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Servicization and the Limits of the Mainstream: Structural Change in Developing Countries

Adam Fforde

Adam Fforde is Adjunct Professor at the Victorian Institute for Strategic Economic Studies, Victoria University, and an Honorary Professorial Fellow at the Asia Institute, University of Melbourne. He is currently working on a book-length monograph entitled *The Vietnamese Economic Miracle*. He has had a mixed career, about 3/4 of which was spent as a practitioner—a consultant—and the rest as an academic cum scholar. He is probably the most widely cited scholar working on contemporary Vietnam (as of early May 2024 with around 3,500 citations according to Google Scholar). His views on various important issues related to Vietnam are often contested and unpopular as they challenge mainstream positions. Email: adamfforde1@gmail.com



Abstract: The article examines prospects for policy to enhance contemporary economic development. Shortcomings of mainstream economic analyses are evident since the Cold War, with failure to establish policy doctrines engaging with developing countries’ structural transformation: on average, not industrialisation, but servicization: capital and labour moving from agriculture to services. Faster-growing countries show greater servicization, yet overtly services-focused strategies are rare, and policy doctrine and economic analysis focuses on industrialisation. Literature searches show that servicization is largely ignored, reducing possibilities for policy-supported growth. Demonstrating this, the article argues that “internal” aspects of mainstream data and theory create severe confirmation bias, explaining this failure. If the “state” is there to support capitalism, in this area it seems to be doing rather badly.

Key words: economic growth; servicization; structural change; policy doctrine; economic analysis

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1. Introduction: Motivation and Goals

The end of the Cold War saw confident policy advice given to countries moving on from central planning. This advice asserted that Western mainstream¹

economic theory was good enough, that is, had sufficient empirical support, to guide policy, such as towards both likely and desirable patterns of economic restructuring. Looking at Vietnam as a case study, we see a country emerging as a market economy after the transition of the 1980s and the ruling communist party, understandably keen to retain its traditional focus upon industrialisation, secure endorsement of this from major donors such as the World Bank, and from what it could find in the relevant economic literatures (if it looked). The famous 1993 “economic miracle” study from the World Bank confidently referred to “the way to go” epitomised by “newly industrialising countries” such as Thailand (World Bank 1993). However, as discussed below, Vietnam’s economic miracle, where rapid growth accompanied both extremely rapid reductions in measured poverty rates and very high levels of corruption as a percentage of GDP (Fforde 2022b), saw, not industrialisation but servicization, an outcome throwing major doubt upon both the validity of the policy advice of the early 1990s and its scientific basis. Examination of the global pattern (see below) suggests, also, that the global pattern has been one of servicization, not industrialisation, and that the faster the growth the greater the degree of servicization. This is not reflected in the literature (Fforde 2018a).

This article looks at reasons for this, focusing upon problems with the data generally used to access structural change and ground models empirically: sectoral constant price GDP. The core, and novel, argument is that because these problems are and remain largely unappreciated (though they were identified, and so knowable, many years ago), the empirical grounding of standard theory on this data, usually deploying some form of production function, is impossible. Further, if it is nevertheless done, as is widely attempted, then there will be major risks of confirmation bias (Fforde 2016b), explaining why (as the metrics show) research pays little attention to servicization.

This article thus addresses important differences between “what we can see” and “what we can read about it” in a central aspect of change in developing countries: their structural transformation. This requires it to develop two parallel arguments: first, about what standard data appears to tell us, but in fact does not, and second about what mainstream analyses are, and why. More broadly, this argument shows the epistemological weaknesses behind confident standard policy prescriptions, and so the limits of state policies’ ability to manage structural change in some rational manner. Before presenting the argument, I stress that I retain an optimism about the possible roles of policy and government, but this requires far better analysis and theoretically contextualised data to assist construction of policy to support and ground state action. This concern about policy and the use of state power explains why the article discusses global data based upon countries rather than global totals. I also offer some country examples.

The reasons for this situation are complex. Clearly, it is partly to be explained by issues such as relative power in the global political economy, and/or patterns of discursive dominance. But there are also, I argue, specific problems that stem from the standard frameworks used to analyse structural change, which are often ignorant of knowable shortcomings—in other words, problems inherent in the “internal” of mainstream economic analysis. These are a component of powerful ideologies, and heavily invested-in by states and their advisors, and so matter. The concern is, therefore, not that better policies are simply not implemented, because, for example, they threaten powerful interests, but that they cannot, under current epistemic conditions, be coherently construed by the economic mainstream. The point here is that the “internal” of approaches constrains the development of new thinking from within those approaches.²

It is important to flag policy considerations that are concerned with the issue of national economic security, for both military and other considerations (such as engaging with pandemics such as COVID-19). Access to domestic manufacturing facilities may be deemed valuable. But for many developing countries military materiel is sourced externally, so reliability of supply likely depends upon non-economic considerations. These may in turn relate to discussions of the advisability of services-focused development strategies. But such discussions may then risk criticisms of being weak on issues of national security, whether military or concerned with pandemics. A retort could be that it is development that creates the tax base to pay for development of domestic production that the market alone will not do. Again, though, this takes us away from the “internal” limitations of mainstream economics.

The article stems from the author’s own ongoing analysis of a far smaller picture—Vietnam’s economic development since the shift towards rapid economic growth around the end of the Cold War. Initially, Fforde (2016a) reported that structural change in Vietnam since the early 1990s had not been the industrialisation confidently advocated by donors and the ruling Vietnamese Communist Party, but servicization. Recent studies of Vietnam by others have reported similar conclusions (Nguyen and Ta 2019). In 2018 Party strategy, and then in early 2021 state policy, moved to active focus upon servicization (Fforde 2022c)—a very rare example of such a policy globally, judging by some cursory searches of relevant databases.

The next section elaborates on these core issues; Section 3 then discusses technical problems with interpreting GDP data and the vulnerability of mainstream analytical frameworks that use it; Section 4 examines data on structural change in developing countries for the period from the end of the Cold War to 2019, the year before COVID-19 hit; Section 5 discusses country examples under three headings—services as an element of rapid growth, as part of economic patterns in very poor and troubled countries, and as part of recent economic history of countries once

seen as successful, as “newly industrialising countries” (World Bank 1993). Section 6 examines the mainstream articles on imbalanced growth by economic modellers. Section 7 concludes.

2. Core Issues

2.1. The Importance of Empirically Founded Development Policy

Validated policy doctrine is necessary to counter fears that development is ungoverned and out of political control, and so open a path to rational authorisation of states and policies. In terms of ideological hegemony, such hegemony does not just happen, but must be constructed, and as part of this, mainstream economics must be capable of producing consistent (in its own terms) analyses. Without it, governments will find it hard to credibly assert (though they can have recourse to unfounded populist assertion) that they can, on behalf of their supporters, act purposefully to secure suitable outcomes.

