change contribution

has been increasing across the different periods. It is also coinciding with an increase in manufacturing productivity making these countries less vulnerable to commodity price shocks. Fourth, productivity growth declined in Europe in the most recent period (2011-2019), possibly due the global financial crisis. Fifth, structural change contribution to productivity growth in MENA and Latin America is negative. This could be related to the fact that displaced workers might have ended up moving to less productive activities on average (for example informal activities) (Martins, 2019; McMillan et al., 2014).

[Figure 7 about here]

5 Econometric specification

Drawing on existing literature (Dabla-Norris et al., 2013; Marouani & Mouelhi, 2016; Martins, 2019; McMillan & Rodrik, 2011), we study the fundamental determinants and the policy determinants (structural and macroeconomic policies) of structural change in developing countries over 1991-2019. As a baseline, we estimate the following panel fixed effects regression:

$$SC_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 Policy_{it} + \nu i + \varepsilon_{it} \tag{2}$$

The dependent variable (SC_{it}) is the structural change term for a country i in a year t (see Section 3 on data). [4] An important value added of this paper consists in measuring this structural change using different approaches. Hence, we contrast this specification to other ones where the dependent variable will be the real value-added shares in manufacturing and services (Dabla-Norris et al., 2013; Jha & Afrin, 2017; Nickell et al., 2008) and exports diversification (Theil index, Rougier, 2016).

Regarding explanatory variables, we consider macroeconomic and structural policies ($Policy_{it}$) and a set of controls (X_{it}): a measure of human capital (human capital index). Human capital is of vital importance since employment dynamics play the central role in inducing structural change), a measure of physical capital (investment as percentage of GDP), the initial share of agriculture in total employment (it increases the potential to benefit from reallocation), the GDP per capita (following theoretical literature on structural change determinants) and the share of raw material exports in total exports (resource rich countries have limited incentives to diversify their economies). νi is the country fixed effect (accounting for time-invariant unobservable country-specific factors) and ε_{it} is the discrepancy term. All variables are taken in logarithmic transformation.

Each policy (structural or macro) is studied in a separate specification (following Aksoy, 2019; Prati et al., 2013) to disentangle its impact since different policies can be highly

[4] The way structural change is measured here is suitable for the purposes of this paper. Martins (2019) also clarified that some broader definitions for structural change go beyond changes in economic structures since they can include changes in other aspects of the society: spatial reorganization of the population and demographic change. However, these measurements are beyond the scope of this paper.

collinear. We consider structural policies in five areas: antimonopoly policy, financial policy, labor policy, trade policy and macroeconomic institutions in addition to macroeconomic outcomes (section 3 data).

The above specifications serve as a baseline, but we still need to opt for a dynamic heterogeneous panel. Traditional static panel models may not capture the dynamic structure of our data. These estimators only deal with structural heterogeneity through fixed and random effects. They impose homogeneous slope coefficients across countries even in case of subnational variations. GMM estimators capture only short run dynamics. Hence, they may not represent the long-run equilibrium relationship. In addition, the homogeneity assumption on the slope coefficients of lagged variables could lead to bias unless the coefficients are identical (Samargandi et al., 2015).

Following Samargandi et al. (2015) and Aksoy (2019), we examine both the long- and short-term effects of structural policies and macro policies on structural change in developing countries (Annex Table A1) over the period 1991-2019. The dynamic heterogenous panel regression can be incorporated into an error correction using the autoregressive distributed lag ARDL (p,q) model, where p is the lag of dependent variable and q is the lag of independent variables [5] as follows:

$$\Delta SC_{it} = \sum_{j=1}^{p-1} \gamma_i^i \Delta SC_{it-j} + \sum_{j=0}^{q-1} \delta_i^i \Delta X_{it-j} + \phi_i [SC_{it-1} - (\beta_0^i + \beta_1^i X_{it})] + \varepsilon_{it} \tag{3}$$

Where γ short run coefficients of lagged dependent; δ short run coefficients of lagged independent variables; β long run coefficients; ϕ coefficient of the speed of adjustment to the long run equilibrium. A negative and significant ϕ confirms the long run relationship between the dependent and independent variables and represents the evidence of cointegration between them.

Equation 3 can be estimated by three alternative estimators: mean group (MG), pooled mean group (PMG) and dynamic fixed effects estimator (DFE) (Pesaran et al., 1999). The panel ARDL has the following main advantages: First, as previously explained, the effects of structural policies over the short and long run can differ. These estimators account for this differentiation and the short and long coefficients can be estimated with a dataset with large country and time dimensions. Second, it can be used with variables with different orders of integration. Third, PMG and MG estimators can provide consistent coefficients despite the possible presence of endogeneity since they include lags of dependent and independent variables. They can therefore mitigate the problem of reverse causality (Aksoy, 2019; Samargandi et al., 2015).

The PMG estimator is relevant to our analysis. It allows the short run coefficients (including intercepts, speed of adjustment and error variances) to be heterogeneous by country

[5] Regarding the lag structure of ARDL, Loayaza and Rancière (2006) argued that in case there is no interest in analyzing the short-term parameters, it is recommended to impose a common lag structure across countries according to data limitations. Hence, we impose the following lag structure (1, 1, 1, 1).

whereas long run coefficients are homogeneous across countries. We expect our sample to be homogeneous in the linkages between structural policies and structural change over the long run. Yet, over the short run, there is country-specific heterogeneity given the effect of local laws and regulations. However, we still have to undertake a formal test to choose among the three estimators (PMG, MG and DFE) which is the Hausman test. It examines the validity of the long run homogeneity assumption (and the efficiency of the PMG estimator against the MG and the DFE). Finally, the conditions for obtaining consistent and efficient PMG estimator are as follows. First, the coefficient of the error correction term should be negative and not lower than -2. Second, the time and countries dimensions, T and N, should be large to use the dynamic panel technique. In addition, the time dimension must be large enough to estimate the model for each group separately (Aksoy, 2019; Samargandi et al., 2015).

6 Empirical Findings

As previously explained, this paper studies the fundamental and policy determinants of structural change in developing countries. We measure structural change with three ways: productivity growth decomposition, value-added shares by sector and exports diversification. It is worth mentioning here that a lower value of the export diversification index indicates higher exports diversification. Hence, a certain policy would improve structural change by increasing the structural change term resulting from productivity growth decomposition and by reducing the export diversification index. The fixed effects specifications serve as a baseline (Tables 1 - 9). Afterwards, the long- and short-term effects of structural policies and macro policies on structural change are examined using a dynamic heterogeneous panel (Tables 8 to 10). Table 15 provides a summary of the results. We focus on findings where there is an agreement across different measures and specifications.

The baseline results (fixed effects panel) are reported in Tables 1 to 9. Table 1 describes the fundamental determinants of structural change, and the following conclusions can be drawn. Employment dynamism is at the heart of structural change, thereby explaining the importance of human capital in this process. Results confirm this with the different measures of human capital used (human capital index and the share of skilled labor). Our findings also show that physical capital (measured by investment as a percentage of GDP) equally plays a crucial role in enhancing the reallocation process and inducing structural change. This is in line with Martins (2019) and Dabla-Norris et al. (2013) who stress on the importance of human and physical capital importance for structural transformation. The initial agriculture employment share (at t-5 since we measure productivity growth between t and t-5) improves structural change. Countries with high employment shares in agriculture can have a large opportunity to benefit from employment reallocation. The raw material exports share in total exports share exerts a negative and significant effect on structural change. Economies with a comparative advantage in natural resources can be disadvantaged when it comes to economic transformation. They can have limited incentives to diversify their production structure. The GDP per capita exerts a positive and significant effect on structural change, thereby confirming the income effect that is well established in the theoretical literature on

structural change determinants.

Tables 4 to 7report baseline results when structural change is measured using value added shares. These results point out to an important discussion on deindustrialization in developing countries. Our analysis starts in the 1990s when globalization was exerting a significant impact on all developing countries, and this has indeed affected structural change patterns in these countries. Our results confirm the importance of structural policies to structural change since most structural policies exert a positive and pronounced effect on services shares whereas their effect on manufacturing share is either insignificant or negative. This can be also related to the fact that developing countries are mostly turning into services economies without going first through a proper experience of industrialization or eventually undergoing the so-called premature deindustrialization (Rodrik, 2016). The debate on whether advanced services can be a substitute for manufacturing has important implications for developing countries.

Regarding the dynamic heterogeneous panel specification, results tables (Tables 10 to 13) report the PMG estimator and the Hausman test p-value. [6] The latter measures the efficiency and consistency among PMG and MG estimators. In most of the specifications, the Hausman test confirms that PMG estimator is efficient compared to MG. The PMG estimator is also more relevant to our analysis as previously explained in the methodology. For all specifications, the negative and significant error correction coefficient confirms the existence of a long run relationship between the variables.

We now turn into a detailed discussion on the effect of each policy on structural change. Findings from the dynamic heterogeneous panel are particularly important for structural policies since they reflect the path towards the long run equilibrium. We complement them with relevant findings from the baseline panel fixed effects.

6.1 Structural change and structural polices

Regarding anti-monopoly policy, the index of promotion of competition and the index of competition law (age/dummy) improve structural change (whether measured by the productivity growth decomposition or services value added or export diversification) over the long run according to the PMG estimator (Tables 10, 11 and 13). For instance, competition enhances the reallocation process by removing barriers to entry and exit and supporting the creation of new enterprises. In fact, misallocation of resources can arise from structural rigidities preventing efficient allocation of resources. Frictions driving cross-country differences in allocative efficiency include among others, barriers to entry, market power and monopoly power. The enforcement of an antimonopoly policy is supposed to increase competition in markets, deter anticompetitive practices, reduce markups, and thereby generate allocative, dynamic, and productive efficiency (Konté et al., 2021).

