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NEW VIEWS OF STRUCTURAL TRANSFORMATION: INSIGHTS FROM RECENT LITERATURE

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Abstract

This paper describes an emerging literature in economics that aims to merge macro issues of structural change and growth with micro data and analysis. This literature focuses on a set of related patterns of change that accompany the processes of growth and development. Traditionally, the focus has been on industrialization – and more broadly the reallocation of employment and economic activity from agriculture to manufacturing and services. The new literature considers a broader set of transformations: from rural to urban, from home to market (and from market to home), from informal to formal, and from self-employment to wage work. Drawing on new data sources, including micro data and administrative records, the literature tries to understand the complex interactions of a broad set of market failures, policy distortions, and impediments to the growth process. In broadening the understanding of structural transformation – to encompass processes beyond industrialization – this literature opens the door to a richer understanding of the processes of growth and a wider set of potential levers for policy.

Keywords: economic development, growth, structural transformation, structural change

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In the past few years, new methods, new data sources, and new research findings have opened innovative pathways in development economics. An emerging literature seeks to build on the advances in development economics that were made during the first two decades of this century. During that period, development economists made significant progress in understanding the causal impacts of development interventions. Through careful and rigorous analysis of interventions and their impacts – using randomized controlled trials (RCTs) and other experimental and quasi-experimental methods – development economists learned a lot about “what works and what doesn’t work” at the level of projects and specific interventions. Some of the literature also documented the long-term and persistent effects of historical and cultural factors.

To a large extent, however, this literature has remained silent on broad questions about the contemporary growth process. Questions have also emerged about the potential for “scaling up” of successful interventions, as it became clear that many interventions that are successful at a local level will face challenges when taken to scale. For instance, an intervention that supports farmers to grow avocados for the domestic market may deliver positive results when introduced in a handful of communities; but if it is scaled up across the entire country, the market for avocados may soon be saturated, and prices will fall, undermining the original rationale of the project. Recent studies have brought thoughtful approaches to the analysis of these kind of “spillover” effects, or so-called “general equilibrium” effects on the broader economy, but there can be methodological or practical challenges in measuring impacts at scale or over long durations of time. (For some examples of the recent literature in this vein, see Bergquist et al., 2022; Breza & Kinnan, 2021; Burke et al., 2019; Egger et al., 2022; or Khanna, 2023).

The new literature, by contrast, views economy-wide outcomes as a central concern. As such, it is sometimes referred to within academic circles as “macro development,” even though it largely avoids traditional macro topics (e.g., stabilization) and the related tools of fiscal and monetary policy. The new literature sees processes of structural transformation as central to economic development. In some papers, structural change is an outcome of growth; in other work, it is a driver of growth. Taking the literature as a whole, the picture that emerges is one in which growth and development are intimately linked to structural changes of various kinds, although causality is complex and non-linear. This literature also takes up questions of heterogeneity; in contrast to much of the older literature on macro development, the new literature recognizes that changes have different effects on individuals, households, firms, and locations within economies. In this sense, the macro development literature has – at least to a degree – moved closer to the micro development literature. Although these literatures are still distinct, they are now very much in conversation with each other (Buera et al., 2023).

This paper offers a selective look at the new literature on structural transformation. It builds on a set of overview “pathfinding papers” written for the research programme on Structural

Transformation and Economic Growth (STEG), funded by the United Kingdom's Foreign, Commonwealth and Development Office, as part of the UK aid effort.¹ These papers aim to address additional dimensions of structural change, and the literature is too broad and fast-moving for any survey to be comprehensive.² The goal of this paper is to give readers a sense of how macro-focused researchers are thinking about a range of topics in development economics, bringing a macro point of reference to some of the topics currently driving research.

Definitions and patterns

It is useful to begin by defining the new understanding of structural transformation that informs this research. The central observation is that low-income economies are not simply smaller versions of richer economies. These economies look different in many ways. This reflects the fact that structural transformation is central to the processes of growth and development. But what exactly does structural change consist of? Some dimensions are obvious. In most poor countries, large fractions of the population live in rural areas and work in agriculture. Over the course of economic growth, most countries experience large movements of people out of rural areas, with corresponding changes in the composition of economic activity. But sectoral change is not the only dimension of transformation. Other structural changes include movements of people across space (migration and urbanization); changes in firm size and type (e.g., from artisanal self-employment to large firms with complex management structures); changes in the locus of activity from home to market (and from market to home); changes in the legal structures of production (from informal to formal); and shifts in a range of other dimensions of economic activity (Kuznets, 1973). Transformations also extend beyond the narrowly defined economy: political and social institutions also undergo important changes. By placing these transformations centrally in the understanding of growth, the new literature reflects the understanding – long appreciated within development studies – that “economic development” is not equivalent to growth in per capita income. The structural transformation literature attempts to address at least some of the complexities and multidimensionality of development, although we recognize that the focus remains – perhaps disproportionately - on economic issues.³

In this paper, we will summarize some current thinking on (a) what economic forces drive this process; (b) how structural changes may themselves drive the growth process (and may alter the ways in which we observe and measure the growth process); and (c) whether there are systematic market imperfections that impede transformation.

Although some policy literature views structural transformation as an objective in itself (and typically equates the term with industrialisation), this paper will not primarily focus on industrial policy or on grand development strategies. This partly reflects our uncertainty – discussed in more detail below – about the feasibility and desirability of pursuing industrialisation as a policy

objective. But it also arises from our reluctance to privilege that specific dimension of structural change. We are more interested in understanding the interlinked processes and mechanisms of structural change, as opposed to defining a specific set of policy objectives or instruments. Generally speaking, the new literature similarly seeks to bring an analytic lens to the processes of structural transformation, rather than a prescriptive approach. Although the focus is on “big picture” questions that have relevance at the macro level, these questions require a more complete understanding of the processes of growth and change, drawing heavily on micro data that can be linked to macro-scale phenomena.

Historical patterns of sectoral change

A starting point for much of the literature on structural transformation has been the historical pattern of shifts in the sectoral composition of economic activity. Since at least the time of Kuznets (1966, 1971, 1973), economists have documented the relationship between economic growth and a movement of labour out of agriculture. This movement is visible in data on value added as well as employment. Kuznets used a three-sector framework to structure his thinking, and he argued that economic growth specifically involved a transition from agriculture to manufacturing, and then ultimately from manufacturing to services. As shown by Herrendorf et al. (2014), this three-sector pattern shows up robustly in both historical data for today’s high-income countries and in the contemporary cross-section for all countries. For early development theorists, including Kuznets, Chenery (1960); Chenery et al. (1975), Rostow (1960) and Reynolds (1983, 1985), this sectoral transition was not only a fundamental feature of economic growth but perhaps a central mechanism of growth.

