



STEG

**STRUCTURAL TRANSFORMATION
AND ECONOMIC GROWTH**

RESEARCH STRATEGY

2021 – 2025

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Structural Transformation and Economic Growth

Any comparison of low-income countries and developed economies immediately points to striking differences in their structural features. Relative to the advanced economies, the least developed are disproportionately rural and agrarian, more reliant on self-employment and small-scale subsistence production, and less integrated into local, national, and international markets. Economic growth is critical for sustained poverty reduction in low-income economies, but it will surely involve dramatic shifts in the structure of economic activity.

Structural transformation consists of a set of interconnected transitions that economies undergo in the course of economic growth and development. Not all economies follow the same pathway, but certain patterns recur across countries and over time. The first key transition is a change in the sectoral composition of economic activity (measured either in output or employment). Most economies move away from agriculture into manufacturing and/or services. A second and related transition has been a movement of population from rural areas to urban areas. A third dimension of transformation has been a complex and non-monotonic shift in the locus of economic activity between home and market, with important implications for women's labour market participation and the gendered structures of economic activity. A fourth transition has been a systematic change in the size and structure of firms, with economic activity moving away from self-employment and household enterprises and into larger firms and wage labour. A fifth related transition is from informal productive activities to formal production that is tax-paying, with firms more interlinked and dependent on public and private infrastructure, and workers linked to government services. Other changes also deserve note but are perhaps less systematic: shifts in the composition of exports and imports; changes in political structures and institutions; and changing legal protections for labour and the environment, to name a few.

Structural transformation appears to be both a cause and consequence of economic growth. Although structural change was a concern of empirical growth economists in the 1960s through the 1980s (Chenery H. B., 1960; Kuznets, 1971; Chenery, Syrquin, & Elkington, 1975; Syrquin, Chenery, & others, 1989), with a few exceptions, growth theory largely ignored sectoral issues until the early 2000s. In the past 15 years or so, a burgeoning literature has addressed issues related to structural change and has recognised that understanding growth requires understanding this broader set of changes.

The blossoming literature has been exciting, but overarching concerns with the current literature remain. First, the field has made strong advances in understanding many of the causes and consequences of structural change in a positive or descriptive sense. However, normative prescriptive analysis has lagged behind. A second and related overarching concern is the lack of integration of relevant research across different subfields. The literature on structural transformation largely falls in the subfield of macroeconomic growth. Yet, the microeconomic details of labour markets, trade, industrial organisation, and political economy and government policy play an important role in answering these macroeconomic questions. Integrating this research, orienting it towards informing the macroeconomic goal of inclusive growth, and fostering a community of international scholars working on this cross-fertilisation of ideas is therefore essential. Third, much of the work of the past 15 years has concentrated on the advanced economies. The analysis of poorer economies, except in the area of agriculture, has been lacking, in part because less data has been available. Moreover, the issues are not, of course, the same for all countries. Structural change poses different challenges for countries at different income levels and in different contexts. A focus on lower- and middle-income countries is critical.

In many low-income countries, the key challenge of structural change remains the transition from quasi-subsistence agriculture into a more diversified non-agricultural economy. Solving the ‘food problem’ (Schultz, 1953) remains paramount in these economies, and low agricultural productivity is paradoxically the main reason that many remain in agriculture. In these countries, the obstacles to transformation are typically limited market connectivity in rural areas, poor transportation and infrastructure, and low levels of other support structures: weak financial systems, educational systems, labour markets, urban housing, etc. Many of these countries also suffer from a disconnect between rural areas and urban areas, due in large part to high transportation and transaction costs, which leads to a situation where growing urban food demand is met by imports (e.g. frozen chicken meat or powdered milk) rather than by domestic production.