[6] MG and DFE results are not reported to save space. They are available upon request.

As per financial policy, on the domestic front, domestic financial reforms (measured by Abiad et al., 2010 index where a higher score means more liberalization and a lower score means more repression) significantly improve structural change over the long run according to the PMG estimator (Tables 11 and 13). In fact, financial reforms can improve the process of reallocation of production factors as follows. Firms access to finance determines their expansion decision and thereby this would determine the possibility of hiring new workers. This suggests that credit allocation across firms and sectors will determine how much structural change can occur and how much resulting growth the economy can benefit from (Kharroubi & Silva, 2019). In addition, a well-developed financial system can lead to a more efficient allocation of capital among firms and industries (Dabla-Norris et al., 2016).

As for the international finance, the de jure index of overall financial restrictions (Fernandez et al. (2016) index: the 0/1 qualitative indicator denoting the absence (0) or the presence (1) of capital controls) exerts a positive and significant effect on structural change over the long run according to the PMG estimator (Tables 10, 11 and 12). The role of capital controls is debatable on the theoretical research front as well as on the policy prescriptions front, and they are sometimes perceived as contributing to macroeconomic and financial stability. Ocampo (2011) also justify their use in the case of developing countries as a countercyclical tool to curb external shocks (or volatile capital inflows during booms).

We also control for public finance using the recent public development banks database. Ocampo (2020) advocates for public development banks being a mechanism that can finance innovative activities and thereby promote industrialization. Our contribution is that we provide a relevant quantification using this database. Public development banks with different mandates broadly exert a positive and significant effect on structural change across different specifications and different measures. This is an interesting finding since the existing literature falls short on providing a quantification for interventionist policies impact in cross countries studies. To our knowledge, our paper is possibly the first to quantify the impact of public development banks on structural change. The role of selective government industrial policies in inducing structural transformation is debatable. State interventionist policies are sometimes perceived as unnecessary since the private sector will invest in the country's comparative advantage while searching for its own profit. In contrast, other views suggest that markets fall short on some aspects. For instance, East Asian countries witnessed a successful structural change under different international arrangements than those usually prevailing, and they allowed for more state intervention in the form of industrial and trade policies. Many of them tried a variety of policies to encourage investments in exports sectors through tax breaks, export subsidies, import tariff exemptions, and export zones. Significant global crisis (like the 2008 financial crisis and the current COVID pandemic) usually reinitiate debates around state interventionist policies in comparison to unregulated markets (Commission & Growth, 2008; Salazar-Xirinachs et al., 2014; UNCTAD, 2016).

Moving to labor policy, the hiring firing regulations index exerts a positive and significant effect on structural change in baseline specifications (Tables 2, 4 and 8). Structural transformation requires well-functioning labor markets. Labor regulations are not supposed

to protect jobs in existing industries but rather to protect employment and encourage labor mobility (Commission & Growth, 2008). The latter regulations modify the tradeoffs related to opening vacancies. This can accordingly have a direct effect on labor demand and the extent to which high productivity sectors can absorb workers moving from low productivity sectors. In addition, these regulations can affect labor supply since rents in low productive sectors can reduce incentives to move to productive sectors (Kharroubi & Silva, 2019). In contrast, inadequate labor regulations (rigid hiring and firing regulations, weak income protection, etc.) encourage informality and thereby make the reallocation process and the move to more productive sectors more costly (Dabla-Norris et al., 2016).

As per trade policy, export promotion agencies (measured by the age of agency) exert a positive and significant effect on structural change in the long run and no impact in the short run according to the PMG estimator (Table 10). This is another interesting finding on interventionist policies. Furthermore, we rely on novel indices to measure the depth and enforceability of trade agreements. They exert a positive and significant effect on structural change in the long run according to the PMG estimator (Tables 11 and 13). Trade has been identified as a determinant of structural change in the theoretical literature on structural change determinants. Trade accelerates the process of structural transformation as follows. First, barriers to international trade can impede resource allocation and thereby reduce productivity growth (Dabla-Norris et al., 2016). Second, deeper integration in international trade can increase the pace and extent of industrialization and raise productivity, within and across sectors. Third, from a micro perspective, when the labor force is exposed to foreign competition, more productive sectors can experience an increase in their employment share (UNCTAD, 2016). The WTO membership reduces exports diversification (exerts a positive and significant impact) over the long run as per the PMG estimator whereas the enforcement and depth of trade agreements improves it (Table 13). Similar findings were found when structural change is measured as value added shares: WTO membership reduces services value added share whereas enforceability and depth of trade agreements improve it on the long run (Table 11). This confirms that the membership in WTO can be insufficient and what really matters to improve export diversification is the enforcement of trade agreements (which can be perceived as the de facto application to trade agreements).

A cross cutting conclusion across the different structural policies results is that they mostly affect structural change over the long run and not the short run. This is in line with the literature on structural policies suggesting that they usually take time to materialize, and as previously mentioned their impact over the short run is rather inconclusive. In addition, this confirms our earlier assumption that a conventional framework exclusively focusing on macroeconomic stability is insufficient to accelerate the pace of structural change in developing countries.

6.2 Structural change and macroeconomic polices

Our results highlight the importance of macroeconomic institutions in driving structural transformation over the long run, including fiscal rules, inflation targeting and central bank

transparency. In fact, macroeconomic instability, which makes the domestic environment less predictable, can hamper resources allocation decisions and reduce investment (Serven & Montiel, 2006). These macroeconomic institutions endorse macroeconomic stability and also improve the implementation of some structural policies (as previously shown by the impact of the interaction between business cycle and structural policies).

Despite the potential benefits and flexibility of fiscal policy, its effectiveness as a mechanism ensuring macroeconomic stability is controversial. Its success in driving structural transformation depends on the institutional perspective (Lopes et al., 2017). Our results confirm this where fiscal policy from an institutional perspective (measured by fiscal rules) improves structural change on the long run as per the PMG estimator (Tables 10 and 11). As per monetary policy, central bank transparency and inflation targeting improves structural change over the long run as per the PMG estimator (Tables 11 and 13). For instance, they reduce the inflationary bias and enhance the credibility of monetary policy. Less stable inflation rates cause inefficient allocation of resources and this why central bank transparency and inflation targeting would lead to higher growth and structural change (Cukierman et al., 1993).

Furthermore, our results show that an active exchange rate can help foster structural change (according to the exchange rate misalignment measurement) (Tables 3, 5 and 9). For instance, a competitive exchange rate can be viewed as a type of industrial policy, especially in the face of restrictions on exports subsidies under WTO rules (Ocampo, 2020). Maintaining a competitive exchange rate can help fostering the diversification of the production sector (Ocampo, 2011).

The literature has highlighted the importance of countercyclical policies in enhancing structural transformation in developing countries. We tried to provide a quantification on that front to complement the literature argument. Our results show that the expenditures procyclicality exerts a negative and significant effect on structural change (Tables 3, 5 and 7). Countercyclicality in fiscal policies can help developing countries face the challenges they face from swings of external financing cycles and fluctuations in commodity prices (Ocampo, 2011).

It is finally worth highlighting that many developing countries macroeconomic policies focus on the objective of stabilization and achieving low inflation instead of focusing on sustained economic growth. Indeed, maintaining macroeconomic stability is a prerequisite for promoting sustained growth with low volatility and granting a path towards structural transformation. Yet, this transformation requires the use of appropriate policies ensuring optimal allocation of resources. Accordingly, for macroeconomic policies to be successful in driving structural change, they must be coupled with relevant structural policies as previously discussed.

7 Conclusion

This paper analyzes the policy determinants of structural change in developing countries, including structural policies and macroeconomic stabilization ones. The paper makes several contributions to the literature. First, it investigates the role of both structural and macroeconomic policies in driving structural change. Most previous empirical work has addressed the role of these policies separately. Second, the paper proposes a large set of novel measurements to capture the policies that are likely to influence structural change. These measurements relate to structural policies (antimonopoly policy, financial policy, labor policy, trade policy and macroeconomic institutions) and macroeconomic policies (exchange rate management, fiscal and monetary policies). Finally, the empirical work relies on the pooled mean group (PMG) estimator technique to distinguish between the short and long run impacts of the policies on structural change. We also measure structural change with different ways (productivity growth decomposition, value-added shares by sector and exports diversification).

Results show that the within-sector productivity improvements have been the main driver of productivity growth in only two regions, East Asia and Sub-Saharan Africa. Furthermore, structural change has been growth reducing in the Middle East and North Africa (MENA) and Latin America. As per the empirical findings, they show that structural policies improve structural change over the long run, yet their effect is mostly insignificant over the short run. As per macroeconomic policies, our results highlight the importance of countercyclical fiscal policies and undervalued currencies in inducing structural change.

Our results also indicate some deindustrialization trends since structural policies tended to increase the share of services in value added whereas a similar effect on manufacturing could not be found. Indeed, industrialization-driven growth can be special due to several reasons, including its labor absorption capacity, tradability and the unconditional convergence to advanced technologies. Acknowledging these deindustrialization trends implies thinking of new development strategies and asking whether it would be possible to replicate manufacturing capabilities in inducing structural change in other parts of the economy. Services sectors vary according to their productivity, tradability and skills and not all of them can act as growth poles, though the ones associated with knowledge and innovation can create structural change (Rodrik, 2022; Martins, 2019).

From a policy perspective, macroeconomic stabilization is necessary for developing countries since it makes the domestic environment more predictable and improves resources allocation. However, this macroeconomic stability is not likely to be sufficient. This is why policy makers need to ensure that structural change and long run sustainable growth are not being sacrificed. Accordingly, a reasonable policy mix of structural and macro policies is needed to navigate a development path towards structural transformation. Despite being costly on the short run, structural policies can help developing countries achieve an efficient allocation of resources which would ensure a sustainable path towards structural change. As per macroeconomic policies, developing countries need to go beyond the conventional

stability objectives. They can consider a developmental approach of macroeconomic policies through countercyclical policies. Indeed, the latter policies help facing challenges related to external financing and fluctuations in commodity prices.