As an outgrowth of that belief, for much of the 20th century, economists tended to equate growth with a process of industrialization. The early language of development economics tended to use the words ‘developed’ and ‘industrialized’ interchangeably to describe richer countries, and both terms were linked to ‘modernization’.

In recent years, the links between growth and industrialization have become less obvious to macro economists, as steady growth has continued in economies that are already largely deindustrialized. Today’s richest economies tend to be service-based, rather than manufacturing-based; yet even in economies that are primarily service-based, economic growth continues, with no little evident change in long-term trends. Recent work by Herrendorf et al. (2022) has presented a strong rebuttal of the idea that manufacturing sector exhibits convergence and that the service sector displays particularly low productivity in low-income countries. Indeed, much evidence suggests that larger-scale and tradable services can play an important role in driving growth, and even the less glamorous subsector of consumer services may also play this role in some contexts (Fan et al., 2023).

Structural transformation and growth: a brief history of thought

Although policy conversations have tended to prioritize industrialization, mainstream growth *theory* has never had an equivalent focus on industrialization, in part because the primary intellectual framework, for nearly 70 years, has been the Solow-Swan single-sector model of exogenous growth (Solow, 1956; Swan, 1956). In this one-sector framework, by construction, there can be no ‘industrialization’, because there is no industrial sector; indeed, there is no differentiation of goods. Growth in the workhorse Solow model comes from one of the two potential sources: accumulation of factors of production or an increase in total factor productivity (TFP). The model has proved powerful and appealing, in part because it provided succinct and seemingly useful insights into the growth processes of the United States and other countries in the global North. The Solow model gave rise to a literature querying the relative importance of TFP growth as opposed to factor accumulation, in the time-series experience of the US economy. Beginning with Solow (1957), a set of empirical studies argued that TFP growth played the predominant role historically. This represented something of a surprise, given that previous pre-Solow views had tended to emphasize capital accumulation and investment. A renewed interest in this literature emerged in the early 1990s, partly in response to the growth miracle experiences of countries in East and Southeast Asia. Mankiw et al. (1992) and Young (1995) found evidence that factor accumulation played an important role in explaining cross-country differences in income per capita, particularly when the notion of ‘factors’ was extended to include human capital as well as physical capital. Subsequent work by Bils and Klenow (2000), Hall and Jones (1999), Caselli (2005) and others provided evidence that pointed in the opposite direction – supporting the proposition that TFP differences seemed central.

If TFP growth mattered for long-term economy-wide outcomes, then in a one-sector world, the policy implications for advanced countries would be to prioritize innovation, technology generation, and education, rather than to incentivize savings and investment. The endogenous growth literature of Romer (1986, 1990), Lucas (1988, 1993), and others (e.g. Aghion & Howitt, 1992; Grossman & Helpman, 1991) offered theoretical frameworks and potential policy levers that would lead to innovation and technological improvement. For developing countries, the policy implications were less clear. It never seemed entirely persuasive that these countries would achieve growth through focusing on research and development; but perhaps the implications were that poor countries should find better ways to access technology from advanced countries – through FDI and technology transfer, for instance, or perhaps through education and training.

A somewhat different literature focused on the process through which countries could move from stagnation to growth in a one-sector world. From an entirely mechanical perspective, as Lucas (2000) pointed out, the process of growth and development looks as though countries remain at

relatively low and constant levels of income per capita for very long periods of time before they transition to a period of rapid economic growth. Because countries begin the growth process at different times, we observe cross-country disparities in income at any moment in time, but these gaps might plausibly prove transitory, as countries eventually converge to similar long-run growth rates (and even towards similar levels of per capita income). In this framework, the key question is how countries enter modern growth. Hansen and Prescott (1998) modelled this as a process driven by exogenous technical change that could transform an economy from a stagnant ‘Malthus’ stage – in which any increases in per capita income are offset by explosive population growth on a fixed land supply – to a modern ‘Solow’ stage, in which sustained increases in output per person are achieved. Galor and Weil (2000) treated the demographic transition as an endogenously driven element of the growth process.⁴

In many respects, however, the one-sector model proved limiting. As noted above, an embedded assumption in the one-sector growth model is that developing countries are essentially identical to rich countries, only poorer. An alternative view, going back to Lewis (1954) and to the theoretical contributions of Uzawa (1961, 1963) and Inada (1963), considered the potential importance for growth of changes in the sectoral composition of the economy. Lewis noted that growth would be generated by the movement of resources (e.g. labour) from a low-productivity sector (potentially stagnant) to a high-productivity sector (potentially also stagnant). The simple arithmetic effect of a change in composition would be to increase the aggregate productivity of the economy.

As the growth literature returned to prominence in the 1990s, multi-sector frameworks gained renewed attention. A wave of papers added sectors (e.g. Echevarria, 1997; Gollin et al., 2002; Kongsamut et al., 2001; Laitner, 2000; Parente & Prescott, 1994, 1999) and incorporated sectoral changes as a source of growth. For this literature, a key question relates to the drivers of change in the sectoral composition of the economy. If sectoral movements are an important dimension of growth, what accounts for these movements?

As the growth literature began to probe the effects of compositional changes on growth, interest quickly turned beyond sectors to other dimensions of resource allocation. If compositional effects matter for sectors, the same logic implies that they may matter at the level of individual firms, plants, and production units. Growth can potentially occur through a shift in the allocation of capital and labour across firms that are operating within particular sectors. Indeed, taking the logic further, the allocation of resources across the economy matters at many other levels. The overall productivity level of the economy depends on the efficiency with which workers are allocated to jobs – and even on the allocation of time among individuals within households. Spatial frictions can alter the allocation of economic activity across locations, with implications for specialization and scale effects.

To a large degree, this realization has been the basis for the new macro development literature. The one-sector growth model, with a representative agent, is a powerful tool for thinking about

growth. But moving beyond the one-sector model, to a more disaggregated view of the macro economy – and one that incorporates heterogeneity at many levels – offers a deeper and richer understanding of the margins and policy levers that matter for growth. This disaggregated view of structural change – at the level of firms, factors of production, and labour – lies at the heart of the new literature. To understand structural change at these levels, however, the literature has needed to turn to new models and new data sources. Aggregate measures of GDP and employment cannot reveal much about frictions that operate more deeply within the economy; but for many years, these were some of the only types of data that were available for large numbers of low- and middle-income countries. Most countries produced national accounts statistics, albeit of variable quality and limited comparability (Jerven, 2013). But few developing countries had high-quality data on farms, firms, or households. A major change that has supported the new literature on structural transformation has been the striking growth in the availability and quality of new data sources that provide insight into economic structures.