In contrast, most middle-income countries have already moved well along the process of industrialisation. However, while East Asian countries have followed along the paths of the advanced economies, many middle-income countries, especially in Latin America and North Africa, have stagnated or even deindustrialised. Others have grown, but without much of an increase in the relative size of the industrial sector, especially in terms of employment. Here, the challenges of the global market play a strong role; trade, capital flows, and foreign direct investment have not worked in favour of these countries. In particular, competition from East Asia has made the middle-income countries less competitive in the global market. Issues related to pollution and climate change also challenge the future growth and structural transformation of lower-income countries, whose agriculture is disproportionately affected by climate change, and whose emerging industries may face increasing environmental standards.

In both low- and middle-income countries, distributional concerns are closely embedded in structural changes. Industrial jobs have typically been a chief source of employment for low-skilled workers, displaced from agriculture in growing economies. The rural poor and uneducated youth struggle to find good jobs in urban areas. Growing middle classes benefit from emerging opportunities, but the gaps between urban and rural areas remain large.

A key challenge for both low- and middle-income countries will be to accommodate the significant shifts in gender norms and roles that will inevitably accompany structural change. The transition from rural to urban livelihoods often involves a transition of economic activity from home to market, with clear links to women’s work. In many parts of sub-Saharan Africa, women are already economically active in all sectors, but the move from farm work to city work, often in services, requires greater support for women as entrepreneurs, including access to credit, training, and other resources.

The challenge facing all developing countries, in relation to structural change, is a concern that many of them will ultimately be unable to follow the East Asian pathway, in which rural-urban movements of people coincided with a sectoral shift from agriculture to industry. In many sub-Saharan countries, urbanisation to date has outpaced industrialisation. Structural change has largely been from agriculture to non-tradable services. For these countries, many questions and challenges loom. Will they ever experience industrialisation? If not, does it matter? How can they achieve growth within economies that seem likely to be based on a combination of services and primary commodity production and export? Alternatively, can they capture some fraction of the manufacturing jobs that will eventually leave China? What policies can they put in place to make this more likely? Without significant growth in manufacturing employment, what jobs will be available, particularly for young people, in developing countries? How can these economies absorb the demographic bulge of young people who will enter labour markets in the next two decades?

Finding answers to these questions will matter enormously for economic growth but also for political and social stability and, in turn, for human migration, conflict, and other global challenges.

STEG's Research Focus

A research programme which can inform policies for structural transformation must address a variety of issues and support research related to different aspects of structural transformation.

Research may focus on broad systemic patterns and processes of structural transformation and growth for low- and middle-income countries, in a comparative sense across time or space, or more narrowly defined topics related to one or more of the following six research themes:

- Data, measurement, and conceptual framing
- Firms, frictions and spillovers, and industrial policy
- Labour, home production, and structural transformation at the level of households
- Agricultural productivity and sectoral gaps
- Trade and spatial frictions
- Political economy and public investment

STEG is also focused around three cross-cutting issues that are simultaneously relevant to many areas of structural transformation, including the six research themes:

- Gender
- Climate change and the environment
- Inequality and inclusion

Research proposals speaking to these issues will receive particular consideration.

The six research themes and three cross-cutting issues are organising principles for funding calls, grant application evaluations, and workshop topics but these are not exclusive lists of themes and topics. Other areas of interest may not fit cleanly into any of the themes but are centrally relevant to STEG and are also encouraged. Examples include multi-sector analyses of growth, the effects of demographic change, the role of skills and human capital, the growing relevance of the digital economy, public finance and its relation to long-term growth, and the importance of infrastructure investments and management. Conversely, it is important to note that the themes are interrelated with some important topics spanning multiple themes. For example, informality is important to both firms (theme 1), labour (theme 2), and public finance (theme 5).

More information on our research themes and cross-cutting issues can be found below.