Table 1: Structural change fundamental determinants, baseline (fixed effects panel)

	(1)	(2)	(3)	(4)	(5)	(6)
Human capital	0.0474***	0.0285	0.0760***	0.0140*	0.0205**	
	(0.0179)	(0.0180)	(0.0250)	(0.00794)	(0.00931)	
Physical capital (Inv % gdp)		0.0140***	0.0139***	0.00609***	0.00558***	0.00560***
		(0.00521)	(0.00533)	(0.00164)	(0.00199)	(0.00183)
Agriculture emp share (initial)			0.165***	0.222***	0.266***	0.240***
			(0.0397)	(0.0126)	(0.0142)	(0.0124)
GDP per capita				0.0345***	0.0393***	0.0301***
				(0.00274)	(0.00330)	(0.00272)
Raw material exports share					-0.00218*	-0.00342***
					(0.00115)	(0.00103)
Human capital (share of skilled labor)						0.161***
						(0.0297)
Constant	0.802***	0.773***	0.677***	0.456***	0.405***	0.482***
	(0.0142)	(0.0206)	(0.0345)	(0.0224)	(0.0267)	(0.0232)
Observations	2,837	2,795	2,673	2,653	2,182	2,524
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.003	0.004	0.009	0.134	0.160	0.147
Number of countries	114	114	114	113	104	131

Notes:
Standard errors in parentheses.
** p<0.01, ** p<0.05, * p<0.1

Table 2: Structural change (productivity growth decomposition) and policies, baseline panel fixed effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Human capital	0.0195**	0.0117	-0.107***	-0.00579	0.0126	0.0382***	0.0225**	0.0292**
	(0.00950)	(0.0176)	(0.0335)	(0.0140)	(0.00946)	(0.0134)	(0.00946)	(0.0131)
Physical capital (Inv % gdp)	0.00547***	0.000181	-0.0155***	0.00282	0.00599***	-0.000463	0.00557***	0.00265
	(0.00201)	(0.00470)	(0.00437)	(0.00312)	(0.00199)	(0.00291)	(0.00199)	(0.00237)
Agriculture emp share (initial)	0.266***	0.298***	0.370***	0.276***	0.265***	0.296***	0.267***	0.301***
	(0.0142)	(0.0401)	(0.0441)	(0.0181)	(0.0141)	(0.0187)	(0.0142)	(0.0185)
Raw material exp share	-0.00219*	0.000479	0.000303	-0.00121	-0.00195*	-0.00189	-0.00216*	-0.00402***
	(0.00115)	(0.00281)	(0.00330)	(0.00165)	(0.00114)	(0.00155)	(0.00115)	(0.00143)
GDP per capita	0.0391***	0.0465***	0.0514***	0.0510***	0.0386***	0.0343***	0.0399***	0.0536***
	(0.00333)	(0.00737)	(0.00952)	(0.00497)	(0.00329)	(0.00463)	(0.00333)	(0.00449)
Antimonopoly policy								
Compe law dummy	0.000956							
	(0.00186)							
Freedom to compete index		0.0218***						
		(0.00830)						
Financial policy								
Financial reforms index			0.0386***					
			(0.0101)					
Financial integration index				0.0103**				
				(0.00418)				
Public dev banks (infra mandate)					0.00118***			
					(0.000277)			
Labor policy								
Hiring and firing reg index						0.00138**		
						(0.000651)		
Trade policy								
Exports promotion agencies							-0.00283	
							(0.00233)	
Index of enforc of trade agreem								-0.00250
								(0.00201)
Constant	0.408***	0.327***	0.325***	0.330***	0.413***	0.434***	0.400***	0.295***
	(0.0271)	(0.0672)	(0.0718)	(0.0370)	(0.0267)	(0.0360)	(0.0271)	(0.0340)
Observations	2,182	702	553	1,290	2,182	1,644	2,182	1,568
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.160	0.089	0.188	63	0.167	0.148	0.160	0.202
Number of countries	104	31	61	0.188	104	100	104	101

Notes:
Standard errors in parentheses.
** p<0.01, ** p<0.05, * p<0.1

Table 3: Structural change (productivity growth decomposition) and policies, baseline panel fixed effects

	(1)	(2)	(3)	(4)	(5)	(6)
Human capital	0.0196**	0.0108	0.0251***	0.0398***	0.0276***	0.0327***
	(0.00930)	(0.0165)	(0.00954)	(0.00935)	(0.0102)	(0.00945)
Physical capital (Inv % gdp)	0.00588***	-0.000694	0.00490**	0.00703***	0.00765***	0.00638***
	(0.00199)	(0.00348)	(0.00202)	(0.00202)	(0.00228)	(0.00201)
Agriculture emp share	0.267***	0.415***	0.275***	0.296***	0.263***	0.249***
	(0.0142)	(0.0234)	(0.0147)	(0.0139)	(0.0148)	(0.0135)
Raw material exp share	-0.00210*	-0.00694***	-0.00259**	-0.00186	-0.00105	-0.000321
	(0.00115)	(0.00200)	(0.00116)	(0.00116)	(0.00121)	(0.00107)
GDP per capita	0.0388***	0.0764***	0.0411***	0.0388***	0.0373***	0.0327***
	(0.00330)	(0.00559)	(0.00341)	(0.00325)	(0.00368)	(0.00319)
Macro institutions						
Fiscal rules (budget balance rule)	0.000653***					
	(0.000212)					
Cntral bank transparency		0.000109				
		(0.000535)				
Inflation targeting			-0.00224			
			(0.00229)			
Macro outcomes						
Inflation				-0.00114*		
				(0.000596)		
Procyclicality of expenditures					-0.00420**	
					(0.00184)	
Exchange rate misalignment						-0.00450*
						(0.00276)
Constant	0.408***	0.0948**	0.388***	0.380***	0.408***	0.446***
	(0.0267)	(0.0423)	(0.0275)	(0.0266)	(0.0294)	(0.0255)
Observations	2,182	1,093	2,087	2,014	2,024	1,745
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.164	0.301	0.169	0.206	0.157	0.187
Number of countries	104	72	103	102	102	80

Notes:
Standard errors in parentheses.
** p<0.01, ** p<0.05, * p<0.1

Table 4: Structural change (services value added share) and policies, baseline panel fixed effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Human capital	0.143***	0.128***	-0.00423	0.157***	0.143***	0.170***	0.148***	0.148***	0.149***	0.149***
	(0.00834)	(0.0105)	(0.0196)	(0.00970)	(0.00768)	(0.00985)	(0.00844)	(0.0105)	(0.0105)	(0.0105)
Physical capital	-0.00215	-0.0115***	-0.0111***	-0.00535**	-0.00233	-0.00321	-0.00215	-0.00113	-0.00116	-0.00116
	(0.00183)	(0.00318)	(0.00287)	(0.00233)	(0.00182)	(0.00228)	(0.00185)	(0.00208)	(0.00208)	(0.00208)
Raw mat exp share	0.00368***	-0.00113	-0.000861	0.00747***	0.00373***	0.00722***	0.00376***	0.00417***	0.00416***	0.00417***
	(0.00104)	(0.00184)	(0.00227)	(0.00122)	(0.00103)	(0.00123)	(0.00105)	(0.00126)	(0.00126)	(0.00126)
GDP per capita	0.00347	0.0235***	0.000843	0.0152***	0.00621**	0.00218	0.00534**	0.0105***	0.0106***	0.0106***
	(0.00272)	(0.00342)	(0.00579)	(0.00326)	(0.00250)	(0.00311)	(0.00266)	(0.00376)	(0.00376)	(0.00375)
Antimonopoly policy										
Comp law age	0.00260***									
	(0.000823)									
Freedom to compete		0.0108**								
		(0.00533)								
Financial policy										
Financial reforms			0.0181***							
			(0.00415)							
Financial integration				0.00441						
				(0.00310)						
Public dev banks (infra mandate)					0.00155***					
					(0.000231)					
Labor policy										
Hiring and firing reg						0.00331***				
						(0.000511)				
Trade policy										
Exp prom agencies							0.000190*			
							(0.000113)			
Enforceability trade agreem (sum)								0.00335*		
								(0.00177)		
Enforceability trade agreem (depth2)									0.00267*	
									(0.00155)	
Enforceability trade agreem (depth3)										0.00297*
										(0.00159)
Constant	0.296***	0.156***	0.426***	0.187***	0.275***	0.265***	0.279***	0.224***	0.237***	0.239***
	(0.0196)	(0.0254)	(0.0408)	(0.0216)	(0.0171)	(0.0207)	(0.0189)	(0.0243)	(0.0260)	(0.0259)
Observations	2,390	758	711	1,345	2,390	1,728	2,390	1,668	1,668	1,668
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.305	0.475	0.074	63	0.315	0.301	0.303	0.261	0.261	0.261
Number of countries	104	31	61	0.418	104	100	104	101	101	101

Notes:
Standard errors in parentheses.
** p<0.01, ** p<0.05, * p<0.1

Table 5: Structural change (services value added share) and policies, baseline panel fixed effects