New data sources

The collection of systematic data on national economies is a relatively recent phenomenon – less than a century old. The first coherent systems of national income and product accounts for the United States are generally held to be a product of the Depression era and the need to document the state of the macro economy (see, for example, Carson, 1975). What Solow was to growth theory, Kuznets was to measurement, as he played an instrumental role in the development of methods for constructing time series of National Income and Product Accounts (NIPA). Initially, these accounts were produced mostly by countries in Europe and North America. Efforts by the United Nations and other organizations extended the System of National Accounts (SNA) to a wider set of countries. As the flurry of endogenous growth theories emerged, the Penn World Tables (PWT), originally the effort of Summers and Heston (e.g., Heston and Summers, 1991), provided new empirical possibilities. The PWT harmonized measures of national income from a broad set of countries for the post-1950 period, using data from the United Nations' International Comparison Programme that collected comparable price data for benchmark years and countries. These data have been continually updated with further benchmarks and advances, including current accounts (e.g., Feenstra et al. 2015).

Kuznets was of course a pioneer in sectoral analysis as well, as he was convinced that structural transformation patterns were fundamental to the growth process (Kuznets, 1966). Over time, comparable datasets have emerged enabling researchers to study the structural transformation of value added and labour, as well as productivity, at the sectoral level. The KLEMS approach of measuring capital (K), labour (L), energy (E), materials (M), and structures (S) allows for the

construction of real time series for these quantities in harmonized fashion at the sectoral level. In particular, the EU KLEMS database provides time series measures of economic growth, productivity, employment creation, capital formation and technological change at the industry level for all European Union member states, some as far back as 1970. Several other data sources follow the same approach, primarily for high-income economies. These data can be compared internationally using the Productivity Level Database as a bridge for 2005 (Inklaar & Timmer, 2014). In recent years, the efforts of the Groningen Growth and Development Centre (GGDC) on producing sectoral data cannot be overstated. The Economic Transformation Database now complements KLEMS by offering a set of comprehensive, long-term, and internationally comparable sectoral data on output and employment for low- and middle-income economies representing Africa, Asia, and Latin America (Kruse et al., 2023).⁴

New advances in sectoral data have also been made with input-output tables to measure intersectoral flows of intermediate products. Historically, exports and imports were not treated in the same disaggregate sectoral fashion as domestic flows were. However, the World Input-Output Database provides sectoral level flows for a wide set of countries, and these data allow for the study of global value chains (Timmer et al., 2015). Utilizing sectoral level data, Valentinyi (2021) shows how sectoral patterns and linkages are important for understanding aggregate productivity patterns across countries and over time.

As the structural transformation literature has begun to look at the disaggregate components of economies, the availability of relevant micro data has also become a crucial complement to new models. Lagakos and Shu (2023) characterize some of the data sources that are available for structural transformation research. These data sources have become steadily richer and more detailed in recent years, and methods of data collection have become more sophisticated. But as Lagakos and Shu note, these data sources remain remarkably limited in some dimensions. Relative to data from richer countries, there are only a few large-scale longitudinal studies, and these tend to cover relatively short time spans, with survey waves at erratic intervals. Some emerging economies (e.g., Brazil, China) have excellent and systematic data, but for the poorest set of countries, we generally lack large-scale and long-term data. A few noteworthy exceptions are worth mentioning. The Demographic and Health Surveys (DHS) cover a large set of countries with repeated cross-section data collection, focused (as the name indicates) on demographic health data. Many countries have worked with the World Bank to design and implement Living Standards Measurement Surveys (LSMS), which are broad household surveys covering a wide range of topics. Particularly valuable are the LSMS Integrated Surveys of Agriculture (LSMS-ISA), which provide highly detailed data on agriculture and rural economies, including meticulously tested measures of productivity, technology use, and many other matters. The remarkable Young Lives panel has tracked some 12,000 individuals in four countries from childhood (and in some cases, from birth)

into adulthood, representing a unique source of data.⁵ Beyond household surveys, many countries also now produce occasional surveys or censuses of firms, farms, or other production units. Coverage varies widely, and there may be issues of representativeness and measurement quality. Nevertheless, these initiatives offer rich sources of data.

The quality of micro data has also improved. Most of the nationally representative surveys use rigorous and transparent methodologies for data collection, with clear documentation of sampling frames, survey instruments, and enumerator protocols. Other high-quality data can be found from the growing universe of one-off surveys that cover individual countries or locations. For instance, many valuable data sets have been collected as part of experiments and interventions, as discussed by Lagakos and Shu (2023). These data are valuable, though occasionally limited in scope (e.g., to a set of geographies, communities, or populations), and they may be narrowly focused on a small set of respondent characteristics and outcomes, rather than seeking comprehensive coverage.

Increasingly, researchers in macro development are able to go beyond survey data and make use of administrative data, or new types of “big data” generated from a range of sources in an increasingly digitalized world. Some of these new data advances have stemmed from harmonizing and linking datasets. For example, Caunedo et al. (2023) link data from advanced countries (the Survey of Adult Skills within the OECD’s Programme for the International Assessment of Adult Competencies, PIAAC) and lower-income countries (the World Bank’s STEP Skills Measurement Program, STEP) to show how task content varies over development. Porzio et al. (2022) link harmonized data from the Integrated Public Use Microdata Series (IPUMS) to study structural transformation at the level of the individual and show how the movement out of agriculture is linked to rising human capital levels across cohorts. Similarly, in current work, Gottlieb et al. (2023) build a Harmonized World Labour Force and Time Use Survey that enables an examination of the roles of gender, marital status, and other individual characteristics in the labour force movements of structural transformation.

Macro development researchers in recent years have used everything from satellite imagery to smartphone location data; from DNA fingerprinting data to GPS trackers on trucks. Administrative data have proven particularly valuable in some contexts. For example, a number of countries now have matched employer-employee data sets that provide a glimpse of labour markets and employment patterns, at least within the formal sector. Similarly, data from value-added taxation (VAT) records, which are collected by revenue authorities in many countries, provide insights into firm-to-firm transactions, allowing for a glimpse of the micro-level input-output structures within developing economies. Again, these data are typically limited to formal-sector firms, so using them requires careful and critical consideration of the silences in these data. But this is arguably no different from the need to bring a critical perspective to any economic data; even for prosperous countries with small informal sectors, large shares of economic activity are imperfectly visible to

researchers, and all data sources must be approached with care and critical reflection.

In sum, it is no longer the case that research on macro topics in development is inevitably hampered by untrustworthy or low-quality data. One of the important advances in recent years has been the move towards more micro-based data sources, with far more attention paid to measurement issues than was true in the past. In this sense, too, we have perhaps begun to see a convergence between the macro development literature and the micro development literature. The two literatures increasingly share data sources and methods, and there are interesting interchanges taking place around measurement issues. Macro development researchers are frequently interested in the mapping from macro concepts into micro data, and in finding metrics and data that adequately reflect their underlying theoretical constructs. In some cases, this has allowed for meaningful comparative work through harmonization of data.