However, the data is only suggestive. Between the end of the Cold War and the COVID-19 pandemic the core assumption behind policy’s pretensions to rationality—that the global economy is part of a historical process where known issues can be translatable into solvable and solved problems—became increasingly fragile.

2.2. The Contrast between Mainstream Interest in Industrialisation and Servicing: Some Data

The data in Table 1 measures scholarly interest in industrialisation and servicing. This shows nearly 11,000 references to the former, using the abstracts in the widely used EBCSO. This compares with 36 for the latter from 1961 to August 2021, a ratio of 3:1000, and for the latest period, 4647 compared with 2, a ratio of 0.5:1000. From the 1978 to the 2020 editions there were over 500 mentions of “industrialisation” in the World Bank’s *World Development Reports* (searching through the PDFs available from the World Bank’s website), but none to servicing. According to these metrics there is therefore almost no literature on servicing accessible to researchers and policy advisers. There is a minority literature, which can be found, as citations in this article show, but it remains relatively minute. The mainstream literature focuses on industrialisation; and references to servicing are negligible. Yet, the next section presents data on structural change in developing countries, and this clearly shows “servicing not industrialisation.” Clearly, most of these studies stressing industrialisation have passed peer review.

This data shows that pro-servicizing strategies, unlike industrialisation policies, cannot be founded on an easily referenced, mature, mainstream, and well-established literature. It is hard to find national development strategies for developing countries that focus upon servicization (see below), a vivid contrast to industrialisation. As a very rare counter-example, recent policy changes in Vietnam (Fforde 2022c) are informed by mainstream research by Vietnamese economists that refer to the “rise of services” but—strikingly—do not offer new theory.³

An understanding of economic growth in developing countries that has empirical foundations is crucial to thought-through policy and state actions. The issue of servicization is therefore both one of reality and what is said about it, with the latter influencing what is deemed to be good policy and strategy; clearly Table 1 shows that industrialisation is well-understood,⁴ but servicization, being “off the radar screen” is not. One characteristic of the global political economy since the end of the Cold War is, therefore, that developing countries’ average pattern of structural transformation has been largely ignored, and the focus of analysis and so policy doctrine has been elsewhere (“industrialisation”), with the literature asserting the importance of what has not been happening.

Table 1. Industrialisation vs. Servicization: References in EBSCO Article Abstracts, 1960–2021

	<i>Industrialisation</i>	<i>Servicization</i>
To Dec 31 1960	56	0
Jan 1961 to Dec 1965	15	0
Jan 1966 to Dec 1970	31	0
Jan 1971 to Dec 1975	40	0
Jan 1976 to Dec 1980	89	0
Jan 1981 to Dec 1985	105	0
Jan 1986 to Dec 1990	277	1
Jan 1991 to Dec 1995	615	2
Jan 1996 to Dec 2000	671	5
Jan 2001 to Dec 2005	1053	2
Jan 2006 to Dec 2010	1403	8
Jan 2011 to Dec 2015	1975	16
Jan 2016 to Aug 2021	4647	2
Total	10,977	36

Source: EBSCO Host, <https://www.ebsco.com/products/research-databases#>, accessed August 19, 2021. Notes: Data up to December 2015 as per Fforde (2018a, Table 2). Search was on both English and American spellings.

China's experience is similar. Li, Xia, and Lin (2018), argue that there is not, and never has been, a clear Chinese servicization strategy (though services share of GDP started to rise in the early 2010s). Rather the formal policy history shows a series of pragmatic and confused measures whose cohesiveness has not been thought through. This suggests that Chinese official thinking faces the same issues as, the data shows, are faced generally.

This overview suggests an intellectual vacuum. This should lead to the creation of a new area of economic research where careers can be made and journal editors encourage novel contributions that will attract citations, which in turn will support grant applications, career development, and so on. But this, the data says, is not happening (Table 1). This suggests that factors "internal" to mainstream economics are operating. As Kuhn put it: "if an anomaly is to evoke crisis, it must usually be more than just an anomaly" (1970, 82). A crisis may be unable to generate a new paradigm, if that requires not just scientific creativity but new theories, and these are both unsuitable to existing data and would require rejecting core aspects of standard theory.

2.3. Tropes and the Risks of Egregious Behaviour

The empirical picture therefore combines data on structural transformation (discussed further below) with research metrics to reveal how this data contradicts standard beliefs and research interests. This has practical implications. For example, a developing country government negotiating with private or multilateral banks to secure loans for infrastructure that platform on a servicization strategy cannot easily secure support from prestigious donors (such as the World Bank) or published research, unlike industrialisation. Further, there are studies that are critical of servicization that could be used to reject loan applications. Such "services pessimism" may provide a platform for research arguing against the capacity of services sectors to generate levels of GDP/worker high enough for servicization to be observed, epitomised by Rodrik (2015), referring to his working paper "Premature Deindustrialization."

Whilst the data has not gone entirely unnoticed, these are usually by studies of low prestige. For example:

To get a better understanding of the evolution of the structure of economies in Africa . . . If we group countries based on leading sector (agriculture, services, and mining and quarrying) . . . *countries based on services enjoyed the strongest GDP growth* between 1998 and 2008, followed by those exporting oil and minerals. (Berardi and Marzo 2017, 154–155; emphasis added)

A prestigious publication (from the Asian Development Bank) is Helbe and Shepherd (2019), but this ignores theory and the existing knowledge base, see also Hoekman and te Velde (2017, 3).

The minority of studies showing interest in servicization have lacked authority and so there has been no sound doctrinal base upon which, for example, a putative loan applicant can base their pitches. Clearly, any new analysis must confront situations where servicization has taken place despite the policy focus upon industrialisation (as in Vietnam—Fforde 2016a). Clearly much waste was involved—governments, their donors and private international investors often preferred to build export processing zones and not urban environments favourable to services.

This line of thought, again beyond the scope of this article, may consider that where states are relatively unable to enforce their development strategies, servicization may show how the economic realities of trade opportunities, technologies, and global market incentives have supported rather than hindered economic activity. To develop research, servicization needs to be seen as a positive, creating citable studies and deploying affirmative tropes.

3. GDP: Data and Possible Theoretical Tangles

I now discuss factors that inhibit the study of servicization. Central to this is the meaning of constant price GDP.