	(1)	(2)	(3)	(4)	(5)	(6)
Human capital	0.152***	0.159***	0.160***	0.150***	0.172***	0.170***
	(0.00758)	(0.0132)	(0.00787)	(0.00830)	(0.00833)	(0.00882)
Physical capital (Inv % gdp)	-0.00253	-0.00861***	-0.00344*	-0.00401**	0.000801	-0.00694***
	(0.00183)	(0.00283)	(0.00187)	(0.00200)	(0.00204)	(0.00211)
Raw material exports	0.00386***	0.00194	0.00434***	0.00655***	0.00273**	0.00390***
	(0.00105)	(0.00160)	(0.00106)	(0.00113)	(0.00107)	(0.00112)
GDP per capita	0.00717***	0.0192***	0.00892***	0.0116***	0.00546**	0.00884***
	(0.00253)	(0.00401)	(0.00265)	(0.00266)	(0.00275)	(0.00275)
Macro institutions						
Fiscal rules (revenues rule age)	0.00103***					
	(0.000371)					
Central bank transparency		-0.000980**				
		(0.000437)				
Inflation targeting			-0.0100***			
			(0.00198)			
Macro outcomes						
Inflation				0.00121**		
				(0.000569)		
Procyclicality of expenditures					-0.00572***	
					(0.00148)	
Exchange rate misalignment						-0.0136***
						(0.00289)
Constant	0.263***	0.183***	0.246***	0.224***	0.256***	0.247***
	(0.0172)	(0.0255)	(0.0183)	(0.0186)	(0.0188)	(0.0183)
Observations	2,390	1,101	2,295	2,203	2,127	1,912
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.304	0.315	0.298	0.310	0.328	0.360
Number of countries	104	72	103	102	102	80

Notes:
Standard errors in parentheses.
** p<0.01, ** p<0.05, * p<0.1

Table 6: Structural change (manufacturing value added share) and policies, baseline panel fixed effects

	(1)	(2)	(3)	(1)	(4)	(6)	(7)	(8)	(9)	(10)
Human capital	-0.0546***	-0.0554***	-0.0268	-0.0555***	-0.0592***	-0.0913***	-0.0573***	-0.0571***	-0.0577***	-0.0577***
	(0.00773)	(0.00947)	(0.0177)	(0.0105)	(0.00703)	(0.00936)	(0.00724)	(0.00875)	(0.00873)	(0.00872)
Physical capital	0.000226	0.00890***	0.000565	0.00420*	0.000865	-0.00676***	0.000730	0.00180	0.00188	0.00186
	(0.00171)	(0.00275)	(0.00251)	(0.00246)	(0.00168)	(0.00213)	(0.00167)	(0.00173)	(0.00172)	(0.00172)
Raw mat exp share	-0.00780***	-0.0169***	-0.0118***	-0.00499***	-0.00776***	-0.00963***	-0.00775***	-0.00433***	-0.00433***	-0.00433***
	(0.000962)	(0.00165)	(0.00194)	(0.00129)	(0.000962)	(0.00115)	(0.000962)	(0.00105)	(0.00105)	(0.00104)
GDP per capita	0.0171***	0.0227***	0.0437***	0.00283	0.0154***	0.0345***	0.0153***	0.000894	0.000522	0.000529
	(0.00283)	(0.00338)	(0.00522)	(0.00370)	(0.00245)	(0.00304)	(0.00245)	(0.00315)	(0.00315)	(0.00314)
Antimonopoly policy										
Comp law age	-0.000158									
	(0.000109)									
Freedom to compete		0.0126***								
		(0.00460)								
Financial policy										
Financial reforms			-0.00535							
			(0.00379)							
Financial integration				-0.00402						
				(0.00325)						
Public dev banks					-0.00657					
(infra mandate)										
					(0.00473)					
Labor policy										
Hiring and firing reg						-0.00217***				
						(0.000478)				
Trade policy										
Exp prom agencies							-0.00190			
							(0.00174)			
Enforceability of								0.00383***		
trade agreem (sum)										
								(0.00146)		
Enforceability of									0.00408***	
trade agreem (depth2)										
									(0.00128)	
Enforceability of										0.00432***
trade agreem (depth3)										
										(0.00131)
Constant	0.0658***	0.0164	-0.134***	0.172***	0.0802***	-0.00636	0.0804***	0.173***	0.195***	0.195***
	(0.0204)	(0.0243)	(0.0365)	(0.0243)	(0.0166)	(0.0201)	(0.0167)	(0.0203)	(0.0217)	(0.0216)
Observations	2,377	747	698	1,335	2,377	1,722	2,377	1,666	1,666	1,666
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.051	0.193	0.239	0.050	0.051	0.117	0.050	0.048	0.050	0.050
Number of countries	104	31	61	63	104	100	104	101	101	101

Notes:
Standard errors in parentheses.
** p<0.01, ** p<0.05, * p<0.1

Table 7: Structural change (manufacturing value added share) and policies, baseline panel fixed effects

	(1)	(2)	(3)	(4)	(5)	(6)
Human capital	-0.0586***	-0.0275**	-0.0551***	-0.0636***	-0.0588***	-0.0705***
	(0.00703)	(0.0123)	(0.00734)	(0.00781)	(0.00775)	(0.00848)
Physical capital (Inv % gdp)	0.000509	0.00140	0.00140	-0.00145	-0.000652	0.00494**
	(0.00167)	(0.00262)	(0.00172)	(0.00185)	(0.00186)	(0.00199)
Raw material exports share	-0.00783***	-0.00948***	-0.00734***	-0.00888***	-0.00471***	-0.00764***
	(0.000961)	(0.00150)	(0.000986)	(0.00106)	(0.000987)	(0.00107)
GDP per capita	0.0155***	0.00609	0.0133***	0.0179***	0.0110***	0.0135***
	(0.00245)	(0.00393)	(0.00259)	(0.00262)	(0.00271)	(0.00278)
Macro institutions						
Fiscal rules (budget balance rule age)	-0.000391**					
	(0.000183)					
Central bank transparency		0.000663				
		(0.000407)				
Inflation targeting			0.00278			
			(0.00183)			
Macro outcomes						
Inflation				0.000943*		
				(0.000530)		
Procyclicality of expenditures					-0.00310**	
					(0.00134)	
Exchange rate misalignment						0.00705***
						(0.00272)
Constant	0.0801***	0.129***	0.0900***	0.0724***	0.109***	0.0943***
	(0.0165)	(0.0248)	(0.0177)	(0.0180)	(0.0182)	(0.0182)
Observations	2,377	1,094	2,282	2,191	2,114	1,899
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.052	0.044	0.044	0.058	0.038	0.068
Number of countries	104	72	103	102	102	80

Notes:
Standard errors in parentheses.
** p<0.01, ** p<0.05, * p<0.1

Table 8: Structural change (exports diversification) and policies, baseline panel fixed effects

	(1)	(2)	(3)	(1)	(4)	(6)	(7)	(8)	(9)	(10)
Human capital	0.00206	0.358***	-0.0890	0.000359	-0.0354	-0.00824	-0.0383	-0.0911*	-0.0899*	-0.0900*
	(0.0415)	(0.0557)	(0.0898)	(0.0539)	(0.0397)	(0.0539)	(0.0414)	(0.0480)	(0.0479)	(0.0479)
Physical capital \	-0.0257***	0.00577	0.00263	-0.0126	-0.0284***	-0.0281***	-0.0275***	-0.0270***	-0.0271***	-0.0271***
	(0.00810)	(0.0138)	(0.0131)	(0.0117)	(0.00810)	(0.0107)	(0.00810)	(0.00925)	(0.00925)	(0.00925)
Raw material exp share	0.00455	0.0203*	-0.0359***	0.0144**	0.00462	0.00415	0.00456	0.0154***	0.0155***	0.0154***
	(0.00477)	(0.0119)	(0.0104)	(0.00642)	(0.00477)	(0.00620)	(0.00478)	(0.00555)	(0.00555)	(0.00555)
GDP per capita	0.0233*	-0.00757	0.0456*	0.0200	0.0191	0.0578***	0.0197	0.0213	0.0219	0.0218
	(0.0126)	(0.0182)	(0.0265)	(0.0177)	(0.0126)	(0.0165)	(0.0126)	(0.0168)	(0.0168)	(0.0168)
Antimonopoly policy										
Comp law dummy	-0.0188***									
	(0.00705)									
Freedom to compete		-0.0538**								
		(0.0257)								
Financial policy										
Financial reforms			-0.0153							
			(0.0190)							
Financial integration				-0.0231						
				(0.0152)						
Public dev banks					0.0478*					
(infra mandate)										
					(0.0251)					
Labor policy										
Hiring and firing reg						-0.00955***				
						(0.00235)				
Trade policy										
Exp prom agencies							0.00452			
							(0.00774)			
Enforceability								-0.00726		
trade agreements (sum)										
								(0.00773)		
Enforceability									-0.00764	
trade agreements (depth2)										
									(0.00679)	
Enforceability										-0.00789
trade agreements (depth3)										
										(0.00693)
Constant	1.305***	1.023***	1.177***	1.222***	1.361***	1.018***	1.357***	1.387***	1.347***	1.347***
	(0.0847)	(0.133)	(0.187)	(0.117)	(0.0833)	(0.107)	(0.0841)	(0.109)	(0.116)	(0.116)
Observations	1,926	616	711	1,163	1,926	1,361	1,926	1,571	1,571	1,571
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.011	0.123	0.031	0.010	0.010	0.039	0.008	0.017	0.017	0.017
Number of countries	103	31	61	63	103	99	103	100	100	100

Notes:
Standard errors in parentheses.
** p<0.01, ** p<0.05, * p<0.1

Table 9: Structural change (exports diversification) and policies, baseline panel fixed effects