Emerging research areas

The remainder of this article offers a brief overview of some of the principal areas of macro development research. This is by no means an exhaustive survey of the field, but it provides some sense of the scope and ambition of the literature.

Firms and financial frictions

Research on the roles of firms in structural transformation is not entirely new. Much of the earlier work on firms emphasized industrialization. This literature also emphasized sources of inefficiencies. One important theme was the role of technology spillovers and knowledge externalities – a topic that gave rise to both formal exposition (e.g., Lucas 1988; Matsuyama 1991; Matsuyama 1992) and narrative analysis (dating back to Rosenstein-Rodan 1943 and emphasized fifty years later in the work of Porter 1990). Another theme was the role of interest groups in blocking the adoption of new technologies (Parente and Prescott 2000). Theories of externalities in the industrialization process provide potential justification for industrial policy as well as trade policy – and thus have attracted extensive attention. Recently, serious empirical and quantitative work has looked to case studies of industrial policy to evaluate the effectiveness of such policies in prominent examples like Korea (Choi & Levchenko 2021; Kim et al. 2021; Lane 2021), China (Brooks et al. 2021; Shao et al. 2013), or more generally (Buera et al., 2021).

A long-suspected distortionary friction inhibiting industrialization is the presence of financial frictions, which can bite particularly strongly for large-scale industrial sectors (Buera et al., 2011). Indeed, a common instrument for industrial policy is subsidized credit to firms. More recently, there has been a focus on whether finance allocates resources properly, not only across industries, but across individual firms (e.g., Jeong & Townsend 2007; Midrigan & Xu 2014). Kaboski (2023)

reviews the ways in which financial frictions can impact TFP and structural transformation, as well as related outcomes like inequality and poverty traps, which may reflect sizable misallocation of resources.

This idea of misallocation — the observation that the allocation of productive resources within the economy will matter for the level of aggregate productivity — has taken on a prominent role more broadly in this new development literature as noted above. For this reason, the macro development literature has focused extensively on the allocation of productive resources across firms, plants, workers, households, and individuals. To the extent that there are inefficiencies — arising, for example, from market failures, policy distortions, or social norms — in the allocation of these resources, there will be macro consequences. Most obviously, efficient allocation will matter for the *level* of productivity; but it is also possible that dynamic inefficiencies may arise. For instance, static inefficiencies in the allocation of skilled workers to well-matched jobs may undermine incentives for individuals to acquire skills.

In recent years, a growing body of evidence has called attention to the presence of barriers and frictions that obstruct the reallocation of productive resources across firms and farms in low-income countries. These are contexts where market failures of various kinds may be widespread. Although entrepreneurship is widespread, firms may face substantial difficulties in accessing technology and credit; they may also face markets for inputs and outputs that are far from competitive. Contract enforcement may be uneven and legal regimes poorly defined. Low-income economies may feature traditional or neo-traditional institutional arrangements in some dimensions (e.g., with regard to land rights, or the control of firm profits). Although these arrangements may have been highly functional in previous eras, “sticky” institutions may prove poorly adapted to current conditions. Thus, it seems entirely plausible that capital and labour might end up inefficiently allocated across firms and farms.

The literature finds strongly suggestive evidence that, in low-income countries, a great deal of production takes place in firms and farms that are unproductive relative to their peers. Perhaps the first papers to explore this topic in detail were general papers by Guner et al. (2008), Restuccia and Rogerson (2008), and Hsieh and Klenow (2009). These papers focused on the potential distorting effects of policies and market failures that skew the allocation of resources towards low-productivity firms. Guner et al. (2008) and Restuccia and Rogerson (2008) showed how poor allocation could generate aggregate losses in productivity that would be significant in magnitude. Hsieh and Klenow (2009) carried out an empirical analysis that found quantitatively significant inefficiencies in India’s manufacturing sector (and smaller effects in China), arising from the allocation of (too much) capital and labour to low-productivity firms. Later work by Hopenhayn (2014) and Bento and Restuccia (2017) pointed out more clearly the circumstances under which misallocation can generate large aggregate effects.

Documenting and measuring the magnitude of this misallocation remains challenging, and in some contexts it is difficult to identify the precise nature of the frictions or distortions that are at work. However, in other cases, there are some plausible candidate explanations for misallocation. In either case, the expanded focus of the new literature leads to a wider range of potential diagnoses and policy recommendations. Where earlier literature debated big issues of industrial policy and the role of the state, the newer literature highlights the relevance of more specific concerns. For instance, infrastructure limitations may affect the incentives for firm creation and growth, as argued in Fried and Lagakos (2023). Contracting and search frictions can limit firm productivity by inhibiting the growth of supply chains and firm specialization (Boehm & Oberfield, 2020; Startz, 2021). The absence of land markets (e.g., because of limited property rights or restrictions on farm size) has been identified as a possible source of misallocation in agriculture – with potentially large effects on agricultural productivity and sectoral patterns of employment and production. See for example work by Adamopoulos et al. (2022), Adamopoulos and Restuccia (2020), and Chen et al. (2022), although Gollin and Udry (2021) offer a caveat (which is in turn challenged in Aragón et al., 2022).

Labour market frictions

Just as capital market frictions prevent the allocation of capital to its most productive uses, so also can frictions in labour markets interfere with the efficient and productive matching of workers to jobs. Donovan and Schoellman (2023) discuss new evidence on the ways in which labour markets in developing countries look different from those in high-income economies. Some of the differences are self-evident. Many more workers in poor countries are self-employed or work in informal jobs (Poschke, 2019; Bick et al., 2022). Job turnover appears to be very high, with many workers moving frequently from job to job, gaining relatively low returns from experience and low rates of transition to good jobs – possibly indicative of frictions that make it difficult for firms and workers to anticipate the quality of a particular match (Donovan et al., 2023). Unemployment as such is not widespread, partly because of the lack of well-defined programs of state benefits for those out of work (see Feng et al. 2018), but at least some fraction of the low-quality work observed in the data may reflect the difficulty of transition out of low-quality matches. The absence of functioning social protections and the social obligations of employers may make it difficult for firms and workers to end a poor match.

The macro development literature has also focused on understanding two other aspects of labour markets in low-income countries. One is the relationship between “home” and “market” production and the movement of work across this boundary; the other is between “formal” and “informal” modes of production. In both cases, there are “real” transitions taking place in the nature and locus of economic activity. But both of these transitions also create challenges for measurement – or more accurately, for our interpretation of measurements. Both macro data (e.g., employment and

national accounts data) and much micro data (e.g., household surveys and labour force surveys) impose definitions or constructions of work and production that reflect conceptual decisions about what constitutes “work”. Our measurements of economic activity thus reflect changes in these categories as well as actual changes in the nature of work, production, or productivity. Some data sources, for instance, only quantify employment or output in the formal sector; this may lead us to confuse economic growth with changes in the legal structures under which production takes place.

