



# Policy Brief

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## Overview

Many middle-income developing countries are experiencing stalled industrialisation or 'premature de-industrialisation'. Premature de-industrialisation refers to an empirical observation that some developing countries have reached 'peak manufacturing' in employment and GDP shares at lower levels than earlier industrialisers. In other words, the opportunities manufacturing presents for economic development and employment creation are being exhausted earlier and with fewer of the benefits that have typically accrued to countries through manufacturing. This brief discusses the phenomenon and the policy implications for developing countries looking ahead.

Written by Andy Sumner, King's College London (1). Edited by Howard Hudson, UNU-MERIT

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## *Industrialisation and De-Industrialisation in the Developing World*

Since the 1990s, many middle-income developing countries have experienced processes of stalled industrialisation or 'premature de-industrialisation' (a term first coined by UNCTAD) accompanied by a tertiarisation of employment and /or value-added. Put simply, this means that the social and economic benefits that manufacturing presents are being exhausted earlier than has historically been the case. These contemporary patterns of economic development are now well documented in a general sense in many middle-income developing countries. Such trends are likely to exacerbate global income inequality between countries and within countries by weakening economic growth (and impacting on inequality between countries) as well as weakening low and medium skill employment generation (and thus impacting on within-country inequality) in developing countries.

### *The 'New Normal' Path of Economic Development*

It is now well established how the structure of an economy can change through economic development (e.g. Chenery, 1960; Chenery and Syrquin, 1975; Kuznets, 1965; Syrquin, 1988). Specifically, agriculture dominates employment and value-added at low levels of GDP per capita. The share of agriculture diminishes as GDP per capita rises (to very low shares at high income). In contrast, manufacturing follows an inverted-U pattern as manufacturing shares are small at low GDP per capita levels and rise over time to a peak before falling again. Finally, the service sector share is low at low levels of GDP per capita and rises over time to very high levels at high GDP per capita. Duarte and Restuccia (2010, p. 135) empirically concur with this historic research and note:

*...all countries follow a common process of structural transformation. First, all countries exhibit declining shares of hours in agriculture, even the most advanced countries in this process, such as the United Kingdom and the United States. Second, countries at an early stage of the process of structural transformation exhibit a hump-shaped share of hours in industry, whereas this share is decreasing for countries at a more advanced stage. Finally, all countries exhibit an increasing share of hours in services.*



### About the Author

Andy Sumner is a Professor of International Development at King's College London. He is also Director of the UK Economic and Social Research Council (ESRC) Global Challenges Strategic Research Network on Global Poverty and Inequality Dynamics. He has 20 years' international research experience using both qualitative and quantitative methods and has published extensively, including ten books and fifty journal papers and book chapters. His most recent books are 'Global Poverty' (2016, Oxford University Press) and 'Development and Distribution' (2018, Oxford University Press). He was appointed at King's in 2012 and was a founding Co-Director of the King's International Development Institute, which later became the Department of International Development. He is also a member of the ESRC Peer Review College. Correspondence to: [andrew.sumner@kcl.ac.uk](mailto:andrew.sumner@kcl.ac.uk)

This 'traditional' pattern of structural transformation is now in question. In fact, it is now likely to be harder than has historically been the case to achieve the 'traditional' pathway of structural transformation – industrialisation. Furthermore, new pathways – tertiarisation – may become a 'new normal' at lower levels of per capita income than earlier developers experienced, which has implications for employment growth, real wage growth, and value-added.