	(1)	(2)	(3)	(4)	(5)	(6)
Human capital	-0.00639	0.0827	-0.0474	-0.188***	-0.0669	-0.0869*
	(0.0405)	(0.0559)	(0.0403)	(0.0432)	(0.0441)	(0.0470)
Physical capital (Inv % gdp)	-0.0266***	-0.0371***	-0.0247***	-0.0316***	-0.0280***	-0.0241**
	(0.00808)	(0.0120)	(0.00823)	(0.00861)	(0.00891)	(0.00955)
Raw material exp share	0.00333	0.00602	0.00432	-0.00213	0.00451	0.00388
	(0.00479)	(0.00678)	(0.00479)	(0.00507)	(0.00477)	(0.00532)
GDP per capita	0.0153	0.000951	0.0148	0.0351***	0.0332**	0.0172
	(0.0127)	(0.0170)	(0.0129)	(0.0131)	(0.0137)	(0.0142)
Macro institutions						
Fiscal rules (revenues rule age)	-0.00507***					
	(0.00177)					
Central bank transparency		-0.00148				
		(0.00185)				
Inflation targeting (dummy)			0.0208**			
			(0.00866)			
Macro outcomes						
Inflation				-0.0146***		
				(0.00247)		
Procyclicality of expenditures					0.000633	
					(0.00594)	
Exchange rate misalignment						0.0441***
						(0.0128)
Constant	1.371***	1.419***	1.398***	1.404***	1.286***	1.391***
	(0.0834)	(0.108)	(0.0861)	(0.0865)	(0.0893)	(0.0912)
Observations	1,926	1,101	1,909	1,777	1,673	1,550
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.012	0.014	0.010	0.035	0.009	0.017
Number of countries	103	72	102	100	101	80

Notes:
Standard errors in parentheses.
** p<0.01, ** p<0.05, * p<0.1

Table 10: Structural change (productivity growth decomposition) and policies, dynamic heterogeneous panel (pooled mean group)

	Policy long term	**D.policy short term**	**Error correction coefficient**	**Hausman test (p value)**
Antimonopoly policy				
Com law age	0.00457***	0.0212	-0.268***	0.3953
	(0.000805)	(0.0216)	(0.0247)	
Promotion comp	0.0381***	-0.0103**	-0.238***	0.5851
	(0.00740)	(0.00409)	(0.0383)	
Financial policy				
Financial reforms	0.00466	-0.00618	-0.389***	0.8633
	(0.00389)	(0.0159)	(0.0682)	
Financial integration	0.0100***	0.00613	-0.279***	0.6492
	(0.00257)	(0.00862)	(0.0371)	
Public dev banks (infra mandate)	0.00454***	-0.000577	-0.253***	0.0000
	(0.00161)	(0.000355)	(0.0229)	
Labor policy				
Hiring and firing reg	-	-	-	-
	-	-	-	-
Trade policy				
Exports prom agencies	0.00932***	0.000334	-0.261***	0.0000
	(0.00185)	(0.000399)	(0.0232)	
Enforceability of trade agreements	-	-	-	-
	-	-	-	-
WTO membership	0.0398***	-0.00404**	-0.232***	0.0437
	(0.00265)	(0.00185)	(0.0243)	
Macro institutions				
Fiscal rules (budget balance age)	0.00250**	-0.000119	-0.387***	0.7657
	(0.00108)	(0.00204)	(0.0302)	
Central bank transparency	-	-	-	-
	-	-	-	-
Inflation targeting	-0.0137*	-0.00236	-0.369***	0.9928
	(0.00717)	(0.00216)	(0.0298)	

Notes:
Each line represents a regression. Controls include human capital index and physical capital (investment as percent of GDP). The lag structure is (1,1,1,1). Empty cells are regressions that did not converge.
Standard errors in parentheses.
** p<0.01, ** p<0.05, * p<0.1

Table 11: Structural change (services value added share) and policies, dynamic heterogeneous panel (pooled mean group)

	Policy long term	**D.policy short term**	**Error correction coefficient**	**Hausman test (p value)**
Antimonopoly policy				
Comp law age	0.0132***	-0.000172	-0.204***	0.624
	(0.00173)	(0.000773)	(0.0202)	
Promotion comp	-0.00930***	0.00273**	-0.181***	0.3689
	(0.00190)	(0.00112)	(0.0407)	
Financial policy				
Financial reforms	0.00912***	0.00916	-0.427***	0.8067
	(0.00255)	(0.00564)	(0.0476)	
Financial integration	0.103***	-0.00657	-0.118***	1.0000
	(0.0112)	(0.00661)	(0.0225)	
Public dev banks (infra mandate)	0.00271***	5.15e-06	-0.217***	0.0000
	(0.000272)	(0.000128)	(0.0211)	
Labor policy				
Hiring and firing reg	-	-	-	-
	-	-	-	-
Trade policy				
Exports prom agencies	-0.0725***	0.00105*	-0.180***	1.0000
	(0.00561)	(0.000602)	(0.0217)	
Enforceability of trade agreements (sum)	0.0675***	0.00179	-0.218***	0.8796
	(0.00533)	(0.0139)	(0.0265)	
Enforceability of trade agreements (depth2)	0.000301	0.00792	-0.230***	0.9864
	(0.00206)	(0.0141)	(0.0300)	
Enforceability of trade agreements (depth3)	-0.00557***	0.00951	-0.252***	0.9523
	(0.00147)	(0.0127)	(0.0271)	
WTO membership	-0.00347**	0.000419	-0.206***	0.7524
	(0.00159)	(0.00116)	(0.0199)	
Macro institutions				
Fiscal rules (budget balance age)	0.00137***	-6.80e-05	-0.211***	0.1066
	(0.000322)	(4.71e-05)	(0.0207)	
Central bank transparency	0.00146***	-0.000164	-0.248***	0.8852
	(0.000386)	(0.000658)	(0.0300)	
Inflation targeting	0.00627**	-0.000205	-0.220***	0.6064
	(0.00308)	(0.000429)	(0.0213)	

Notes:
Each line represents a regression. Controls include human capital index and physical capital (investment as percent of GDP). The lag structure is (1,1,1,1). Empty cells are regressions that did not converge.
Standard errors in parentheses.
** p<0.01, ** p<0.05, * p<0.1

Table 12: Structural change (manufacturing value added share) and policies, dynamic heterogeneous panel (pooled mean group)

	Policy long term	**D.policy short term**	**Error correction coefficient**	**Hausman test (p value)**
Antimonopoly policy				
Comp law dummy	-0.00649***	0.000479	-0.226***	0.0267
	(0.00133)	(0.000555)	(0.0199)	
Promotion comp	0.0134*	-0.000589	-0.132***	0.1628
	(0.00695)	(0.00213)	(0.0195)	
Financial policy				
Financial reforms	-0.00470***	-0.00442	-0.345***	0.7813
	(0.00117)	(0.00539)	(0.0442)	
Financial integration	0.0112***	-0.0134**	-0.197***	0.7799
	(0.00377)	(0.00609)	(0.0290)	
Public dev banks (infra mandate)	0.0442***	-3.24e-05	-0.226***	1
	(0.00879)	(0.000357)	(0.0199)	
Labor policy				
Hiring and firing reg	-	-	-	-
	-	-	-	-
Trade policy				
Exports prom agencies	0.730**	-0.156***	-0.156***	1
	(0.364)	(0.0192)	(0.0192)	
Enforceability of trade agreements (sum)	-0.0112***	0.000348	-0.260***	0.5507
	(0.00159)	(0.0147)	(0.0272)	
Enforceability of trade agreements (depth2)	-0.00977***	0.00109	-0.259***	0.5804
	(0.00148)	(0.0145)	(0.0273)	
Enforceability of trade agreements (depth3)	-0.0101***	-0.000517	-0.259***	0.6116
	(0.00152)	(0.0133)	(0.0273)	
WTO membership	0.0106***	0.000245	-0.153***	0.0003
	(0.00165)	(0.000671)	(0.0184)	
Macro institutions				
Fiscal rules (budget balance age)	-0.00103***	5.56e-05	-0.230***	0.5212
	(0.000298)	(3.96e-05)	(0.0200)	
Central bank transparency	0.00189***	-0.000544	-0.180***	0.9775
	(0.000516)	(0.000493)	(0.0267)	
Inflation targeting	0.000732	3.16e-05	-0.232***	0.8471
	(0.00279)	(0.000400)	(0.0205)	

Notes:
Each line represents a regression. Controls include human capital index and physical capital (investment as percent of GDP). The lag structure is (1,1,1,1). Empty cells are regressions that did not converge.
Standard errors in parentheses.
** p<0.01, ** p<0.05, * p<0.1

Table 13: Structural change (exports diversification) and policies, dynamic heterogeneous panel (pooled mean group)

	Policy long term	**D.policy short term**	**Error correction coefficient**	**Hausman test (p value)**
Antimonopoly policy				
Comp law dummy	-0.00291	0.00660	-0.359***	0.0000
	(0.00476)	(0.0154)	(0.0296)	
Promotion comp	-0.0333**	-0.0174	-0.303***	0.9407
	(0.0155)	(0.0166)	(0.0547)	
Financial policy				
Financial reforms	-0.196***	0.0484	-0.393***	0.2365
	(0.0156)	(0.0296)	(0.0564)	
Financial integration	0.0621***	-0.0118	-0.308***	0.6121
	(0.00833)	(0.0394)	(0.0363)	
Public dev banks (infra mandate)	0.00629***	-2.85e-05	-0.368***	0.9826
	(0.00110)	(0.000295)	(0.0286)	
Labor policy				
Hiring and firing reg	-	-	-	-
	-	-	-	-
Trade policy				
Exports prom agencies	0.0441***	-0.0114***	-0.367***	0.1332
	(0.0117)	(0.00407)	(0.0294)	
Enforceability of trade agreements (sum)	-0.0655***	-0.0979	-0.501***	0.6609
	(0.00567)	(0.181)	(0.110)	
Enforceability of trade agreements (depth2)	-0.0616***	-0.0946	-0.486***	0.7037
	(0.00445)	(0.170)	(0.0965)	
Enforceability of trade agreements (depth3)	-0.130***	-0.564	-0.419***	0.7908
	(0.0229)	(0.666)	(0.0432)	
WTO membership	0.00755*	0.00191	-0.370***	0.9996
	(0.00427)	(0.00470)	(0.0298)	
Macro institutions				
Fiscal rules (budget balance age)	0.00250**	-0.000119	-0.387***	0.7657
	(0.00108)	(0.00204)	(0.0302)	
Central bank transparency	-0.00622***	0.00295	-0.403***	0.3352
	(0.00139)	(0.00535)	(0.0356)	
Inflation targeting	-0.0137*	-0.00236	-0.369***	0.9928
	(0.00717)	(0.00216)	(0.0298)	