3.1. GDP: Data

Growth is generally understood by mainstream economists (and others) as growth in GDP/capita when inflation has been “taken out” to create a measure of “volume GDP.” Whilst this concept (though subject to valid criticisms for excluding unpaid labour, nor accounting for environmental pollution, etc.) is relatively untroubled for the whole economy, major problems arise when using this statistic to report on a sector or sub-sector, such as industry or services. This of course matters when discussing structural change, as economic activity moves between sectors.

In the National Income Accounts (NIA), the basis for most mainstream analysis,⁵ “industry” is not just manufacturing (“factories”), as is common in lay thinking, but includes power generation, mining, and construction. Cognitively, this simplification reflects the way manufacturing conceptually acts as a proxy for industry, and indeed single product factories are the key building block of mainstream economic analysis, as we see in any standard textbook (for example, Jehle and Reny 2020), and what is taught on short intensive courses (such as to officials). There is, however, no equivalent conceptual proxy for services, whose sub-sectors include a varied range of activities, from transport and communication, to tourism, health, and education, with little common between their technologies.

Conceptually, if growth is understood as driven by manufacturing, and this insight is deployed into formal modelling, then it is easy to take a hierarchical

view that sees large parts of services, as well as the non-manufacturing sub-sectors of industry, as “serving” manufacturing either directly or indirectly, perhaps through derived demand—power supplies, building construction, transport and communications serving distribution and management, education and health to improve the labour supply, and so on. But, once (as the data shows) we find manufacturing’s contribution to many countries’ GDP falling, and services increasing their share of GDP, it makes sense to recall that, conceptually, GDP simply measures factor rewards—payments to labour and capital, and, as a matter of arithmetic, if an economy is not industrialising, and agriculture+⁶ is shrinking, then these rewards are growing fastest in services sectors. GDP/worker in sectors whose share of GDP is growing is higher than elsewhere.

An easily accessible indicator of this is the ratio of manufacturing GDP/worker to the national average, and, for servicization to be happening, it is likely to be below one (as we shall see), so that the arithmetic of growth is one where growth is slowed by shifts in factors of production to manufacturing. This can be observed; Vietnamese data shows that in the 1990s manufacturing’s GDP/worker was nearly twice the national average, but by the second half of the 2010s it was under 90% of it.⁷

Given the problems, I focus, in my own work, upon current price GDP data. The measure of economic activity I use is, quite conventionally, factor income generation, the basis of National Income Accounting.

The data in Tables 2 and 3 below is then straightforward.

To gauge relative economic growth, I use data on Gross National Income (GNI) measured at current purchasing power parity US\$, which shows directly how the total value at purchasing power prices paid to a country’s factors of production changed over the period. For the US the equivalent metric grew about 125% over the same period.

To gauge structural change, I look at different data, on how domestic production (production within the country—GDP) rewarded factors of production in different sectors: services, industry (which as conventionally defined includes mining), and the rest of the economy, which includes agriculture. I do this using current price data. This allows me to allocate countries to groups, according to their level of GNI growth, and then to average for each group their sectoral shares of GDP. I then use this to explore various patterns.⁸ Before doing so I now go through key challenges to the empirical founding of mainstream economics in analysis of servicization.

3.2. Issues Mainstream Theory Must Address for Rigorous Empirical Research

Four “internal” issues challenge mainstream empirically founded economic theorisation of servicization.⁹

First, disaggregation of structural transformation data requires avoiding constant price sectoral GDP. This is because interpreting this data as measuring constant price

factor incomes, and so using the standard production function approaches (with their distributional implications), is incorrect because sub-sectoral constant price GDP data is not what these mainstream approaches need: measures of real factor inputs. Fforde (2021) was worked out independently, and literature surveys for that article, and review processes, did not point to earlier work, which is therefore not well-known—see Arrow (1974) and citations in it. For Kuznets what was “real” was not GDP data recalculated to remove changes in prices (to produce “volume” measures), but directly measured values (Kuznets 1942, 3).

To measure sectoral constant price contributions to GDP (generally treated as equal to constant price Gross Value-Added (GVA)), NIA statisticians usually subtract deflated non-factor inputs from gross output. But there is no reason to suppose that this will equal deflated factor inputs as the requirement that revalued (away from the base year) factor inputs equal revalued gross output less revalued non-factor inputs will not be met. In a nutshell, they do not conceptually equal constant price GVA. This identity only holds at current prices, because of the accounting identities of firms and consumers. It does hold at deflated values at aggregate (whole economy) levels, where the sum of revalued factor inputs simply equals constant price final demand (being identical to revalued net output). However, it does not hold at sectoral or sub-sectoral level. The published statistics called “constant price sectoral GDP (or output)” measure revalued gross output less revalued non-factor inputs, which has no clear relationship with value-added thought of as a constant price or volume concept. Therefore, it has no clear relationship with factor inputs to production, the basis of the mainstream analytical tool, the production function. In such frameworks, the core foundation of theoretical explanation of actual factor rewards (the prices of labour and capital multiplied by their volumes) links these through marginal pricing to the shape of the production function, so current price GVA is then explained, once demand conditions are added in. But, as Fforde (2021) and Arrow (1974) and the latter’s references show, constant price sectoral GDP does *not* allow an empirical link between these conceptualisations and data (in this case GDP data).

The implications of this are profound.

Centrally, such a problem, when combined with strong prejudices about the importance of a particular pattern of structural change (such as, but not limited to, industrialisation) leads to a high risk of confirmation bias. If basic assumptions behind the construction and interpretation of significance tests in estimations are false, results will be spurious, and so easily constructed (perhaps unconsciously) to preserve (confirm) interest in, and belief in, a particular pattern of structural change. So, industrialisation receives attention and articles pass peer review; servicization is ignored. It is likely, also, that the production functions chosen for modelling have functional forms that set constant price net output equal to the sum

of constant price factor rewards. If so, this could further confuse researchers and increase confirmation bias.

Such issues can be researched through examination of citations (Fforde 2005). For a good discussion of the effects of untested assumptions on results, in their case the large set of articles offering explanations of variations in economic growth between countries, see Kenny and Williams (2001), and more generally McCloskey (1985) and Cohen (1994). If a large body of published research is showing difficulties in coping with empirical realities, despite reaching publishable standards at the level of the individual article, then this probably shows shared but incorrect empirical assumptions.

Second, whilst in many countries two sub-sectors of services (as in the case of Vietnam) report GVA/worker well above average (financial services, and real estate), these are not conceptually suited to being seen as “typical” of services. This is unlike manufacturing, where high GDP/worker (if it is present) allows a framing of manufactures as driving growth through backward links to other parts of the economy and forward links to external markets. Thus, when GVA/worker in services sub-sectors are higher than the national average, so that arithmetically shifts of workers to them amount to increases in average GVA/worker, servicization tends, unlike industrialisation, to appear as broad-based and not hierarchical.