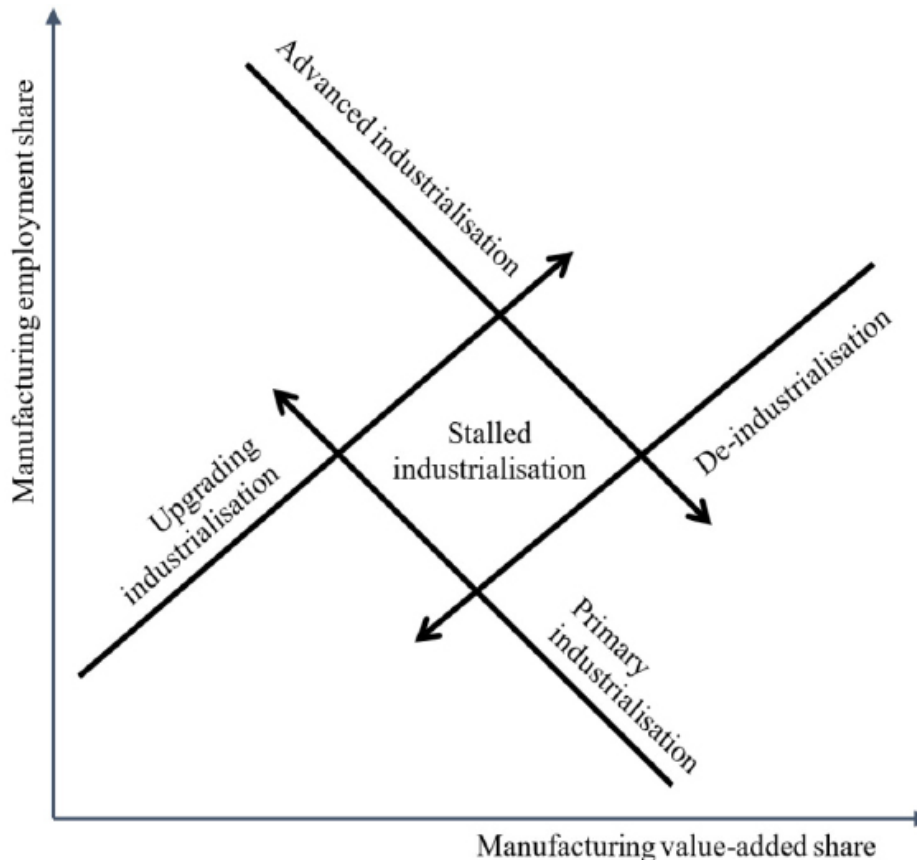
Kim and Sumner (2019) present a typology of varieties of structural transformation. They identify patterns of industrialisation – primary and upgrading – and patterns of 'new' economic development, namely, stalled industrialisation and de-industrialisation. Figure 1 shows this typology. The typology is based on the changes in manufacturing value-added and employment shares in the post-1990 period. The categorisation has been constructed based on the recent direction of changes in the manufacturing shares and not on the absolute levels of those shares. It is important to note that not all developing countries would fit neatly into this typology. More precisely, these varieties are not suited for very poor and aid-dependent developing countries that remain largely agrarian or for those which are heavily dependent on the mining sector. A separate analysis is needed for these countries. It is also important to note that countries are not fixed within the variety of structural transformation to which this analysis has assigned them. Shifting between different varieties is possible and, in some cases, desirable.

### *Studies of Industrialisation and De-industrialisation*

Many seminal studies exist which detail 'good' and 'bad' de-industrialisation in OECD countries. The former, 'good' de-industrialisation, generally entails new employment to absorb laid-off manufacturing workers in tertiary sectors (see Alderson, 1999; Bacon and Eltis, 1976; Bazen and Thirlwall, 1986, 1989, 1992; Blackaby, 1978; Bluestone and Harrison, 1982; Cairncross, 1979; Fontagné and Harrison, 2017; De Groot, 2000; Kucera and Milberg, 2003; Linkon, 2018; Rowthorn and Ramaswamy, 1997; Saeger, 1997; Thirlwall, 1982; Wren, 2013). There is also a set of influential papers which discuss the inverted-U curve of manufacturing shares of employment in OECD countries as the defining pattern of de-industrialisation (e.g. Rowthorn and Wells, 1987; Rowthorn and Coutts, 2004; Rowthorn and Ramaswamy, 1997; Singh, 1977, 1987).

Caution is needed when using these studies as a template for middle-income developing countries because the effects of de-industrialisation may be different in the contemporary developing world. This is because the process is happening at lower levels of both per capita income and 'peak manufacturing' (in terms of value-added and employment shares) than was historically the case. Furthermore, contemporary de-industrialisation occurs at a different point in history wherein global production is now highly fragmented into global value chains (GVCs). Moreover, in middle-income developing countries, the