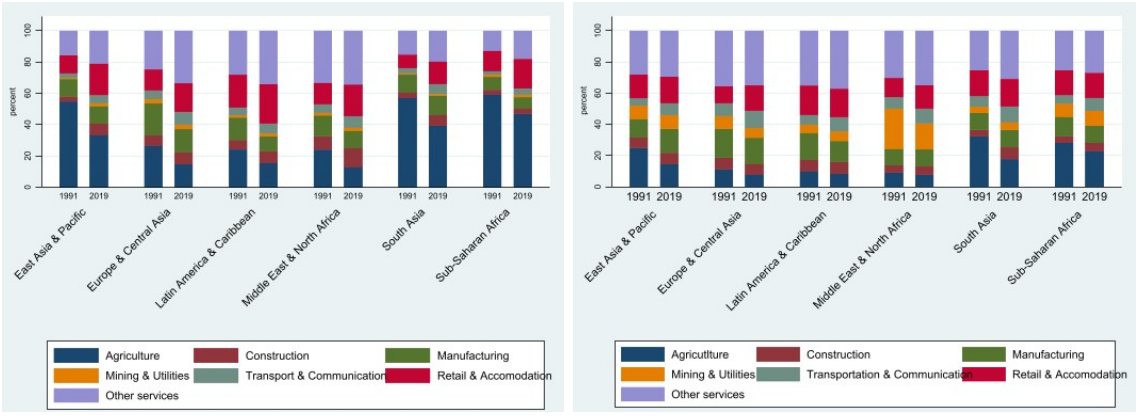
Notes:
Each line represents a regression. Controls include human capital index and physical capital (investment as percent of GDP). The lag structure is (1,1,1,1). Empty cells are regressions that did not converge.
Standard errors in parentheses.
** p<0.01, ** p<0.05, * p<0.1

Table 14: Summary of results – Policies with significant impact on structural change

	Productivity growth decomposition		Services value added		Exports diversification	
	Fixed effects	**PMG long term**	**Fixed effects**	**PMG long term**	**Fixed effects**	**PMG long term**
Antimonopoly policy						
Competition law age/dummy	No	Yes	Yes	Yes	Yes	Yes
Promotionof competition Freedom to compete	Yes	Yes	Yes	Yes	Yes	Yes
Financial policy						
Financial reforms	Yes	No	Yes	Yes	No	Yes
De jure financial integration	Yes	Yes	No	Yes	No	Yes
Dev bank infrastructure mandate	Yes	Yes	Yes	Yes	Yes	Yes
Labor policy						
Hiring and firing regulations	Yes	-	Yes	-	Yes	-
Trade policy						
Export promotion agencies age/dummy	Yes	Yes	Yes	Yes	No	Yes
Enforceability of trade agreements	No	-	Yes	Yes	No	Yes
WTO membership		Yes	Yes	Yes	No	Yes
Macro institutions						
Fiscal rules age/dummy	Yes	Yes	Yes	Yes	Yes	Yes
Central bank transparency	No	-	Yes	Yes	No	Yes
Inflation targeting	No	Yes	Yes	Yes	Yes	-
Macro outcomes						
Inflation rate	Yes		Yes		Yes	
Procyclicality of expenditures	Yes		Yes		No	
Exchange rate misalignment	Yes		Yes		Yes	

Figure 1: Sectoral shares (averages by regions)

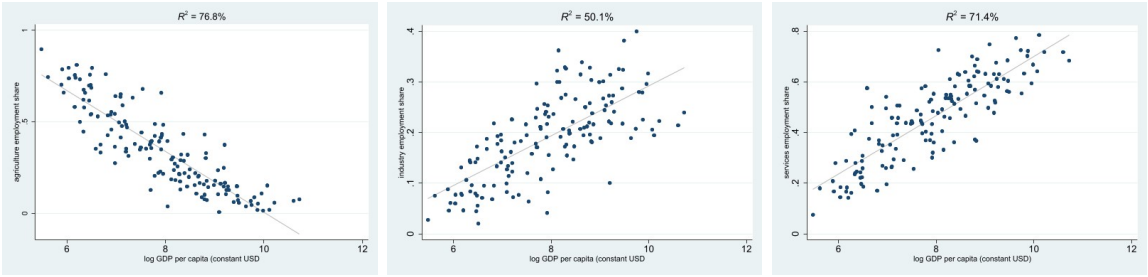
(a) Employment (b) Value Added



Source: Authors' calculations based on UN Statistics National Accounts data and ILO

Figure 2: Employment shares and GDP per capita in developing countries (1991-2019 average)

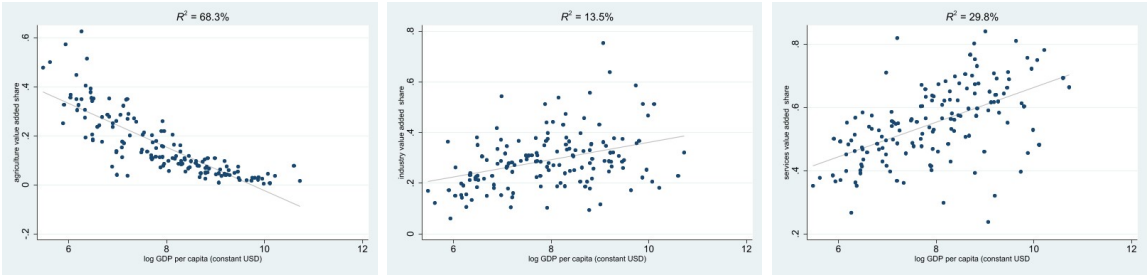
(a) Agriculture (b) Industry (c) Services



Source: Authors' calculations based on UN Statistics National Accounts and World Development Indicators, World Bank data

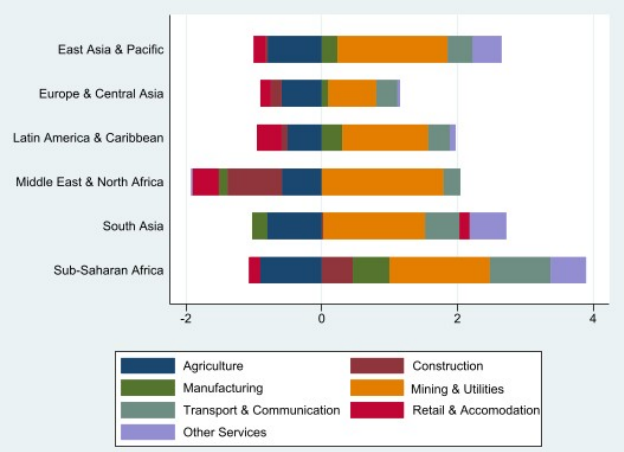
Figure 3: Value added shares and GDP per capita in developing countries (1991-2019 average)

(a) Agriculture (b) Industry (c) Services



Source: Authors' calculations based on UN Statistics National Accounts and World Development Indicators, World Bank data

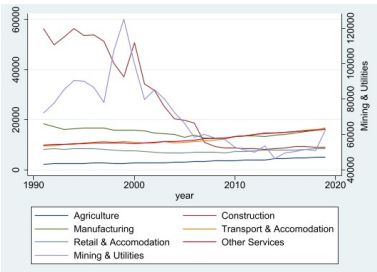
Figure 4: Relative sectoral labor productivity (2019)



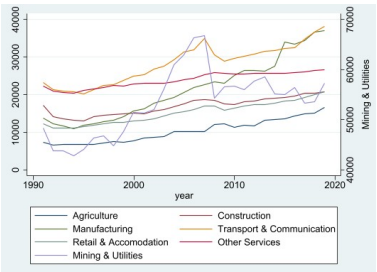
Source: Authors' calculations based on UN Statistics National Accounts and ILO data
Note: Relative sectoral labor productivity is calculated the log of the ratio of sectoral productivity to the economy wide productivity (Martins, 2019). For instance, if the bar measures 1, then the sector's productivity is 10 times higher than the average (or the economy wide productivity level). If the bar measures -1, then the sector's productivity is a tenth of the average.