Research Themes

Theme 0: Data, Measurement, and Conceptual Framing

Although we do not treat this as a research theme, an important background activity of the STEG programme will be to develop further the data available for analysing structural transformation in developing countries. At present, relatively few countries have detailed sectoral data on real output, productivity levels, or growth rates. Existing macro data sources at the sectoral level are of variable quality and limited comparability. One exception to this is the database compiled by the Groningen Growth and Development Centre, which has ten-sector data on a set of low-income countries (as well as much richer data on middle-income countries and historical data on today's rich countries). Plans for STEG include resources for the Groningen team to work with local partners in a number of countries to extend the coverage of their data. We are also seeking to expand the available sectoral input-output data that are essential in making better sense of country-level productivity measures. Other potentially feasible but high-value research projects may involve creating standards for data collection which could be used for future data but also harmonising existing datasets. Making existing data and documentation easily accessible to researchers within and beyond the STEG programme is essential. Projects that link these macro data with micro data from censuses, labour force surveys, and household surveys in order to create an easily accessible pool of data will be encouraged.

Theme 1: Firms, Frictions and Spillovers, and Industrial Policy

This theme would encompass both a micro literature that focuses on barriers to firm growth and productivity and an emerging macro literature that emphasises productivity spillovers across firms and sectors. The micro literature has tended to focus on the role of policy distortions, financial frictions, and managerial incentives that together discourage the efficient allocation of productive resources (Banerjee & Duflo, 2005; Bloom & Van Reenen, 2007; Bloom, Sadun, & Van Reenen, 2012; Bloom, Eifert, Mahajan, McKenzie, & Roberts, 2013). To some extent, the empirical aspects of this literature have previously been explored through other research programmes funded by the Foreign, Commonwealth and Development Office (FCDO) such as the Private Enterprise Development in Low-Income Countries (PEDL) initiative. While there is an emerging literature investigating the macro effects of firm-level frictions and distortions, especially finance (Buera, Kaboski, & Shin, 2011; Midrigan & Xu, 2014; Moll, 2014; Itskhoki & Moll, 2019), little work to date has focused on the poorest countries, including those in sub-Saharan Africa. This theme will also support a new macro-focused body of literature on productivity diffusion across firms and industries. This literature emphasises the linkages and spillovers between firms and industries that arise through the input-output linkages of economies, the flows of workers through labour markets, and the exchange of ideas (Bloom, Schankerman, & Van Reenen, 2013; Buera, Kaboski, & Shin, 2015; Buera & Oberfield, 2016; Boehm & Oberfield, 2018; Oberfield, 2018). Formality and informality, and how this distinction impacts firm growth and productivity is another important topic in this theme because informality, and the desire to avoid taxes and regulation, may itself be a distortion to firm growth and inter-firm linkages. Finally, in a world of huge market imperfections, there are clear roles for government policy. The research carried out under this theme will address the potential role for industrial policy and other government policy in either eliminating sources of frictions, offsetting the harmful impacts of distortions, responding to positive and negative externalities, or offsetting the impacts of frictions through policy in a second-best sense. Industrial policy has been common in many high growth economies, e.g. South Korea and China, and has been espoused by influential writers (Porter, 1990; Lin, 2012), but formal theoretical analysis and empirical assessment has been understudied.

Theme 2: Labour, Home Production, and Structural Transformation at the Level of Households

One of the most important aspects of structural transformation is a complex set of shifts in the locus of economic activity. Economists traditionally focus on a predominant movement from home production to market production, but recent research (Buera & Kaboski, 2012a; Buera & Kaboski, 2012b) points to a more complex process in which both home production and market production undergo a continuing and intertwined transformation. Some production shifts from home to market; other production returns to the home sector, taking advantage of market-produced inputs. Expansion of new technologies into rural areas, can free up labour time from previously subsistent households (Dinkelman, 2011). Related to the transitions between home and market are the transitions between formal and informal labour markets. All of these processes are inevitably highly gendered. Women's labour has historically been linked to home production and to socially constructed roles and responsibilities related to household provision and reproduction (Reid, 1934; Ngai & Petrongolo, 2017). Structural transformation involves complex shifts affecting household structure, investment, and time use; these can only be adequately understood through the lens of gendered analysis. Changing labour market opportunities for women bring changes in the demand for goods and services that substitute for women's home-based work. Equally, the availability of these goods and services enables women to enter the labour force and alters other choices that take place within the household, related to fertility decisions and human capital investments, and relative wages. Gender equity is itself of great interest, but secondary impacts on human capital, demographics, and wage polarisation can each have potentially long-term effects on economies and the well-being of people. The resulting changes affect growth and productivity at the broadest level, but also matter for relative wages, job polarisation, and political economy. This theme will draw on recent research that places gender squarely at the centre of understanding labour market changes in the process of structural transformation (Olivetti, 2004; Teignier-Baque & Cuberes, 2014; Moro, Moslehi, & Tanaka, 2017; Rendall, 2018). The literature also addresses important conceptual issues involving the measurement of time use, leisure, and home production (Aguiar & Hurst, 2007; Ramey & Francis, 2009; Bick, Fuchs-Schündeln, & Lagakos, 2018; Bridgman, Duernecker, & Herrendorf, 2018). To date, most of this research has focused on advanced economies, however, there are great opportunities to apply the methods and models to structural transformation in low- and middle-income countries.