Recent literature has tried to understand and to model the ways in which productive activity has moved across these boundaries, Ulyssea (2018, 2020) explores the role of informality in developing economies. An important finding of his work is the interconnectedness of the formal and informal segments of the economy. In Brazil (and very likely in other countries as well), formally registered firms employ substantial numbers of workers on informal contracts. Formal and informal firms overlap in other ways too: productivity distributions show a substantial overlap, and the firms often operate in very similar markets and produce highly similar goods and services. Although it is widely assumed that workers benefit from formalization of their own contracts or of the firms in which they are employed, the evidence is far from clear on this point. Informal jobs can provide flexibility with respect to hours and contract duration, which may be valued by some segments of the workforce (Gottlieb et al., 2021).

New work in the macro development literature seeks to understand the ways in which various policies and market distortions may alter labour market outcomes. Taxes and regulations may affect formalization at the level of firms and individual workers; high costs of screening workers may lead to poor match quality. Bassi et al. (2022) showed that many small firms in a low-income context appear to work together to achieve the benefits of scale; in ongoing work, the same authors are seeking to understand what appears to be a lack of task specialization within these small firms. Why do patterns of work look so different within low-income countries? If there are such low returns to experience and specialization, why is this the case? Is this a potential cause of low aggregate productivity, or is it a consequence? A growing literature on labour markets in macro development literature seeks to answer these and other questions.

Home production and gendered patterns of work

As noted in the previous section, among the important structural changes that accompany the growth process are a range of transitions in the locus of economic activity between home and market. A common narrative assumes that this is essentially a one-directional change, with home production giving way to market work as economies grow. This is true in an aggregate sense, but it is also true that the aggregate pattern conceals some important nonmonotonicities. Some activities transition from market to home, and others may change location repeatedly in the course of

economic growth. For instance, meal preparation in low-income countries typically takes place almost entirely in the home – certainly in rural areas. As economies grow or households grow richer, meal preparation may be undertaken by hired domestic workers, which places the activity in the service sector. As economies grow still further, the activity may switch back into the home, using household appliances and prepared ingredients (processed or semi-processed foods being a product of the manufacturing sector). At still higher levels of income, or in different demographic groups, food away from home may again substitute to a substantial degree for home-prepared food, so that a market service again substitutes for home work. Similar transitions between home and market apply to some dimensions of care work; e.g., child care or elder care, which may be provided by household members, unpaid domestic workers, paid domestic workers, or through market-based services outside the home.

Home production has previously been a topic for macroeconomists focusing on advanced countries; e.g., Benhabib et al. (1991), Greenwood et al. (2005), Aguiar and Hurst (2007), Ramey and Francis (2009). In some sense it is surprising that macro development has been slower to pick up this topic, given the importance of home production in low-income countries. Some early works include Parente and Wright (2000), Gollin et al. (2004), and Ngai and Pissarides (2008). However, these early models did not necessarily link home production to gender, as more recent work has done explicitly. In many ways, our understanding has returned to the seminal work of Reid (1934) on home production, which emphasized both development and gender patterns.

Because many home production activities involve highly gendered roles, based on social norms, there are corresponding implications for market and non-market work by women, as explored in Dinkelman and Ngai (2022).⁶ Women's labour has historically been linked to home production, family life, and to socially constructed roles and responsibilities related to household provision and reproduction. Changing labour market opportunities for women bring changes in the demand for goods and services that substitute for women's home work, driving changes in the structure of the market economy. This is the mechanism underlying Ngai and Petrongolo (2017) or Buera et al. (2019). This ties structural change closely to a range of other economic outcomes that are clearly conditioned by gender; for example, fertility choices, investments in children, and household structures. The rapid changes in women's economic roles that seem to accompany growth and transformation imply that gender norms and roles are inextricably linked to the macroeconomy. Family life patterns, features of work, and social norms that limit women's ability to work outside the home, for instance, are likely to have a powerful impact on the structural evolution of the economy. Market sectors that have the potential to substitute for women's home production will grow less slowly in economies where women are discouraged from entering the labour force. Similarly, machines or durable goods that reduce the time burdens on women will find weaker market demand in settings where women's time has a low opportunity cost.

Here again, the point is that issues that formerly seemed to fall within the domain of micro development have emerged as key focal points for macro development research. A large literature is emerging that tackles macro development topics related to gender; e.g., Cuberes and Teignier (2016); Moro et al. (2017); Rendall (2018); Chiplunkar and Goldberg (2021). This work has been accompanied by a growing effort to understand how labour is allocated between home and market, for men and for women, at different levels of income per capita and in different social and cultural contexts. Among the efforts here are works by Bridgman et al. (2018), Bick et al. (2022), and Olivetti (2013).

There are strong overlaps with a subset of the modern macro literature – mostly targeting high-income economies – that focuses on the economics of the family and household. This literature, inspired to a significant degree by Becker’s work on the theory of the family (1981), links growth and development to issues of fertility choice, human capital investment, and time allocation within the home. Two useful surveys of this literature can be found in Doepke and Tertilt (2016) and Greenwood et al. (2017).

As the macro development literature has engaged more closely with new sources of micro data on gendered patterns of work and time use, and with data on women’s legal rights and opportunities, women’s ownership of productive assets (Deere & Doss, 2006), employment segregation, and similar variables, the connections to structural change and development have become clearer. The literature can begin to tackle questions of both policy relevance and academic importance: How will the changing roles of women alter the structure of the market economy and the shape of the service sector? How much of the growth that we observe in the data for high-income countries consists of the movement of home work into the market? Correspondingly, do measures of growth in the market economy overstate welfare gains, and by how much? These are certainly questions of macro significance, related to structural change – and they underscore the importance of opening up our thinking beyond the one-sector model with a representative agent, and beyond simple models of sectoral movements.

Changes in sectoral composition

Although the structural transformation literature has moved beyond a narrow focus on the sectoral composition of output, changes in sectoral structures remain of interest. As noted above, historical patterns in Europe and North America, repeated in the 20th and 21st centuries in parts of East and Southeast Asia, can be characterized as involving a shift from agriculture to manufacturing and eventually to services. This is often characterized as the only pattern that has been observed in countries that have grown successfully. The reality, however, is somewhat more complex. There are countries that have grown without undergoing this pattern of transformation, such as the major oil-producing states. The pattern also fails to describe many Latin American

countries, which (in a stylized view) have experienced this pattern of structural change without achieving much growth. And many countries have now progressed far along a transition from agriculture to services without ever undergoing a substantial take-off of manufacturing. This pattern broadly describes many African countries but also India, Pakistan, and some other Asian countries, and perhaps also Australia and New Zealand.