Conceptually, this makes servicization different from industrialisation. The basic notion of economic growth is not then a structural transformation driven by a leading sector with high GVA/worker (manufacturing) but one of increases in average current price GVA/worker, without excessive inflation or currency depreciation, so there is “real growth.”

The lack of a conceptual archetype amongst services sub-sectors to play a comparable role to that of manufacturing in industrialisation (“factories”) means successful re-theorisation will have had to manage this issue—that of services sub-sectors’ apparently inherent diversity, without a leading sub-sector. Possible wider implications for social and political status, etc., can readily be imagined.

Third, a tangle of issues arises because of the focus of analysis and data-generation upon economic activity based upon a disaggregation of national income data into areas with similar technologies, which is evidently not the case with services sub-sectors.¹⁰ Sub-sectors such as tourism and financial services have very little in common other than being engaged neither in primary (Agriculture, Forestry and Fishing) nor in secondary (Industry) activities: services appear as a “residual,” defined by what it is not.

This way of doing things probably reflects the legacy of primary and secondary sectors, where it is not obviously incorrect to see technologies as different transformations of relatively homogenous (and so priceable) inputs into a single homogenous and so priceable output. But services sub-sectors often involve heterogenous

outputs, entailing joint production, with the problems that this entails both standard microeconomic models (see next point) and NIA statisticians.

Fourth, services producers often create differentiated products, which, as is well-known to economic theory, present unresolvable problems for deployment of constrained maximisation models as there is “joint production, and so no cost curve.”¹¹ This suggests that re-theorisation to account for servicization will require radical innovation and new conceptual foundations upon which to construct data that it will explain.

The rest of the article proceeds as follows. I now examine the data. I then discuss country examples, focusing on very slow-growing and very fast-growing countries as well as countries previously lauded as examples of newly industrialising countries (World Bank 1993). Before concluding, I then examine some widely cited work by economic modellers on “imbalanced growth” and show that this, like others, fails to rejig theory to manage GDP data issues.

4. 1991–2019: From the Cold War to COVID-19

4.1. Servicization

Table 2 shows the pattern of structural change in developing countries between the end of the Cold War and the last year before COVID-19, 2019.

Table 2 shows that economic development in developing countries in this period has been, not industrialisation, but servicization. Whilst many believe that structural change accompanying economic growth “is” a shift in economic activity from agriculture to industry and then to services,¹² Table 1 shows a change from agriculture to services. What we see is not “deindustrializing servicization”

Table 2. Structural Change in Developing Countries’ Economies, 1991–2019

	<i>Percentages of countries</i>	<i>Change in the measured share of GDP in the whole economy</i>	
		<i>A. Services</i>	<i>B. Industry</i>
Group 1 (less than 100% growth)	11%	+2.8%	+0.2%
Group 2 (100%–200% growth)	40%	+4.8%	–1.2%
Group 3 (200%–300% growth)	25%	+5.7%	–3.0%
Group 4 (300%–400% growth)	8%	+7.6%	+0.8%
Group 5 (more than 400% growth)	16	+11.0%	+2.6%

Source: <http://data.worldbank.org/indicator>, accessed January 5, 2022. Note: Averages are unweighted; data is for individual countries. Growth is defined as change in current per capita Purchasing Power Parity US GNI dollars. Agriculture+ can be derived as a residual but is omitted to save space.

but “de-agriculturalising servicization.” Obviously, there is variation, but the average is what it is. The contrast with Table 1 is stark.

Table 2 also shows—on average—limited change in industrial output as a share of GDP (no deindustrialisation), significant increases in services’ shares (more for the faster-growing countries). The fact (as an average) is clear and novel. Rich countries, where services measured shares of GDP are now high, started servicization from high levels of industrialisation. A shift from agriculture to industry had already occurred. For developing countries this is now not on average the case: the nature of economic development has changed.

4.2. Manufacturing within Industry¹³

One reason for stressing the absence of an archetypal sub-sector in services to match that of manufactures (“factories”) in industry is that manufactures as a share of industry GVA often shows noteworthy patterns and levels. Fast-growing countries that appear to be industrialising, such as Laos and Bhutan, show falls in manufacture’s shares of industry (from 31.0% to 23.9% and from 33.2% to 19.7%, respectively). They are both major exporters of hydro power, and electricity is defined as part, like manufacturing, of industry within GDP (source as in Table 3).

Table 3 shows what one would expect from Table 2, which is that manufacturing is not a dominant part of developing countries’ economic change, as shown by its average shares of total GDP, which tend to lie between 10% and 20%. Further, throwing light on the question of whether manufacturing is the core driver of industrial output growth (bearing in mind that industry contains construction, power+ and mining+), apart from in the slowest growing countries the share of manufactures in industry has fallen.

Table 3. Manufacturing within Industry—% of Industry GDP, % of Total GDP

	Non-manufacturing industry GDP, average % of total GDP 1991–2019		Share of manufactures in industry, average	
	1991	2019	1991	2019
Group 1 (less than 100% growth)	18.7%	16.3%	41.3%	47.9%
Group 2 (100%–200% growth)	19.8%	14.3%	47.7%	46.0%
Group 3 (200%–300% growth)	12.0%	11.5%	59.4%	51.6%
Group 4 (300%–400% growth)	9.0%	13.4%	47.3%	40.9%
Group 5 (more than 400% growth)	15.6%	16.3%	47.1%	45.1%

Source: <http://data.worldbank.org/indicator>, accessed January 5, 2022. Note: The table excludes a very few countries included in Table 2 as data for 1991 is sometimes unavailable. Non-manufacturing industry = electricity+, mining+, and construction.

4.3. The “U Curve”—Sectoral Shares over Time

In some countries the shares of the major sectors of GDP, such as industry or services, show over time a “U” (or upside down “U”) pattern. This is clearly suggestive, though of exactly what is unclear.

4.4. Data Revisions

The data on sectoral shares of GDP used here comes from the World Bank, resting upon national statistical work. Preparation of tables in Fforde (2018b) and then revisiting the data for this article showed two interesting issues: first, 1991 data that was present before was now absent (about ten countries of the around 80 covered, one in eight, not a small proportion); second, the changes could be gauged when comparisons could be made. For services, the average reported share of GDP across these 70 countries fell (that is, the reported number for the same year—1991—fell) from 46.8% to 45.4%. However, this hid considerable variation. Extremes included: Lao PDR +17.5%, Lesotho +12.6%, and Pakistan +18.1%; Brazil -7.2%, India -7.4%, Mauritius -8.2%, and Nicaragua -7.0% (source as in Table 3). Further research is needed here.