Beyond the issues of gender and home production, this theme will also address the development of urban labour markets, where informal and casual employment, often in non-tradable services, now accounts for a large fraction of the labour force. Relatively little is known about the functioning of these informal labour markets. Informal labour offers relative flexibility in job creation, but limits governments' capacities in providing social insurance and other public services to workers. Policy discourse has focused on the need for expanded employment for young adults and job creation, but this narrow framing overlooks deeper questions about the transition from an economy based on self-employment and household enterprise to one in which significant fractions of the population work for a wage. The role of human capital and its interaction with technology and globalisation are critical here as policy makers are keenly interested in making sure young people have the necessary skills for future labour markets. This research theme will draw on recent literature, both micro and macro (Poschke, 2013; Abebe, et al., 2016; Falco & Haywood, 2016), that analyses the functioning of labour markets and seeks to understand the shift from entrepreneurship to wage work.

Theme 3: Agricultural Productivity and Sectoral Gaps

Macro data show what appear to be large gaps in sectoral productivity, with agriculture a particularly unproductive sector in many developing countries. In an accounting sense, an important part of the income gap between rich and poor countries seems to arise from the fact that in poor countries, large fractions of the labour force work in agriculture, a sector where labour productivity is extremely low. Recent research in this area has tried to assess whether these sectoral productivity differences are real or simply the result of mismeasurement (Caselli, 2005; Restuccia, Yang, & Zhu, 2008; Herrendorf & Valentinyi, 2012; Gollin, Lagakos, & Waugh, 2014). To the extent that the gaps in sectoral productivity are real, can we tell whether they are consistent with efficiency (e.g. due to sorting of labour on skills or ability, or due to differing capital intensities across sectors)? Alternatively, do the gaps reflect some sort of static or dynamic misallocation, deriving from frictions, barriers, or market distortions? Recent research in this area has drawn on both macro and micro data. One strand of literature has focused on the impact of distortions in land markets and other markets for agricultural inputs. In many sub-Saharan African economies, for instance, land rights are complex and institutional arrangements inhibit both sales and rental of agricultural land (Adamopoulos & Restuccia, 2014; Adamopoulos, Brandt, Leight, & Restuccia, 2017; Restuccia & Santaaulalia-Llopis, 2017). A separate micro-focused literature has emphasised technology and the limited diffusion of improved agricultural technologies. The consequences of this limited diffusion through cross-sectoral linkages are now also being explored (Caunedo & Keller, 2016; Donovan, 2016). The focus on transitions out of agriculture has long been a concern for many poor countries and the maintained assumption has often been that agriculture would give way to industry. Increasingly, however, countries are also focusing on the growth of the service sector, with minimal industrialisation. This theme will address sectoral productivity issues in relation to industry and services as well. Older research (Baumol, 1967) exposed concern for advanced economies concentrating in low-productivity-growth service sectors and recent work has echoed this for low- and middle-income countries (Rodrik, 2016). However, an emerging literature has begun to challenge the notion that service-sector productivity growth lags behind industrial productivity growth and that service jobs are in general inferior (Bosworth & Triplett, 2004; Buera & Kaboski, 2012b; Duernecker & Herrendorf, 2018). Understanding the sources and persistence of sectoral differences will be central to this theme.