A substantial literature in this area has been driven by a set of questions related to national development strategies and economic planning: What policies will help a country develop a manufacturing sector? Is agricultural development a prerequisite for economy-wide growth? Can service-sector growth deliver development, without countries passing through a prior stage of industrialization?

In recent years, however, the academic literature has moved away from a normative focus on how to promote industrialization, and instead has asked what features of different economies might slow or limit the processes of sectoral change, or might lead to growth without industrialization. They have also explored the theoretical mechanisms that seem capable of explaining sectoral movements. One frequently invoked mechanism is the empirically compelling idea that consumption patterns display non-homotheticity; i.e., that the shares of consumer expenditure allocated to different goods depend on income levels.

A specific example is the importance of food in poor economies. The subsistence demand for food might require a (closed or largely closed) economy to devote large fractions of resources to the agricultural sector, even if labour productivity in that sector is low. As the economy grows, the proportional demand for food might be expected to fall, so a richer economy would tend to have lower shares of employment in the agricultural sector. Similarly, if some services are disproportionately demanded by people at higher levels of income, non-homotheticities might account for the sequential transitions from agriculture to manufacturing and then services. This framework suggests a potential role in the poorest countries for improvements in agricultural productivity to be important drivers of aggregate growth, as in Gollin et al. (2002), Bustos et al. (2016), or Asher et al. (2022), among others. The idea that the agricultural sector may play an important role in the growth process is considered in greater detail in the paper by Gollin (2023).

An alternative – perhaps complementary – mechanism for sectoral movements might arise simply from differential productivity growth rates in different sectors, again assuming a closed or largely closed economy. Ngai and Pissarides (2007) use a model along these lines to study the shift from manufacturing to services. In a sense, their framework formalizes an intuition that has been described as “Baumol’s cost disease” and goes back to Baumol and Bowen (1966). The basic idea is that in a multi-sector world, differential productivity growth will generate changes in the labour allocated to the different sectors – and the form of this reallocation will depend on whether the sectors are broadly substitutes or complements. If the sectors produce goods that are broadly

substitutable, then the faster-growing sector will attract more labour, and the slower-growing sector will tend to fade into oblivion. However, if the two sectors produce goods that are complements, then labour will shift into the slower-growing sectors, driven by a steadily increasing price for these laggard sectors. This story might account in part for the rising share of employment in some service sectors where productivity growth has historically been limited by the absence of technological change, such as childcare or elder care.

Buera and Kaboski (2009) argue that neither theory of sectoral composition can account adequately for the data.⁷ Their work pointed towards the need to broaden models of structural change by incorporating elements such as home production, factor market distortions, and skills. All of these factors point again to a range of micro frictions and the need for micro data to understand compositional changes. Their paper also suggests that there may not be a single story for all countries; compositional changes may unfold in different ways in the face of imperfect markets. Government industrial policies are unlikely to be the only forces operating on sectoral structures. This in turn implies that there are more potential policy levers to consider. Instead of focusing largely or entirely on investment in the manufacturing sector, the policy toolkit now extends to a much broader range of domains. The movement of economic activity out of agriculture and into other sectors may be shaped by land markets, retraining opportunities for agricultural workers, rural credit markets, and many more dimensions of policy. Studying the process of growth therefore involves a shift in focus from purely aggregate data to a much more disaggregated view, drawing on data on sectors, firms, households, and individuals.

In an open economy, structural transformation can be influenced by different forces. Indeed, Matsuyama (2009) shows how especially high productivity growth can lead to the *expansion* of the fast-growing sector in an open economy, as the economy shifts toward an emerging comparative advantage. Indeed, trade forces have proven to be important to some industrialization episodes (e.g., Uy et al., 2013). The role of globalization in structural transformation is the subject of work by Alessandria et al. (2023). This paper describes how productivity and demand forces play analogous roles in the open economy. Although domestic factors are of course important for both forces, international forces also come into play. Productivity can change in response to transnational investment, in the form of FDI. Similarly, demand can shift due to changes in global markets as well as domestic factors. Changes in preferences, trade costs, and market access can all affect the structure of the domestic economy. The literature also emphasizes that heterogeneity across individual producers mediates the responses to international markets; this literature, too, has increasingly turned to micro data.

Sectoral productivity gaps

Should we actually care about the sectoral composition of economies? Why should it matter

whether workers produce agricultural goods or manufactured goods or services? Classical trade theory suggests simply that economies should focus on producing those goods in which they are *relatively* productive, compared to the rest of the world. This is the principle of comparative advantage. But if sectors differ in productivity, then the compositional structure of the economy might matter, because changes in economic structure could imply changes in the aggregate income level. If, in addition, there is differential productivity growth rates across sectors (as, for instance, in Matsuyama, 1992), then some economic structures might be dynamically more desirable than others.

How plausible is it that there are quantitatively important differences in productivity across different elements of the economy? If such differences exist, do they necessarily represent any kind of inefficiency? Not all ‘gaps’ imply inefficiency; for instance, differences in capital intensity or land intensity across sectors would give rise to fully efficient differences in output per unit of labour.

In the context of developing countries, an obvious candidate for a low-productivity sector is agriculture, which typically accounts for a large fraction of employment and value added in low-income economies. As Caselli (2005) pointed out, and as Restuccia et al. (2008) elaborated, simple accounting exercises suggest that low productivity in agriculture explains, in a proximate sense, a large fraction of the differences in per capita income between poor and rich countries. Gollin (2023) takes up agriculture’s role in greater detail.

A starting point is the observation that between-country disparities in agricultural value added per worker exceed the disparities in GDP per worker. Moreover, the data suggest that for most developing countries, the value of output per worker in agriculture, measured in nominal prices, is lower than the value of output per worker in other sectors. This seems to imply that a movement of workers from agriculture to non-agriculture would increase aggregate output per worker in developing countries and would reduce the cross-country dispersion of income. This topic received further attention in Gollin et al. (2014), which explored sectoral productivity gaps in detail. One concern is that the measurement of sectoral productivity is challenging, especially across countries. Not only are relative sectoral prices different across countries, but labour and output may be measured crudely in national statistics; Gollin et al. (2014) attempt to show that the so-called agricultural productivity gap (a ratio of value added per worker in non-agriculture to value added per worker in agriculture) remains even after controlling for a number of potential sources of mismeasurement. The authors conclude that sectoral productivity gaps are significant and raise the possibility that there may be some compositional benefits from moving workers across sectors.