4.5. Conclusions

Understanding servicization requires understanding some significant issues. The next section aims to further “whet the appetite.”

5. Some Country Examples

Table 2 covers 78 countries and of course we find a range of experiences. In offering examples, I note the paucity of research interest in servicization, but here I concentrate upon fast-growth countries: two that faced great difficulties, and two famous as examples of “newly industrialising countries” (World Bank 1993). I look at services as a “launching pad” for rapid growth, and then as a “cushion” in some poor and slow-growing countries.

5.1. Services as a “Launching Pad”?

5.1.1. *India and China*

In global data on total developing country GDP these two countries, simply because of their size, strongly influence the picture. Both are in Group 5 in Table 2.

As already mentioned, there is evidence that Chinese policy makers have little coherent strategy regarding services (Li, Xia, and Lin 2018); a literature search shows intense debate in India over the value of services in the country’s development strategy (for example, Arnold et al. [2016] blame weak services sectors for manufacturing’s

slow growth). Such positions support this article's argument that "servicization" is not comparable epistemically to industrialisation, lacking its authority and projection as something known and necessary to successful development.

However, if we step back from the debates, the data shows that both countries have powerfully servicized—the services share of GDP rose from 34.5% to 54.3% in China and 37.8% to 49.9% in India—whilst both countries grew fast (source as Table 2). In China, manufacturing was only 26.8% of GDP in 2019, and in India 13.3% (a fall from 15.7% in 1991, a year for which there is no Chinese data). Clearly, these big numbers hide the effects of many complex processes, but they show that, like the global average, these two very large and fast-growing countries are servicizing, and so GVA/worker in services is on average relatively high.

5.1.2. Vietnam

The case of Vietnam is illustrative. The country belongs to Group 5.

Fforde (2016a) looked at structural change in Vietnam, where official economic strategy had been to drive for "modernisation and industrialisation" in a country dependent upon food aid in the late 1980s that secured "middle-income status" in 2009 after fast growth and spectacular recorded poverty reduction. The article concludes that the reported data shows servicization, not industrialisation, and *within* the category of industrialisation fast growth of mining (especially oil), which is part of the category, confuses the picture.

Using data for 2000 and 2014 (GSO¹⁴ Statistical Yearbooks for 2000 and 2014), let us look first at the variation in value-added per employee in 2000. If we look at these as percentages of the average, we find that whilst manufacturing was 197%—far higher—this was only ranked eighth, below #1 Real Estate (1279%), #2 Electricity Gas and Water (1446%), #3 Mining (1424%), #4 Science and Technology (1066%), #5 Financial Intermediation (926%), #6 Public Administration and Defence (274%) and #7 Health and Social Work (227%). More importantly, whilst in 2000 manufacturing employed 3.86 million, and the very high-income services sub-sectors rather few, large employers such as Trade and Minor Repairs, Hotels, and Restaurants, and Transport, Storage, and Communications (total employment in the three 5.76 million) had value-added per employee that was relatively high—138%, 179% and 127%, respectively—that is, far higher than in agriculture. For these three sub-sectors, the increase in their total GDP amounted to about 17% of the increase of GDP by 2014, compared to 12% for manufacturing. *Yet, whilst incentives have driven resources into services more than into manufacturing, it is not clear what these incentives are.* The relatively high GVA/worker in manufacturing did not attract resources. A central research puzzle therefore remains, for if we note the ratios of sub-sectoral value-added per capita to the average (that is, total GDP/total employment), for

manufacturing, from 197% in 2000, by 2014 it had *fallen* to 94%: the changes are striking. Further, policy in Vietnam has recently shifted, in what is a rare case, towards a focus on servicization designed to increase its share of GDP (Fforde 2022c; Premier 2021). This replaces the previous strategy of “modernisation and industrialisation.”

5.1.3. Chile and Sri Lanka

Both countries show relatively fast economic growth and are in Group 5. Again the data source is that in Table 2.

Since the fall of Allende in 1973 Chile has been well-known for an economic strategy strongly in favour of free markets, with little state intervention. The country’s services share of GDP, already rather high, grew from 46.6% in 1991 to 58.8% in 2019. The industry share of GDP fell from 37.4% to 29.1%, and manufacturing fell from 19.1% of GDP to 10.1%. Manufacturing’s share of industry fell from 47.6% to 34.7%.

Sri Lanka showed a similar pattern. The country’s services share of GDP, already rather high, grew from 47.0% in 1991 to 58.1% in 2019. The industry share of GDP, however, rose slightly from 25.9% to 27.4%, and manufacturing’s share also rose, from 13.4% of GDP to 16.4%. Manufacturing’s share of industry rose from 52.3% to 59.9%.

Comparison of the two suggests, though further research is needed, first that under the global averages there is variation, and some fast-growing countries are seeing manufactures show a rising share of GDP, and second that for Sri Lanka this is overshadowed by services: services saw their share of GDP climb by 11.1%, manufacturing 3.0%.

5.1.4. Services as a “Launching Pad”? Provisional Implications for Public Policy and Private Choice

It is striking how national economic development strategies in these fast-growing countries do not seem to stress services. Vietnam is a striking exception. Obvious sources report very little. For Sri Lanka, the latest ADB “Country Partnership Strategy” stresses that “the manufacturing and export base of the economy needs to be diversified” (ADB 2017, 2). Despite the citation of data showing that “Labor productivity, as measured by remuneration per hour worked, is 2.89 times higher in industry and 3.23 times higher in services compared with agriculture in 2016” (4) there is no strategisation of services.

5.2. Services as a “Cushion”?

This group, in a sense, challenges any assertion that services in developing countries “are” a plethora of low-income petty services visible in urban areas and beside rural roads. In relatively fast-growing countries, this is misleading because

servicization, arithmetically, means that GVA/worker in services is higher than the national average and so part of fast growth. In slow-growing countries, however, whilst the same arithmetic operates, do local services sub-sectors offer opportunities for factor income generation better than elsewhere, helping to mitigate economic difficulties? If so, then policy advice should not condemn servicization as “premature” and push for state attention to industrialisation.

Some of these were war-torn, and so any positive performance may reflect a certain degree of economic robustness, so ideas that services may be relatively impervious to disruption compared to manufacturing are worth considering. To explore this, I look at the Democratic Republic of Congo (DRC), a country that faced considerable violence and Cameroon, which did not.

5.2.1. Democratic Republic of Congo

Despite considerable political and social unrest, the DRC was in Group 2, and measured PPP GNI rose from \$500 to \$1100 (see Table 3).