Theme 4: Trade and Spatial Frictions

Trade, and economic integration more broadly, can be an important source of productivity gains and structural transformation. East Asian miracle economies of the past 60 years have all industrialised under heavy levels of trade. Classical gains from trade cause static efficiency gains in both production and consumption, and dynamically, trade can foster technology diffusion and capital accumulation. In a closed economy, the sectoral composition of output and employment depends on the preferences of domestic consumers and the productivity of different industries. But in open economies, we expect countries to specialise in accordance with their comparative advantage relative to the rest of the world (Matsuyama, 2000). There has been little research directly focusing on structural transformation in open economies (Uy, Yi, & Zhang, 2013; Tombe, 2015; Teignier, 2018). In principle, most developing countries are relatively open to trade and yet their patterns of specialisation seem puzzling. Many of the world's poorest countries seem to specialise in agricultural production, in spite of the fact that they seem to have relatively low productivity in this sector. Furthermore, they seem to produce very few manufactured goods for export markets, even though a simple view suggests that they should have a comparative advantage in low-skill manufacturing. The impacts of a changing global market can be subtle through complex global supply-chain linkages (Johnson & Noguera, 2012). Both

international trade and foreign direct investment can be important sources of technology diffusion for developing countries (Buera & Oberfield, 2016), but they also disrupt domestic markets (Goldberg & Pavcnik, 2007).

Recent theoretical and empirical literature suggests that domestic trade and transaction costs may themselves create large frictions that limit specialisation and exchange within countries (Arkolakis, Costinot, & Rodríguez-Clare, 2012). In developing countries in particular, regions, especially rural regions, can be less than fully integrated in terms of goods, capital, and even labour mobility causing suboptimal distributions of resources both spatially and across sectors of the economy. Moreover, regions can be well-integrated with respect to product markets and even international trade but segmented with respect to labour (Bustos, Caprettini, & Ponticelli, 2016) and, therefore, regional inequalities can emerge. Additionally, a number of recent papers draw on spatially disaggregated models to analyse the impact of infrastructure investments and policies that reduce *domestic* spatial frictions (Atkin & Donaldson, 2015; Costinot & Donaldson, 2016; Donaldson & Hornbeck, 2016; Donaldson, 2018). In this literature, investments in transportation infrastructure allow for growth through specialisation and comparative advantage within domestic markets. Yet infrastructure investments can be quite expensive, and little is known about the trade-offs or relative bang-for-buck of different investments. The proposed research under this theme will bring together trade researchers who work on international trade in developing countries and those who work on internal trade. Although policy discussions have in the past emphasised competitiveness in international markets, some newer trade literature highlights the importance of reducing frictions within domestic markets (Porteous, 2016; Sotelo, 2018). Both the internal and international strands of contemporary trade theory are important in understanding structural transformation and in identifying policies that can stimulate growth.

Theme 5: Political Economy and Public Investment

The dynamic changes of growth with structural transformation can create winners and losers as certain sectors and regions grow faster than others, and in some sectors and regions, resources like labour and income can decline, even in an absolute sense. At the same time, political choices shape the context in which structural transformation occurs.

This theme will focus on two channels through which political choices affect the scope and direction of structural transformation. The first channel are those policies that have strong redistributive aspects. Public investment, where contestation takes place over the geographic and sectoral allocation of public spending (and public policies more broadly), is a prime example. The political sensitivities of public investments are clear. Spending on infrastructure, for example, always reflects some underlying political realities. Allocation of infrastructure spending to different cities or regions, often embedded in development plans that privilege particular industries, is necessarily political. In many developing countries, issues of clientelism and factionalism may shape public policies and the allocation of investments (Wantchekon, 2002; Jensen & Wantchekon, 2004). Similarly, government choices in relation to trade policies and industrial policies carry strong political implications, as these may favour specific individuals or groups. Industrial policies also create tensions between industrial interests and those groups who are invested in natural resource extraction and export. These groups often have very different preferences with regard to government spending and other policy choices.