Figure 5: Productivity by sector in developing countries (average by region)

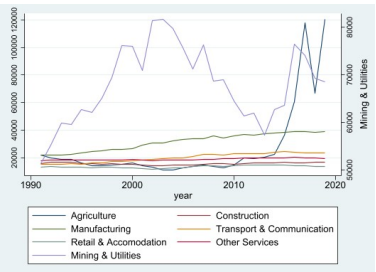
(a) East Asia and Pacific



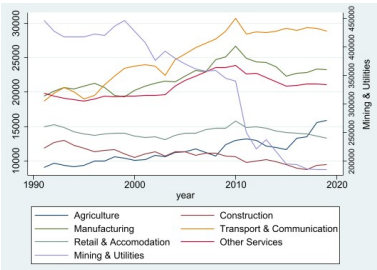
(b) Europe and Central Asia



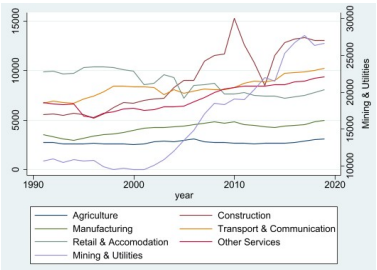
(c) Latin America and Caribbean



(d) Middle East and North Africa



(e) South Asia



(f) Sub-Saharan Africa

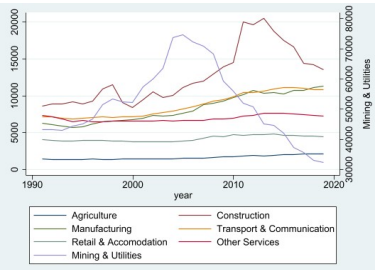
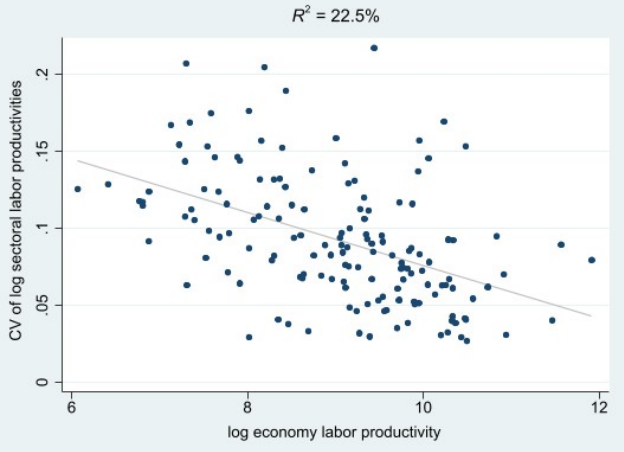


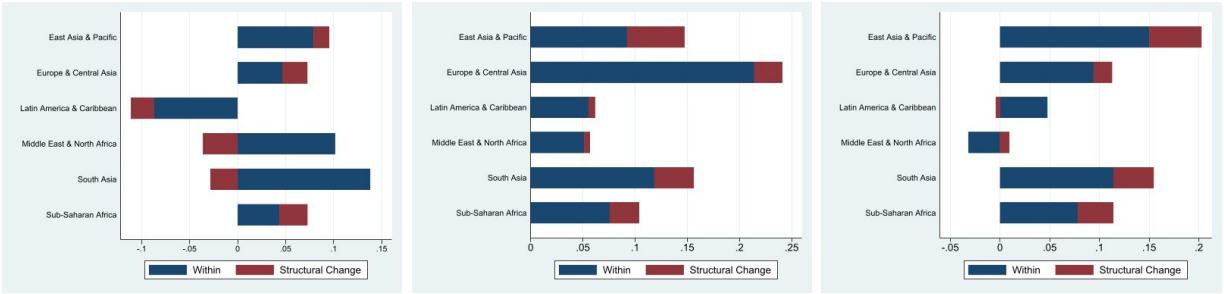
Figure 6: Intersectoral productivity gaps and econ wide productivity (2019)



Source: Authors' calculations based on data from UN Statistics National Accounts Note: This plot shows the relationship between the coefficient of variation in log sectoral productivities in each country (Y axis) and the log of the labor productivity of the country in 2019.

Figure 7: Productivity growth decomposition (t and t-5, average)

(a) 1991-2000 (b) 2000-2010 (c) 2010-2019



Source: Authors' calculations based on UN Statistics National Accounts and ILO data Note: Details on productivity growth decomposition are elaborated in data and methodology sections

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Appendices

Appendix A Data description

Table A1: List of Countries

East Asia	Montenegro	Suriname	Comoros
Cambodia	North Macedonia	Uruguay	Congo, Dem. Rep.
China	Poland	Venezuela, RB	Congo, Rep.
Fiji	Portugal	**Middle East and North Africa**	Cote d'Ivoire
Indonesia	Romania	Algeria	Equatorial Guinea
Korea, Dem. Rep.	Russian Federation	Bahrain	Eritrea
Korea, Rep	Serbia	Djibouti	Eswatini
Lao PDR	Slovak Republic	Egypt, Arab Rep.	Ethiopia
Malaysia	Tajikistan	Iran, Islamic Rep.	Gabon
Mongolia	Turkey	Iraq	Gambia, The
Myanmar	Turkmenistan	Jordan	Ghana
Papua New Guinea	Ukraine	Lebanon	Guinea
Philippines	Uzbekistan	Libya	Guinea-Bissau
Solomon Islands	**Latin America**	Malta	Kenya
Thailand	Argentina	Morocco	Lesotho
Timor-Leste	Barbados	Oman	Liberia
Tonga	Belize	Saudi Arabia	Madagascar
Vanuatu	Bolivia	Syrian Arab Republic	Malawi
Vietnam	Brazil	Tunisia	Mali
Europe Cent Asia	Chile	West Bank and Gaza	Mauritania
Albania	Colombia	Yemen, Rep.	Mauritius
Armenia	Costa Rica	**South Asia**	Mozambique
Azerbaijan	Cuba	Afghanistan	Namibia
Belarus	Dominican Republic	Bangladesh	Niger
Bosnia and Herzegovina	Ecuador	Bhutan	Nigeria
Bulgaria	El Salvador	India	Rwanda
Croatia	Grenada	Maldives	Sao Tome and Principe
Cyprus	Guatemala	Nepal	Senegal
Czech Republic	Guyana	Pakistan	Sierra Leone
Estonia	Haiti	Sri Lanka	Somalia
Georgia	Honduras	**Sub-Saharan Africa**	South Africa
Greece	Jamaica	Angola	South Sudan
Hungary	Mexico	Benin	Sudan
Iceland	Nicaragua	Botswana	Tanzania
Ireland	Panama	Burkina Faso	Togo
Kazakhstan	Paraguay	Burundi	Uganda
Kyrgyz Republic	Peru	Cabo Verde	Zambia
Latvia	Puerto Rico	Cameroon	Zimbabwe
Lithuania	St. Lucia	Central African Rep	
Moldova	St. Vincent	Chad	

Table A2: Value-added and employment by sector

Employment by economic activity	Value added by sector (constant 2015 prices)
1. Agriculture; forestry and fishing	1. Agriculture, hunting, forestry, fishing
2. Mining and quarrying 4. Utilities	3. Mining and utilities
3. Manufacturing	2. Manufacturing
5. Construction	4. Construction
6. Wholesale and retail trade 8. Accommodation (restaurants and hotels)	5. Wholesale, retail trade, and restaurants and hotels
7. Transport; storage and communication	6. Transport, storage, and communication
9. Financial and insurance activities 10. Real estate; business and administrative activities 11. Public administration and defense; compulsory social security 12. Education 13. Human health and social work activities 14. Other services.	7. Other activities

Table A3: Policies measurements

Policy area	Sub-area	Variable	Definition/Scale	Source
Antimonopoly Policy	De jure	Competition law, age and dummy		Petersen, 2013 and authors
	De facto	Index of freedom to compete	Ranges between 1 and 5, with 1 being "very low" and 5 being "very high".	The Economist Intelligence Unit
		Index of promotion of competition	Ranges between 1 and 5 on government policy to promote competition, with 1 being "very poor" and 5 being "very good".	The Economist Intelligence Unit
Financial Policy	Domestic	Domestic financial reforms index	The index accounts for seven dimensions of financial sector policy: (i) credit controls and reserves requirements; (ii) interest rate controls such as ceilings or floors; (iii) entry barriers into the financial system ; (iv) state ownership in the banking sector; (v) financial account restrictions; (vi) prudential regulations and supervision of the banking sector; (vii) securities market policy. Along each dimension, a country is given a score from zero to three, with zero corresponding to the highest degree of repression and three indicating full liberalization. Hence, the overall reforms index varies from zero to 21.	Abiad et al. (2010)
	International	De jure financial integration index	The capital control dataset of Fernández et al. (2019) reports the presence or the absence of capital controls. It draws on the IMF's AREAER, which contains descriptions of de jure restrictions on capital controls in each of the IMF member countries. This dataset translates the AREAER into 0/1 qualitative indicators denoting the absence or the presence of the control.	Fernández et al., 2016
	Public	Public development banks by mandate, age or dummy	Mandates: Rural and agricultural development, promoting exports and foreign trade, infrastructure, local government, micro, small, and medium-sized enterprises flexible (mandate not confined to a specific mission).	Institute of New Structural Economics (PekingUniversity) and French Development Agency
Labor Policy		Hiring and firing regulation	Sub-index of the World Bank's Doing Business. Components: (1) whether fixed-term contracts are prohibited for permanent tasks; (2) the maximum cumulative duration of fixed-term contracts; (3) the ratio of the minimum wage for a trainee or first-time employee to the average value added per worker.	Fraser Institute
Trade policy		Export promotion agencies, age or dummy	Two rounds of survey data on EPAs (2010 and 2014)	Olarregea et al., 2019 and Lederman et al., 2010
		Indices of trade agreements enforceability and depth	See Annex C for details	Constructed by authors using World Bank Deep Trade Agreements database
		WTO membership	Dummy variable	CEPII gravity dataset

Policy area	Sub-area	Variable	Definition/Scale	Source
Macro institutions		Fiscal rules	The dataset covers four types of rules: budget balance rules, debt rules, expenditure rules, and revenue rules, applying to the central or general government or the public sector. Rules at the subnational level are not included. The dates indicatethe year when a rule was implemented.	IMF Fiscal Rules Dataset
		Inflation targeting	A dummy variable taking the value 1 if an inflation targeting framework is in place in a certain country in a specific year. IMF AREAER provides information on inflation targeting frameworks since 2010 and information from Carare and Stone (2006) is used to determine the exact year each country adopted inflation targeting.	Ha et al (2019) database
		Central bank transparency Eichengreen	Dincer and Eichengreen (2014) measure transparency and independence for 120 central banks over 1998-2014. The index is extrapolated to 2015-17 using 2014 data and extrapolated to 1970-97 using 1998 data. For countries not included in the Dincer and Eichengreen data set, the fitted values from an OLS regression of the Dincer-Eichengreen index on the Garriga index are used. The index ranges from 0 to 15 (0=least transparent; 15=most transparent).	Ha et al (2019) database
Macroeconomic outcomes		Fiscal balance	Net lending/borrowing (also referred as overall balance) (IMF Fiscal Monitor Database	
		Inflation		World Development Indicators, World Bank
		Exchange rate misalignment	Currency misalignments are deduced from the difference between real effective exchange rates and their equilibrium values. Misalignments' values give the magnitude of the real exchange rate adjustment that would restore equilibrium. A negative sign of the misalignment indicates an undervaluation whereas a positive sign indicates an overvaluation of the real effective exchange rate.	CEPII EQCHANGE database

Appendix B Export diversification index (Theil index)

The Theil index can be calculated for groups of exports and can be decomposed additively into within-groups and between-groups components so that the within- and between-groups components add up to the overall index. Accordingly, it would be possible to distinguish an increased diversification happening on the within groups level from that happening across groups (Cadot et al., 2011b)

The first step constitutes in creating dummy variables to define each product as "Traditional," "New," or "Non-traded" (Papageorgiou et al., 2015). Traditional products are goods that were exported at the beginning of the sample, and non-traded goods have zero exports for the entire sample. Thus, for each country and product, the dummy values for traditional and non-traded remain constant across all years of our sample. For each country/year/product group, products classified as "new" must have been non-traded in at least the two previous years and then exported in the two following years. Thus, the dummy values for new products may change over time.