Figure 1. Varieties of Industrialisation and De-industrialisation.  
Source: Elaborated from Kim and Sumner (2019), by Arief Anshory Yusuf



welfare regime mechanisms mitigating the impact of de-industrialisation – ranging from unemployment benefits and pensions to access to health and retraining programmes – are weaker and cover a lower share of the population than in advanced economies. It is also unlikely that middle-income developing countries can respond to de-industrialisation by mimicking advanced economies; that is, focusing on downstream, higher-value service activities (e.g. marketing and the development of creative content) or upstream activities linked to science and technology. In downstream activities, advanced economies benefit from having consumers with higher incomes, a freer civil society, world class universities in the creative industries and sci-

ences, and well-established firms that lead GVCs. All of these yield positive reputational effects, e.g. 'made in France' for leather products or 'made in Germany' for automotive products. In upstream, science-intensive activities (e.g. new materials, pharmacological research, and aerospace), middle-income developing countries compete with advanced economies who are worried about losing their dominance and with countries that challenge Western dominance for industrial and geopolitical reasons, such as China. All of the latter heavily subsidise these activities in order to either keep or capture the higher value-added GVC access points.



In short, although much can be drawn from the research on developed countries, caution is needed because the effects of de-industrialisation are likely to be different in developing countries. Furthermore, the policy implications that are promoted (e.g. raising education levels and freer movement of labour) are often abstract and not sufficient in the current context of a world where industrial production is dominated by fragmented chains of production spreading across numerous countries. As such, policy recommendations usually pay little attention to, or make limited links with, the structural global forces that will shape the future pattern of structural transformation. Available studies also say little on the state's role in supporting new sources of economic growth and job growth, and in managing a country's position in a GVC-world.

In the developing world itself, much has been written on industrialisation, employment, and development (take, for example, Andersson and Axelsson, 2016; Cruces et al., 2017; Newman et al., 2016; Szirmai et al., 2013) and episodes of 'late' industrialisation (e.g. Amsden, 1989, 2001; Chang, 1994; Wade, 1990). It is now well documented that many middle-income developing countries are undergoing contemporary processes of stalled industrialisation, de-industrialisation, and tertiarisation (see, for example, Amirapu and Subramanian, 2015; Dasgupta and Singh, 2006; Felipe et al., 2014; Frenkel and Rapetti, 2012; Herrendorf et al., 2013; Palma, 2005, 2008; Pieper, 2000; Rodrik, 2016; Szirmai and Verspagen, 2011; Tregenna, 2009, 2014). There is also a set of single-

country studies (e.g. for Malaysia, see Henderson and Phillips 2007; Rasiah 2011; Tan 2014; for Indonesia, see Manning and Purnagunawan 2017; for Mexico, see Cruz 2014; for Chile, see Gwynne 1986; for Pakistan, see Hamid and Khan 2015; and for Brazil, see Jenkins 2015; Cypher 2015).

#### *Drivers of Industrialisation and De-industrialisation*

The debate on drivers of stalled industrialisation and premature de-industrialisation in middle-income developing countries tended to be framed as either technology-driven or trade-driven. In some ways the discussion has emanated from the discussion of de-industrialisation in OECD countries. Saeger (1997) tested the 'technology or trade' explanations and concluded that both played a role, though the technology explanation seemed to dominate in OECD countries. Rodrik (2016) hypothesised that the former, technology, might explain de-industrialisation in the OECD while the latter, trade, may better explain stalled industrialisation and premature de-industrialisation in the developing world.

The technology-driver explanation of stalled industrialisation and premature de-industrialisation points towards the driver as labour-saving technology. More precisely, there is a high-skill bias in GVC-participation. This is based on Grimalda and Vivarelli (2010) who argue that there is a skill-biased technological change. This form of technological trade has led to an increase in demand for skilled labour. A recent example of a study that goes further empirically is that

#### Definitions

Stalled industrialisation refers to economic development where manufacturing shares of employment and/or GDP have plateaued and are no longer rising.

De-industrialisation refers to economic development where manufacturing shares of employment and/or GDP have begun to fall.