This view has been constructively challenged in a set of papers that have pointed to the role of selection and sorting in accounting for sectoral gaps. If high-skill workers tend to migrate selectively to cities – or even to move to off-farm work in rural areas – then sectoral productivity differences might be illusory, driven instead by observable and unobservable differences in worker

skills and aptitudes, as suggested by Young (2013). If this is the explanation for gaps, then moving workers from agriculture to non-agriculture would have no compositional effect on aggregate output. (Indeed, it might reduce output, if workers were initially sorted in an efficient manner). To measure the importance of sorting and selection on sectoral productivity gaps, several authors (Alvarez, 2020; Hamory et al., 2020; Herrendorf & Schoellman, 2018) have used longitudinal observations of the wages (or earnings) of individuals who have switched sectors of employment. These studies from Brazil, Kenya, Indonesia, and the United States, have generally found that switchers experience much smaller increases in wages than would be predicted from the agricultural productivity gaps calculated for those countries. A plausible inference is that selection effects are important. Somewhat contrary to that view, however, Lagakos et al. (2020) and Lagakos (2020) argue that there is in turn selection operating on those who switch sectors. If “switchers” are systematically those with the lowest costs of switching, then the observed returns to switching may not be representative of the true sectoral productivity differences. For instance, if those whom we observe switching are people involved in manual labour in peri-urban areas with well-developed labour markets, where people may move fairly freely between agricultural labour and non-agricultural labour, then this may offer little insight into the potential returns of someone moving from a more remote area to a city.

In this way, the macro literature on sectoral productivity gaps has come to intersect with a rich micro literature on rural-urban migration and an emerging literature on the spatial frictions that can limit the mobility of people, goods, resources, and information across space. An implication for policy is that sectoral productivity gaps may be addressed through a range of policies – not only measures to artificially expand the industrial sector, but also interventions designed to reduce migration costs or frictions; e.g., the provision of housing in urban areas, or social safety nets that reduce the downside risk of migration.

Spatial frictions

Most models of growth and development assume that countries are points in space, or perhaps islands, separated from other countries with which they may (or may not) trade. In the past, economists and policy makers debated whether development strategies should prioritize openness to trade, or whether developing countries might better isolate themselves to some degree from international markets, consistent with the views of dependency theorists such as Cardoso and Faletto (1979), and harking back to Prebisch (1950) and Singer (1950). This focus on trade *between* countries has dominated development discourses and debates over growth strategies. Much less attention has been devoted to issues of trade and exchange *within* countries, although this is one of the oldest areas of economic theory. Adam Smith (1776) highlighted market integration as an essential feature of the growth process, referring to roads within a country as ‘the greatest of all

improvements' because of their effect on expanding the size of the market. Smith argued that roads connecting cities to one another, and linking cities to their own hinterlands, were powerful forces for overcoming the potential market power of producers. Smith saw specialization and exchange as the key ingredients for expanding economic activity – and in his writing, the within-country dimensions of market integration were every bit as important as international trade.

Until relatively recently, however, domestic market integration and spatial frictions have not been a major topic for development and growth theory. Discussions of structural transformation have tended to ignore these frictions. This omission seems important. Growth processes seem to involve changes in the spatial patterns of economic activity, some of which are implied by the changing sectoral composition. The most obvious feature of this economic geography of growth, perhaps, is that agriculture as a sector requires large stretches of land, and thus most agricultural production takes place in relatively rural areas. The sectoral shift of economies away from agriculture allows for the concentration of economic activity in towns and cities (where agglomeration effects may induce further increases in productivity). Similar to the ways in which market frictions may lead to inefficiencies in the allocation of production across firms, spatial frictions may lead to inefficient allocation of people or goods across locations.

As noted in the previous section, a number of recent papers have examined some of the frictions that may inhibit rural-urban migration – and thus prevent the efficient allocation of labour across space and across sectors. Bryan et al. (2014) found that information frictions appeared to be preventing people from engaging in seasonal migration from rural areas to urban areas in Bangladesh, in spite of high returns; Akram et al. (2017) argue that this migration can also generate spillover effects in source villages, and Lagakos et al. (2023) calculate economy-wide welfare gains. Other literature points to frictions in rural-urban migration flows and to aggregate impacts of these frictions; e.g., Bryan & Morten (2019) and Baseler (2023). Improvements in infrastructure can reduce the magnitude of spatial frictions, with corresponding beneficial impacts, as shown by Asher and Novosad (2020) in the context of rural roads in India and by Brooks and Donovan (2020) in the context of rural footbridges in Nicaragua.

But beyond migration and mobility frictions, there are reasons to consider a much wider set of ways in which spatial frictions may matter for development. In a seminal paper, Arkolakis et al. (2012) show that domestic trade and transaction costs may create large frictions that limit specialisation and exchange within countries. In developing countries, remote localities, especially in 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. A number of recent papers draw on spatially disaggregated models to analyse the impact of infrastructure investments and policies that reduce domestic spatial frictions (e.g., Atkin & Donaldson, 2015; Costinot & Donaldson, 2016; Donaldson, 2018; Donaldson & Hornbeck, 2016).

In this literature, investments in transportation infrastructure allow for growth through specialisation and comparative advantage within domestic markets. Internal infrastructure can also impact productivity and sectoral patterns by indirectly influencing international trade (e.g., Van Leemput, 2021). Bustos et al. (2020) show that financial integration across space can lead to increases in efficiency and growth.

A new literature using quantitative spatial models has started to unpack the impacts of spatial frictions on a range of outcomes – from agricultural productivity (e.g., Sotelo, 2020) to urbanization patterns (e.g., Balboni, 2019, Bryan et al., 2020). This work has underscored the way in which spatial frictions affect the economic geography of development. High frictions lead to the fragmentation of economic activity, making it difficult for economies to realize gains from scale, specialization, or standardization. High spatial frictions almost necessarily imply sectoral frictions; they contribute to financial frictions and labour market frictions. This leads to a further agenda: understanding the specific sources and types of spatial frictions that are salient in developing country contexts. Are the relevant frictions literally the transport costs of moving people and goods? Or are they costs related to information flows and awareness of opportunities? Again, the macro picture gives way to a rich set of more micro concerns.

Political economy

Another dimension in which the new literature has upended traditional thinking about structural transformation is in relation to the political and institutional processes that govern the processes of growth and development. Much of the early literature assumed that structural transformation would unfold primarily as a result of coherent “development strategies” formulated at the national level, ideally as the product of careful development planning. This view harkens back to the early days of development economics – and indeed to its roots in the first half of the 20th century, when planned economies were seen as having intrinsic advantages relative to the decentralized decision making and coordination failures that seemed to characterize capitalist economies.