The overall Theil index is accordingly a sum of the within and between components (Cadot et al., 2011a). The between Theil index is calculated for each country/year pair is defined as follows:

$$T_B = \sum_{k=0}^{1} \frac{n_k}{n} \frac{\mu_k}{\mu} ln(\frac{\mu_k}{\mu}) \tag{4}$$

Where k represents each group (traditional, new, and non-traded), n_k is the total number of products exported in each group. $\frac{\mu_k}{\mu}$ is the relative mean of exports in each group.

As the within Theil index for each country/year pair is as follows:

$$T_W = \sum_{k=0}^{1} \frac{n_k}{n} \frac{\mu_k}{\mu} [\frac{1}{n_k} \sum_{k=0} \frac{x_i}{\mu_k} ln(\frac{x_i}{\mu_k})] \tag{5}$$

$$T_B + T_W = overalltheil \tag{6}$$

Appendix C Indices of enforceability and depth of trade agreements

Following Ezzat and Zaki (2022) and Guilin et al. (2021), we construct indices reflecting the enforcement and depth of content preferential trade agreements using use the World Bank deep trade agreements database. Indices suggested by these papers are calculated on the agreement level. To create indices on the country level, we take the average by country and year of these enforceability indices. The database describes 52 provisions of 279 preferential trade agreements signed between 1958 and 2015. It includes information about legal enforceability of each provision.

The first enforceability index ($Enfo_{it}$) is measured by adding the categorical variables related to the preferential trade agreements (PTA) provisions falling under the current mandate of the WTO ($WTOP_{ijt}$) in addition to those outside the current mandate of the WTO and that are already subject to some form of commitment in WTO agreements - when legally enforceable ($WTOX_{ijt}$). These categorical variables can take three values as follows: 0 if the provision is not mentioned in the agreement or not legally enforceable; 1 if the provision is mentioned, legally enforceable but explicitly excluded by dispute settlement provision; and 2 if the provision is mentioned and legally enforceable.

$$Enfo_{it} = WTOP_{ijt} + WTOX_{ijt} \tag{7}$$

Where i is the country, t is the year and j is the agreement

As per the depth indices, a deep trade agreement contains a higher share of legally enforceable items than a shallow one. Depth1 is based on a simple average as a baseline to discriminate the agreements: if a country-pair signs an agreement containing a higher number of legally enforceable items (N^{le}) than the average ($\overline{N^{le}}$) then this agreement is defined as deep.

$$Depth1 = \begin{cases} 1 \text{ if} N^{le} \geq \overline{N^{le}} \\ 0 \text{ otherwise} \end{cases} \tag{8}$$

$$Depth2 = \frac{N^{le}}{N^{le} + N^{ne}} \tag{9}$$

$$Depth3 = \frac{N^{le}}{maxN} \tag{10}$$

Where (N^{le}) the number of non-legally enforceable items and N the total number of provisions (52).

Appendix D Supplementary results

Table B1: Structural change (productivity growth decomposition) and public development banks, baseline panel fixed effects

	(1)	(2)	(3)	(4)
Human capital	0.0151	0.0194**	0.0188**	0.0184**
	(0.00951)	(0.00933)	(0.00934)	(0.00937)
Physical capital (Inv % gdp)	0.00680***	0.00549***	0.00591***	0.00544***
	(0.00204)	(0.00199)	(0.00200)	(0.00199)
Agriculture emp share	0.266***	0.267***	0.265***	0.269***
	(0.0142)	(0.0142)	(0.0142)	(0.0143)
Raw material exports	-0.00222*	-0.00236**	-0.00230**	-0.00213*
	(0.00115)	(0.00115)	(0.00115)	(0.00115)
GDP per capita	0.0376***	0.0392***	0.0395***	0.0391***
	(0.00336)	(0.00330)	(0.00330)	(0.00330)
Exports mandate (age)	0.000429***			
	(0.000158)			
Agriculture mandate (dummy)		0.00860*		
		(0.00454)		
Private sector mandate (age)			0.00206**	
			(0.00103)	
Flexible mandate (dummy)				0.00451*
				(0.00232)
Constant	0.418***	0.406***	0.405***	0.406***
	(0.0271)	(0.0267)	(0.0267)	(0.0267)
Observations	2,182	2,182	2,182	2,182
Country fixed effects	Yes	Yes	Yes	Yes
R-squared	0.163	0.161	0.161	0.161
Number of countries	104	104	104	104

Table B2: Structural change (services value added share) and public development banks, baseline panel fixed effects

	(1)	(2)	(3)	(4)
Human capital	0.154***	0.148***	0.153***	0.147***
	(0.00758)	(0.00784)	(0.00760)	(0.00763)
Physical capital (Inv % gdp)	-0.00258	-0.00229	-0.00243	-0.00289
	(0.00184)	(0.00183)	(0.00184)	(0.00182)
Raw material exports share	0.00364***	0.00419***	0.00360***	0.00380***
	(0.00104)	(0.00106)	(0.00105)	(0.00104)
GDP per capita	0.00688***	0.00538**	0.00679***	0.00588**
	(0.00254)	(0.00256)	(0.00253)	(0.00252)
Exports mandate (dummy)	-0.00165			
	(0.00362)			
Agri mandate (age)		0.000387***		
		(0.000130)		
Priv sec mandate (dummy)			0.00540	
			(0.00747)	
Flexible mandate (dummy)				0.0109***
				(0.00210)
Constant	0.266***	0.276***	0.266***	0.274***
	(0.0173)	(0.0175)	(0.0172)	(0.0172)
Observations	2,390	2,390	2,390	2,390
Country fixed effects	Yes	Yes	Yes	Yes
R-squared	0.302	0.305	0.302	0.310
Number of countries	104	104	104	104

Table B3: Structural change (manufacturing value added share) and public development banks, baseline panel fixed effects

	(1)	(2)	(3)	(4)
Human capital	-0.0609***	-0.0589***	-0.0597***	-0.0575***
	(0.00702)	(0.00707)	(0.00706)	(0.00788)
Physical capital (Inv % gdp)	0.00104	0.000711	0.000800	0.000714
	(0.00167)	(0.00167)	(0.00168)	(0.00167)
Raw material exports share	-0.00773***	-0.00773***	-0.00781***	-0.00777***
	(0.000959)	(0.000966)	(0.000963)	(0.000962)
GDP per capita	0.0142***	0.0151***	0.0151***	0.0153***
	(0.00245)	(0.00245)	(0.00244)	(0.00250)
Exports mandate (dummy)	0.0121***			
	(0.00338)			
Agri mandate (dummy)		-0.00166		
		(0.00359)		
Priv sec mandate (age)			0.000601	
			(0.000869)	
Flexible mandate (age)				-5.37e-05
				(0.000108)
Constant	0.0875***	0.0828***	0.0829***	0.0806***
	(0.0165)	(0.0165)	(0.0165)	(0.0173)
Observations	2,377	2,377	2,377	2,377
Country fixed effects	Yes	Yes	Yes	Yes
R-squared	0.055	0.050	0.050	0.050
Number of countries	104	104	104	104

Table B4: Structural change (exports diversification) and public development banks, baseline panel fixed effects

	(1)	(2)	(3)	(4)
Human capital	-0.0440	-0.0194	-0.0182	-0.0353
	(0.0395)	(0.0397)	(0.0396)	(0.0447)
Physical capital (Inv % gdp)	-0.0248***	-0.0278***	-0.0294***	-0.0275***
	(0.00807)	(0.00808)	(0.00808)	(0.00810)
Raw material exports share	0.00570	0.00596	0.00575	0.00462
	(0.00475)	(0.00479)	(0.00477)	(0.00478)
GDP per capita	0.0142	0.0231*	0.0188	0.0197
	(0.0126)	(0.0126)	(0.0126)	(0.0128)
Exports mandate (dummy)	0.0753***			
	(0.0161)			
Agri mandate (dummy)		-0.0474***		
		(0.0159)		
Priv sec mandate (dummy)			-0.123***	
			(0.0328)	
Flexible mandate (age)				0.000121
				(0.000610)
Constant	1.379***	1.326***	1.353***	1.355***
	(0.0829)	(0.0834)	(0.0829)	(0.0872)
Observations	1,926	1,926	1,926	1,926
Country fixed effects	Yes	Yes	Yes	Yes
R-squared	0.019	0.012	0.015	0.008
Number of countries	103	103	103	103