The services share of GDP fell from 40.0% to 35.4% as the industry share rose from 20.0% to 40.7%, so agriculture fell by some 16.1%. Hypothesising that this may have been part of the story of a population fleeing from unsafe rural areas to cities, we find the reported urban population rising from 31% to 41% between 1991 and 2013 (see Table 3).¹⁵ However, “industry” as a statistical category includes mining, which is reported as important in the national economy¹⁶ and has grown in importance, sometimes in “enclaves” using private security forces as well as in dangerous artisanal mines. Manufacturing’s share of GDP for 1991 is not reported, but was 20.0% in 2019, whilst in 2019 manufacturing was reportedly 49.1% of industry GDP (see Table 3). This data is hard to interpret.

The social and political situation in the DRC was very difficult:

Rooted in a violent international political economy of extraction and exploitation and involving eight foreign armies together with up to twenty local militia groups, the conflict has generated levels of suffering that are unparalleled in any recent war and have caused, directly and indirectly, the highest death toll of any conflict since World War II. (Gaynor 2016, 200)

Yet the somewhat surprising picture—of an economic structure showing some resilience rather than simply collapsing—shows the positive roles that services as well as other sectors may play and requires deeper research.

Consider the following, from an article discussing the tax-raising activities of a “group [that] claimed to be an autochthonous resistance movement” (Hoffman, Vlassenroot, and Marchais 2016, 1446):

While the group often resorted to violence and intimidation to obtain compliance with its fiscal bargain, it also attempted to develop the areas it ruled. It encouraged health services, schools and various other institutions to continue their activities under the group's protection. (Hoffman, Vlassenroot, and Marchais 2016, 1447)

At the least, the belief that “Civil conflict results in the destruction of all forms of capital” (Collier 1999) is an exaggeration. Better awareness of the complex realities behind the structural transformations would help donors, policy makers and private sector actors by seeking to find measures to preserve domestic factor incomes. The core lesson is that services are not wisely dismissed as relatively low-GVA/worker activities but can generate significant contributions to domestic factor incomes.

5.2.2. *Cameroon*

Cameroon is a peaceful slow grower. Like the DRC, it is in Group 2.

For 1991–2019 current PPP GNI grew from \$1680 to \$3720 (see Table 3).

The services share of GDP rose marginally, from 44.7% to 51.5% as that of industry rose from 29% to 30%, so agriculture+ fell by some 4%. Manufacturing as a share of GDP was unchanged at around 14% (see Table 3). Structural change contributed to positive but slow economic growth. However, the historical picture was of severe economic problems in the late 1980s and early 1990s with harsh structural adjustment policies, then a return to faster growth in the noughties (Easterly 2001).

Like the DRC, seeing servicization as a potential positive could help. Achua and Lussier (2014) throw useful micro-level light upon the local services sector, where: “the ILO has come to view the informal economy as ‘an incubator for business potential and . . . transitional base for accessibility and graduation to the formal economy’” (10).

Given the global data, this is precisely the sort of dynamic micro-level narrative that we should expect. Further research is clearly needed.

5.2.3. *Services as a “Cushion”? Provisional Implications for Public Policy and Private Choice*

Looking for the views of major donors shows a lack of interest in servicization.

For the DRC, the World Bank has a 2018 “Systematic Country Diagnostic” which seeks to identify “the most binding constraints for sustaining high growth” (2018, i). These are seen above all as institutional: poor governance, corruption, etc. (42), but also poor infrastructure. Addressing these should, the study argues “foster . . . structural transformation” (44), which has been “inadequate or non-existent” (6). Positive structural change is seen as in part a “shift from agriculture to wage employment” (29), and this is identified, consistent with the data, as a shift

to services (121). It was also noticed that workers moved, responding to incentives, from manufacturing to agriculture (122). Also, the urban informal services sector was of “critical importance for job creation, income growth, and achieving [strategic] goals” (122). Yet, the report structure arguably shows the same tensions as the global epistemic data discussed above: these remarks, which fit well with the global picture, are at the end of the report and there is no significant deployment of this analysis into strategy.

For Cameroon, the World Bank has a country partnership framework for FY17–FY21. It identifies the country’s potential to act as a “regional hub” (World Bank 2017, 1) and expresses deep concern over threats to its relative social and political stability (World Bank 2017, 2–4). Yet services are somewhat dismissed: “(t)ertiary sector performance, however, has been driven in part by high public investment levels, and by *relatively unsophisticated* retail trade and food services activities” (World Bank 2017, 5; emphasis added). The framework refers to “structural transformation strategy” (World Bank 2017, 13) but does not say what this means. Reference to the 2016 “Country Economic Memorandum” (World Bank 2016) refers to a background article, but otherwise says nothing about this.

The picture is consistent with what I have argued already—a lack of interest in services and servicization.

5.3. Countries Once Seen as Newly Industrialising Economies, Now Relatively Slow Growing

Finally, I examine the fate of countries praised in the World Bank’s 1993 “Economic Miracle” study. Two champions, lauded just after the end of the Cold War as “New Industrialisers” (World Bank 1993), were Thailand and Malaysia. Again, the data on structural change is revealing. Thailand is (just) in Group 3, and Malaysia (just) in Group 4.

5.3.1. Thailand

Thailand saw a near quadrupling of PPP GNI per capita (293%, compared with the gains of over 400% seen in Group 5, see Table 3).

The services share of GDP rose, but only slightly, from 55.1% to 58.3%,¹⁷ as industry’s share fell from 38.7% to 33.6%. Agriculture+ thus saw a slight rise, of around 1.9%. Manufacturing’s share of GDP fell from 28.2% to 25.6% and rose slightly as a percentage of industry, from 72.9% to 76.2% (see Table 3).

One finds much discussion of whether the country is in a “middle-income trap,” pointing to slower recorded rates of growth since the 1997 Asian Financial Crisis (Greig 2016; Jitsuchon 2012; Wongpunya 2016). None of these sources, however, look at the overall issue of servicization. The policy issues tend to focus on how Thailand can secure greater productivity through improved labour skills and

institutions. The core question of which sectors they should focus on is not asked: nothing has replaced manufacturing as a key trope.

5.3.2. *Malaysia*

Malaysia grew slightly faster than Thailand, with PPP GNI per capita growing by 303.6% between 1991 and 2019. Like Thailand, services' share rose, but more strikingly, from 44.8% to 54.2%, whilst industry's share fell, from 42.1% to 37.5%, so agriculture+ fell by 4.8%. Manufacturing's share of GDP fell from 25.5% to 21.4% and its share of industry GDP fell from 60.6% to 57.1% (see Table 3).

This suggests compliance with the basic lesson of Table 2, which is that faster growth on average has accompanied greater servicization. Yet again, though, whilst Malaysia has also retreated from industrialisation, its servicizing GDP growth since the end of the Cold War grates with the praise for both countries' New Industrialisers (World Bank 1993). For both, there is substantial literature, which space precludes me from examining here.