Early academic work on growth identified a pattern of sectoral change that was seen as essentially linear, in which growth brings a transition from agriculture to manufacturing, followed by a further transition from manufacturing to services (e.g., Rostow, 1960; Chenery, 1960; Kuznets, 1966, 1973). Beyond the academic community, however, this linear characterization has frequently been seen not simply as a descriptive pattern, but as having a causal element. That view has persisted strongly in the policy community. The idea that manufacturing is a source of growth is deeply embedded in the collective psyche of the policy community – not just in developing countries, but also in the post-industrial countries of the global North. While the transition from agriculture to manufacturing is seen as having a positive causal relationship with economic growth, the subsequent transition from manufacturing to services is, somewhat puzzlingly, seen as having a

negative causal relationship with growth. In short, the policy literature has frequently attached a normative element to the size of the manufacturing sector.

In this vein, the older literature understood the political economy of structural transformation as essentially a question of industrial policy. The old literature focused on national and international constraints to the pursuit of active industrial policy. In the wake of the debt crisis of the 1980s and 1990s, critics of the Washington Consensus focused heavily on the limits that structural adjustment placed on the ability of developing countries to pursue industrial policy. Through the most recent decade, the work of Rodrik (2013, 2016) has been particularly influential in arguing for a special role of manufacturing. Rodrik has made the case that manufacturing – and particularly export-focused manufacturing – plays a crucial role in creating large numbers of jobs for relatively low-skill workers, providing a key pathway to poverty reduction (Hausmann et al., 2007). Although Rodrik has always been somewhat guarded in his views on activist industrial policy (Rodrik, 2004), he has made the argument that large-scale expansion of manufacturing offers the only known pathway to inclusive growth. Other prominent economists and public intellectuals have taken a stronger stand on this point; e.g., Justin Yifu Lin (2012a, 2012b, 2013) and Ha-Joon Chang (2002, 2003).

The recent experiences of high-growth countries with relatively low levels of manufacturing, such as India, seem to offer a counterexample to a manufacturing-centred view of development (see, for example, Fan et al., 2023; Bosworth & Collins, 2008; Bosworth et al., 2007). Not all growth appears to be linked to industrialization, and not all manufacturing leads to growth. Fan et al. (2023) argue that consumer services have been the key driver of growth in the Indian case. In a series of papers based on careful analysis of micro data from manufacturing and service firms in East Africa, Diao, McMillan, and co-authors (2018, 2020, 2021) have called into question any easy equivalence between ‘manufacturing firms’, ‘firms displaying productivity growth’, and ‘firms driving employment expansion’. One reading of this work (made clearest in Diao et al., 2021) is that within Ethiopia and Tanzania, the firms displaying the highest productivity growth are large and capital-intensive. These firms do not in fact greatly expand employment, although they do generate output growth. Instead, in these two countries, the expansion of the non-agricultural workforce seems to have consisted primarily of workers moving into small and unproductive manufacturing and service firms, both formal and informal. These firms show little potential for growth: they are typically small and relatively unproductive.

Once we move away from a narrative in which economic growth is synonymous with a linear transition from agriculture to manufacturing to services, the centrality of industrial policy fades. Instead, the newer literature explores a much broader range of political issues that shape the process of growth and transformation. Martinez-Bravo and Wantchekon (2023), surveys this literature and explores the many ways in which the new literature has opened the door to studying an array of

institutional issues and interest group politics that affect the processes of growth and structural change. Industrial policy is not the only determinant of country growth paths. Even to the extent that industrial policy may matter, it is itself an endogenous outcome of more complex political dynamics. The new view sees political distortions of various kinds – from colonial legacies to elite interests – are the underlying drivers of technological change, growth, and development.

As Martinez-Bravo and Wantchekon argue, this implies that micro-focused research is essential for understanding the processes of structural change and growth in developing countries. New issues of political economy arise, such as the potential capture of both industrial policy and infrastructure investment by interest groups. The impact on construction and allocation of schools, roads, and utilities (for example) may influence the direction and geographical locus of structural transformation and growth. As with the other emerging areas of research, the imperative is to look at disaggregated data, heterogeneity, and context specificity.

Conclusion

Across all these new areas of research, the focus on aggregate outcomes and big-picture processes of growth and development has begun to connect more closely to the micro development literature that has formed the mainstream of the development economics literature for the past two decades. The new structural transformation literature draws heavily on micro-founded models and micro data. It recognizes the importance of heterogeneity – across individuals, households, firms, and points in space.

Today's literature in macro-growth economics has moved away from the models of the last century, which depicted countries as points in space, with representative consumers, representative firms, and frictionless markets. This was never a good representation of complex modern economies, but during the long and essentially uninterrupted growth of the postwar 20th century experience, it seemed like a reasonable simplification. For developing countries, however, these models always seemed barren and impoverished. More to the point, these models offered few potential explanations for disparate country experiences – and few levers for policy. The new literature allows for more sources of variation, more market failures and policy distortions, and more nuanced understandings of the growth process.

Does the new literature take us too far into complexity and into a world where every country experience is distinct – and where there are no generalizable theories or policy recommendations? Should we be looking for universal explanations of growth and structural change? This is an enduring question for growth economists. The new literature does look for theoretical structures with broad relevance and applicability; many of these models are also calibrated to parameter values that are assumed to be “deep” or “primitive” and that are taken to be constant across time and space. In this sense, the structural transformation literature seeks a balance between the general

and the particular.

This is an exciting moment for the structural transformation literature. This paper touches on only a portion of the literature at a particular moment – but new work is arriving rapidly. The literature is rich in questions and awash in new models, new methods, and new data. The challenge facing the research community is to advance our understanding of development, growth, and structural transformation – and then to use this understanding to address the major challenges of our time: poverty, inequality, and injustice; climate change and environmental destruction. On such important issues, making progress, however limited, is a worthy goal.

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¹ Interested researchers are encouraged to visit the project website at <https://steg.cepr.org/>.

² The full set of “pathfinding papers” can be found at: [https://steg.cepr.org/publications?publication_subtype_filter\[7\]=7](https://steg.cepr.org/publications?publication_subtype_filter[7]=7).

³ We use the term “growth” in this paper in its narrow economic sense, referring to increases in real per capita GDP. We recognize and acknowledge the multitude of reasons why real per capita GDP is a poor measure of human well-being or social welfare. We understand growth very specifically as a change in the size of the measured market economy; moreover, we shy away from normative claims about the desirability of growth. In this paper, we use the term “development” to capture a broader set of economic changes – many of them

correlated with growth – but not defined narrowly in terms of per capita GDP.

⁴ These data were produced in collaboration with UNU-WIDER and expanded to more African countries with funding from Structural Transformation and Economic Growth (STEG), a UK-funded research programme.

⁵ See <https://www.younglives.org.uk/> for more information.

⁶ See also the precursor paper by the same authors (Dinkelman & Ngai, 2020).

⁷ Subsequent work has attempted to address the emphasized shortcoming of the non-homothetic mechanism by adopting preferences with a more persistent non-homotheticity, e.g., Boppart (2014); Comin et al. (2021).