The second channel is that of macroeconomic policy, where choices of fiscal policy and monetary policies can influence and inevitably be influenced by underlying political realities. Fiscal policy may have important impacts on structural transformation, especially in low-income countries where

government employment and purchasing may represent some of the most powerful forces behind urbanisation. (In some settings, expansionary fiscal policy has both a direct effect on urban job creation and an indirect effect through rural-urban migration.) Countries' ability to pursue optimal policies (e.g. trade liberalisations and infrastructure investments) may be constrained by the need to raise public funds using a limited set of viable tax instruments. Public finance issues are of great importance to policy makers, with many competing needs for public expenditures. Policies like urban development, infrastructure, and education are expensive and heavily reliant on public finance. Public policy choices, including taxation, can drive informality patterns and tax bases are notoriously small and collection notoriously difficult in low-income countries. Finally, the need to finance long-term investments and sustain growth policies in the face of short-term adverse shocks and political pressures can link the short term with the long term. The impact of COVID on many countries is an example of this. Both fiscal and monetary policy can in turn trigger powerful political responses, and the political economy of macro policy making in low-income countries has significant implications for the pace and direction of structural transformation.

Through both of these channels, the unfolding of structural transformation in specific countries emerges from underlying political forces and interest group politics. This theme will elucidate the importance of political processes and ask how these processes constrain (and occasionally support) structural transformation.

Cross-cutting Issues

Three additional issues are of significant relevance to STEG: gender, climate change and the environment, and inequality and inclusion. These topics are relevant across our research themes, and other areas of structural transformation, and we encourage researchers to build analysis on these issues into their work. Proposals addressing these themes have an increased chance of receiving funding.

Issue 1: Gender

Gender is relevant in almost all areas of structural transformation. The issue has been touched upon above as part of Theme 2 relating to labour and home production. While particularly relevant to this theme through the interplay between women's changing role in the household and labour market and economics structures, gender is an important factor within other areas as well. Women face different challenges to men within business whether as owners or workers, including among others, care and household duties, access to finance and education, and gender-based discrimination more generally. Overcoming these frictions is critical to ensuring that women are not unjustly restricted in their opportunities. It is also important that public policy with regards to areas such as education, health and labour market flexibility is inclusive of women and girls. Understanding the impact of such policies on women is critical to improving policymaking, as is understanding the benefits of including women in the policymaking process itself.

Issue 2: Climate Change and the Environment

Climate change and the environment is becoming an increasingly significant challenge for lower-income countries. This has the potential to influence all areas of structural transformation including the five core research themes. Agriculture, the primary industry in many lower-income economies, will be severely impacted while emerging industries may be subject to new environmental standards and frictions curtailing their productivity and expansion. Changes to the climate and environment such as higher temperatures and extreme weather events have the potential to damage labour productivity and human capital accumulation. Physical capital such as infrastructure is also likely to be damaged by these factors. Other challenges related to increased migration and conflict are also expected as regions of the world suffer from more extreme weather. It is essential to examine how climate will impact all these processes and, in turn, how these processes will affect climate and the environment.

Issue 3: Inequality and Inclusion

Inequality and inclusion are critical elements of the research around structural transformation. It is essential that the process of development benefits the most poor, vulnerable and marginalised groups as well as the wider population. Policymakers must be aware of the heterogeneous impacts of policies on different groups and minimise exclusionary practices. Processes such as urbanisation have the potential to raise incomes for groups who migrate to cities but rural populations must not be forgotten. Other spatial and regional inequalities, perhaps initially created by trade or natural resource endowments, must also be addressed. Inequality and exclusion can create conflict that slows or even reverses processes of structural transformation. The role of public and industrial policy in managing inequalities between different groups will be critical to minimising these conflicts.

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