5.3.3. *Services in Onetime Success Stories: Provisional Implications for Public Policy and Private Choice*

The position of these countries as onetime success stories is useful, as it highlights the tensions in the literature. There are signs of a deep conservatism. Consider, from a recent IMF study:

The issue of structural transformation has recently received fresh impetus. Rodrik (2015) has argued that industrialization contributes to sustained growth through two channels: (1) the reallocation of workers from low-productivity activities to higher-productivity ones, and (2) the relatively stronger productivity growth experienced by manufacturing over the longer term . . . Rodrik suggests that a sustained period of structural transformation requires the development of the manufacturing sector. (Fox, Thomas, and Haines 2017, vii–viii)

This argument is problematic. The two central points—“(1) the reallocation of workers from low-productivity activities to higher-productivity ones, and (2) the relatively stronger productivity growth experienced by manufacturing over the longer term” are weak. The simple arithmetic of structural change contradicts these points. Once we understand that “productivity” cannot be linked to constant price sectoral GDP data, then we must focus, to be consistent, upon current price GDP/worker, and when in services this is higher than average, workers moving there will be—as they have been on average—part of the arithmetic of GDP growth. This is arithmetic. To repeat, if there is growth, and if manufacturing is

not increasing its share of GDP, as the global data shows, GDP/worker must be higher outside manufacturing, mainly in services.¹⁸

The pervasive scepticism about poor country servicization sits strikingly beside both the growth data and (vividly) the empirics showing that it has not been extensively studied. As already noted, Rodrik (2015) refers to “premature deindustrialization.” Fox, Thomas, and Haines (2017, 26) conclude:

Could sub-Saharan Africa develop a growth pattern that transforms the economy more rapidly? This is possible if the movement from agriculture into services can generate large improvements in value addition. [yet] . . . sub-Saharan Africa falls short in terms of the development of manufacturing employment. But it remains an open question whether structural transformation can be speeded up with a continuation of the movement of labor from agriculture to services with a small role being played by the manufacturing sector.

This “pulls its punches”; the question is “open” for debate mainly because there are so few answers to it, not because of the data, which shows that reality has answered it in the affirmative. The question requiring research is “what is servicization.” To this question there is so far no clear answer.

For those responsible for policy development in poor countries, a central lesson is that pessimism about the empirical and theoretical foundations of dominant policy analysis and advice is warranted. We can note the infamous “Law” of Lord Kaldor, prestigious economist, and advisor to the 1960s UK government, that GVA/worker in manufacturing is (always) relatively high.¹⁹

World Bank focuses upon how to increase productivity in Thailand’s private sector. Its focus is on strategies for “moving workers into high-productivity sectors” (2022, x). It points out that most familiar drivers of rapid growth (manufactures and travel and tourism) are unlikely to be able to continue to move resources from agriculture to industry as had tended to happen in the past (World Bank 2022, x). Manufacturing remains dependent upon foreign inputs. However, future growth drivers are seen as leveraging manufacturing capabilities (World Bank 2022, xi). There is no mention of “servicization.” The tone of the report is somewhat pessimistic about Thailand’s ability to escape a middle-income trap (Larson, Loayza, and Woolcock 2016; Ohno, n.d.; Tran 2013).

For Malaysia, World Bank also addresses the issue of the “middle-income trap,” but is more optimistic, expecting transition before the end of the decade (World Bank 2021, 8). However, it notes a growth deceleration and is concerned that structural transformation is “more fragile” than in comparable countries (World Bank 2021, 9). However, there is no clear conceptualisation of structural transformation, nor mention of servicization. Digging deeper, a background article

for the World Bank's study (Rahman and Schmitten 2020) documents that Malaysia has undergone structural transformation from an agriculture-driven to a services-driven economy, through a period when it had "an important manufacturing base" (Rahman and Schmitten 2020, 2). It has therefore shifted from industrialisation to deindustrialisation (Rahman and Schmitten 2020, 2). The study positions itself "against" criticisms of deindustrialisation by focusing on "sustained growth in within-sector labor productivity" (Rahman and Schmitten 2020, 3). This allows them to highlight, as the discussion above reports, that servicization must be, as a matter of arithmetic, the relatively high growth of GDP/worker (which they call "productivity") in services sub-sectors (Rahman and Schmitten 2020, 3). Therefore, preserving or restoring these sub-sectoral trends is for them the crucial policy issue. This, though they do not call it that, is to preserve or support servicization. However, they base their analysis on output per capita (that is, constant price sectoral GDP, which as shown above allows for confirmation bias) (Rahman and Schmitten 2020, 5). Given their overall framing of the issues ("pro-services"), it is then unsurprising that they conclude that it is the services sub-sectors that need to be the focus of policy and analysis (Rahman and Schmitten 2020, 22): "growth after 1997 has been driven by the services sector" (Rahman and Schmitten 2020, 24). However, this is then linked to the relative failure of policy to maintain manufacturing-led growth (Rahman and Schmitten 2020, 25), and the study concludes without a causative analysis, yet tellingly points out that failure of factors of production to move to areas of higher GVA/worker has been a major cause of slower growth.

The epistemic hypothesis that this generates here is that Rahman and Schmitten (2020) show what I have argued: servicization is not a "trope," with positive connotations, and attempts to make it so are easily stymied by the weight of existing research.

6. Work by Economic Modellers on "Imbalanced Growth"

Before concluding, I examine work in prestigious journals on structural change modelling. What can be said about their empirical implications?

I summarised above central issues that economic theory must address for rigorous empirical research. By "rigorous" I mean research that generates estimates of relevant parameters to guide policy. This goes beyond the criterion of plausibility that, it has been argued (Yonay and Breslau 2006) pertains to journals such as *The American Economic Review*, and its contributors to them:

What is distinctive about model-building in economics is the process that mediates between the microworld [the economic models] and the ostensible

object of the research. Rather than involving scientific instruments or data-gathering procedures, this mediation is accomplished by vaguely defined but generally accepted conventions regarding the movement from reality to models. There is no pretence that the model actually resembles reality. Rather, the concern with realism is a concern with the plausibility of the mediation between the reality and the model. (Yonay and Breslau 2006, 375–376)

As Yonay and Breslau (2006, 377) put it, “The model is . . . a demonstration of a possible mechanism . . . a proposal of a conceivable economic force.” From a natural science perspective, these exercises are no more than a generation of plausible but empirically untested theories, and therefore should not be used to support policy proposals. Further, we can ask whether these modelling exercises inhibit empirical work by assuming that sectoral constant price GDP data is what it (I have argued) is not—a measure that fits with the deployment of production function analysis.