Premature de-industrialisation refers to economic development where manufacturing shares of employment and/or GDP have started to fall at a share of manufacturing and/or GDP per capita lower than in earlier industrialising countries.

of Kunst (2019) who finds that the employment lost in stalled industrialisation and premature de-industrialisation is mostly low-skilled employment. Furthermore, he argues that the employment losses occur in the formal manufacturing sector and

are more capital-intensive, such as basic and fabricated metals, evolve into the dominant subsectors. Then, countries move towards more technology-intensive manufactures, such as electrical machinery and apparatus. Empirically, Tregenna and

*“...it is not the case that manufacturing has stalled, but rather that governments have failed to kick-start the process in the same way as China and other East Asian countries have done.”*

that stalled industrialisation and premature de-industrialisation are driven by jobs vulnerable to ICT adoption. Rodrik (2016) provides a similar empirical estimate and also finds that the employment reduction is largely among low-skill workers.

An alternative, though not necessarily mutually exclusive view, is that stalled industrialisation and premature de-industrialisation are driven by trade. More precisely, intense competition and the entry of China and other countries into the lower-tech end of GVCs are the drivers. Hence, stalled industrialisation and premature de-industrialisation are phenomena of the lower-tech manufacturing subsectors, notably textiles and wearing apparel (e.g. Haraguchi, 2015). This argument is predicated on the idea that there are several stages of manufacturing development. In a first stage, at lower income levels, low-tech manufacturing such as food/beverages, textiles, and wearing apparel develop as these relate to basic human needs and are labour-intensive. As countries move through middle income towards high income, resource-processing industries which

Andreoni (2019) (see text box) find that there is significant heterogeneity between and within types of manufacturing by technology-intensity – low, medium and high-tech manufacturing – in the sense that not all groups and subsectors exhibit the inverted-U pattern associated with de-industrialisation.

Finally, a third, non-mutually exclusive view is that stalled industrialisation and premature de-industrialisation are due to a failure of government policy to put in place effective industrial policy (see Dasgupta and Singh, 2006 for discussion). In short, it is not the case that manufacturing has stalled, but rather that governments have failed to kick-start the process in the same way as China and other East Asian countries have done. (Or one could say that many of the industrial policies used by East Asia are not compatible with WTO membership.) Wade (2014, p. 793–4) points to the following: A ‘developmental state Mark I’ can no longer create an autonomous industrial base due to the contemporary ownership by transnational corporations of much of the GVCs and WTO rules on



### Recent Contributions on the Topic

Tregenna and Andreoni (2019) explore the heterogeneity within manufacturing underlying de-industrialisation. They find that there are significant differences between low-, medium- and high-tech manufacturing and variations among the subsectors within each of these categories.

While manufacturing as a whole exhibits an inverted-U curve of industrialisation and de-industrialisation, this is not the case for all activities within manufacturing. They develop a typology of countries in four groups: ahead and speeding, ahead but slowing, behind and slowing, and behind but speeding.

De Vries (2019) considers a broader concept of 'modern' industry in keeping with W. Arthur Lewis. Besides manufacturing, he includes modern agriculture, finance, and business services to test the de-industrialisation thesis as these sectors share characteristics with manufacturing, such as economies of scale, participation in global value chains, and potential for technological change and productivity growth. He finds that premature de-industrialisation is not observed for modern industry output shares but is observed for employment shares.

traditional industrial policy. However, a 'development state Mark II' is still possible because global rules such as those of the WTO do little to constrain certain policies, such as competitive devaluations, investment incentives, trade finance, and export taxes. Thus, the state can still act strategically.

The renaissance of state-owned enterprises in countries facing stalled industrialisation and premature de-industrialisation and the emergence of a 'new developmentalism' are signs of attempts to re-industrialise in the face of stalled industrialisation and premature de-industrialisation (see for more discussion Kim and Sumner, 2020).

#### *Consequences of De-industrialisation*

The central question for developing countries is whether modern services – tradeable, high productivity services – can replace manufacturing's potential for economic development and large scale employment generation. An optimistic view is illustrated by Page (2012) who has argued that modern services such as tourism, IT, and finance or 'industries without smokestacks' and high-tech modern agriculture have many of the features of manufacturing. Namely, they are tradeable and connected to GVCs, have economies of scale, and are technologically dynamic. However, other services – such as retail and personal services – are non-tradeable and do not exhibit high levels of productivity. Ghani and O'Connell (2014) argue that services are increasingly traded, linked to GVCs, and able to generate large scale employment. Ghani and Kharas (2010) compare China

with India and note India's services-led economic development and that the potential market for tradeable services is large and not fully exploited to date. In contrast, a less optimistic view is illustrated by Rodrik (2018) who notes the heterogeneity of services. Tourism, IT, and finance are highly tradeable and technologically dynamic, just like manufacturing. However, few of these sectors can generate large scale employment for low-skilled workers and the employment generated in finance or business services is likely to be for high-skilled labour. In contrast, the sectors of personal and retail services are non-tradeable, technologically stagnant, and usually overwhelmingly occupied by informal, low-productivity, small firms.

#### What do the data say?

Rodrik (2018) compares labour productivity growth and employment generation in wholesale and retail trade as well as in personal and community services. He finds a negative correlation in the sense that sectors with the best productivity shed labour and vice versa. De Vries' (2019) (see text box) empirical study broadens the concept of modern sectors to include modern agriculture, finance, and business services and finds that premature de-industrialisation is not found for modern sectors' output shares. However, premature de-industrialisation is found for employment shares. In short, modern agriculture and modern services might at best mitigate the premature de-industrialisation of value-added, although not the premature de-industrialisation of employment. Hence, modern agriculture and modern services cannot replace the loss of manufacturing jobs.



### *Future Policy Options*

Developing countries face a choice between three strategies for economic development that produces economic growth and employment growth. Option one is the strategic route of the promotion and expansion of higher-value-added services or business services such as finance, insurance, real estate and business services, and services that are internationally tradeable. This could generate much value-added, though with weak employment growth potential for low and medium skilled workers given the nature of these services. This option is unlikely to ensure greater equality. Indeed, it may even increase tensions in terms of domestic political economy as only a small proportion of the population will be working in such high-value-added services. Governments could plausibly redistribute value-added through taxation, transfers, and public goods; however, the politics may be challenging if this implies a major redistributive programme.

A second option for developing countries is to pursue economic development strategies that expand the share of the economy of lower-value-added services. These include trade/restaurants/hotels, transport/storage/communication, government services, and community/social/personal services. As noted, these sectors have higher potential for employment growth for low or medium skill workers (albeit often in informal, low wage services) although they are much more limited in value-added potential.

A third option is that governments of developing countries

could – and many appear to be trying already – make a strategic choice to seek growth through re-industrialisation (and thus implicitly neglect services in relative terms, at least through policy choices). This option requires state activism in the form of direct or indirect subsidies to help domestic companies enter GVCs and/or upgrade in GVCs to higher-value-added activities (i.e. through subsidised or directed credit, protection, and/or upskilling labour forces) and/or international companies as foreign direct investors (i.e. through fiscal subsidies, tax breaks, or other incentives). The challenge with this state-led re-industrialisation is that it is predicated on participation in the very part of the global economy, namely lower-end GVCs, that may have engendered stalled industrialisation and de-industrialisation in many middle-income countries. Each of these choices is sub-optimal and involves trade-offs for value-added growth, employment growth, and real wage growth for different types of workers.

### *Looking Ahead*

Adding to the struggle for development is the likelihood that technological change will accelerate de-industrialisation of employment because the kinds of jobs common in developing countries – such as routine manufacturing work – are substantially more susceptible to automation. Ultimately, if more manufacturing jobs are automated, workers will continue to move into the service sector, leading to a bloating of service-sector employment and wage stagnation (see Schlogl and Sumner, 2020).

Full references available at:  
<https://bit.ly/2vZQqHn>

### Recent Contributions on the Topic

Schlogl and Kim (2019) consider Rodrik's (2016) conjecture that job de-industrialisation in developing countries has adverse political consequences. They subject this conjecture to multiple empirical tests. Using country-fixed-effects panel regression of sectoral employment shares in manufacturing on a range of political outcome variables, the paper finds no empirical support for the hypothesis that (de-)industrialisation in developing countries is systematically related to (de-)democratisation. However, a persistent, though weakening, cross-sectional relationship of manufacturing employment with levels of democracy raises the question of what time-varying factors have been moderating the relationship between employment structure and political outcomes. The paper offers a set of explanations.



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INSIDE:

# Policy Brief

## *Industrialisation and De-industrialisation in the Developing World*

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United Nations University -  
Maastricht Economic and  
social Research Institute on  
Innovation and Technology  
Boschstraat 24  
6211 AX Maastricht  
The Netherlands

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