In work by economic modellers published in leading professional journals such as *The American Economic Review*, we find articles important as gauged by citation data. I examine four.²⁰ Their plausibility to modellers is a preliminary step to presenting them as valuable to use in specific contexts, such as the countries just discussed. In normal English, they are presented as being about something. However, these articles rely upon production function-based conceptualisations and so cannot be reliably estimated.

Of the four, Kongsamut, Rebelo, and Xie (2001) is the most cited, with (as of May 25, 2022) 1471 (using the same metric as before). This is followed by Ngai and Pissarides (2007) with 1450 and Acemoglu and Guerrieri (2008) with 1047. These are significant citation levels, though not stellar (compare Akerlof 1970, the famous article on “lemons” with 40,000). Zuleta and Young (2013) have so far only 48.

These articles tend to use as their expositional starting-off point assertions of a central fact about economic growth, called the “well-known Kaldor facts,” that “the growth rate of output, the capital-output ratio, the real interest rate, and the labour income share are all roughly constant over time” (Kongsamut, Rebelo, and Xie 2001, 869). They then pivot to constructing models that can address, in their “internal,” structural changes understood as the shift of “labour from agriculture into manufacturing and services that accompanies the growth process” (869). Note that here it is labour, rather than capital, that is the key marker of structural change. Note also, their remark that “The macroeconomics and growth literature, which makes heavy use of balanced growth models, generally disregards the dramatic sectoral reallocation of labour experienced by all expanding economies” (869). Policy makers should then ask what the value of that literature might be to them.²¹ The article then constructs a model that relaxes the Kaldor assumptions.

To develop their argument, they refer to real GDP data (Kongsamut, Rebelo, and Xie 2001, 870), initially examine structural change in terms of employment data (873) and then develop a model (874) founded on an “internal” that views the economy as made up of three sectors each with production functions whose inputs are capital and labour. They treat manufacturing as the only sector whose output can be invested (874) having made various assumptions about functional forms (which are not justified by any empirical reference). This includes an assumption that capital and labour are freely mobile. There is some (telling) confusion about whether the high shares of investment coming from manufacturing (and construction) reflect sectoral net output or gross (874). This done, they impose a requirement that “for efficient resource allocation” marginal rates of transformation are equated across the three sectors and from that derive relative prices (875). This then (with some other minor arguments) allows the model to be closed and they can then define balanced growth as a special case, allowing for “imbalanced growth” to be elucidated by their model by setting parameters so, in their “internal,” structural change happens.

The model is therefore a picture of structural change founded upon production functions and their use to derive factor and other prices. Different worlds can be illustrated by imposing suitable values of various parameters. If, however, an adviser, this model under their arm, confronts “the policy maker” who wants to know whether the model can use the constant price sectoral GDP data to hand to offer predictions of likely policy impact, then, if the adviser is aware of the pitfalls in that data described here and elsewhere (Fforde 2021), then he must say No.

Ngai and Pissarides (2007) and Acemoglu and Guerrieri (2008) develop the “internal” of Kongsamut, Rebelo, and Xie (2001). Their different model structures and parameters, and functional forms, explore other plausible possibilities. Both deploy production function approaches (Ngai and Pissarides 2007, 429; Acemoglu and Guerrieri 2008, 468) and have “internals” that link these to constant price GDP. Again, neither are aware of the pitfalls—they do not cite the literature mentioned by Arrow (1974) and discussed above.

Finally, Zuleta and Young (2013) include consideration of innovation—a refinement of the simple production function approach. They note the data they observe shows a tendency for the share of returns to labour in the US to trend downwards from around 1960, which they contrast with a stylised Kaldorian “fact” (112) (which is itself untrue—see above). Like the others, they focus upon employment shares as their central indicator of structural change, stressing the servicization of the US economy (112), referring also to shifts in relative sectoral shares of value-added (their Figure 3 does not state whether these are the current or constant price data). Their “internal” views the economy as having two sectors—and they use different production functions in services (the first) and manufacturing (the

second). Important assumptions made (without empirical reference) are that relations between physical inputs of labour and capital are very different in the two sectors, and that only in manufacturing is there induced innovation. Like the others, they use their production functions as a basis for generating relative prices for factors and outputs, and then refer, in their discussion of the plausibility of the model, to how “the ratio of services to manufacturing value-added was the result of the increase in both the relative (to manufacturing) price and quantity of services” (120). It seems certain that this confuses price changes for gross output with reference to constant price sectoral GDP data. But this does not matter, here, as the conceptual “internal” is unconcerned with the measurement problems discussed here, such as of constant price sectoral GDP, because it is unconcerned with rigorous empirics, as is normal.

7. Conclusions

We live in troubled times, if that is not an under-statement, and so the possibilities for increased prosperity, economic growth, and stability in developing countries are important. Whilst services-focused strategy may be criticised for being “weak on national security,” it is economic growth that (unless there are to be radical distributive policies) creates the tax base to pay for such outlays, which the market will not usually do by itself, and such growth can sometimes be secured through servicization. Table 1 shows that on average the faster the growth the greater the servicization. The absence, in the mainstream, of thought-through economic theorisation that can underpin such policies is therefore a failure of historical significance.²² If the “state” is there to support capitalism, in this area it seems to be doing rather badly.

Structural change, when deployed in popular debate and amongst discussions of broad policy, rather than in academic articles, is a metaphor for complicated change processes: the data shows for developing countries that, whilst this used to be, not too incorrectly, stated to be “industrialisation,” since the end of the Cold War something else, “servicization,” is what we on average observe. Yet my data also suggests strongly that servicization is not a dominant “development category,” a trope with normative associations. On average, people are leaving agriculture for cities, and this is not on average a shift from farm to factory, but something else. Yet, as the literature data shows, it has been widely and overwhelmingly believed that this cannot and should not be so, and it has received strikingly little scholarly attention. This, again, is a failure.

My discussion of the relevant literature, including the widely cited prestigious articles on “imbalanced growth,” shows up major limitations in mainstream economists’ approaches. These stem largely from the persistent use of theoretical

approaches that assume that the relevant data—sectoral constant price GDP—can be used to support the hoped-for empirical foundation of analytical approaches that deploy production functions, entailing a concept of real factor inputs, when recent work, echoing past forgotten work, shows that this cannot work. Attempting to do so creates confirmation bias. It is inward-looking and unreflective.

This suggests that an aspect of the global political economy has been that it has been changing in ways that reflect a declining level of understanding: servicization is not much researched. In terms of citable authority for a developing country's infrastructural planners or property developers seeking foreign support, experienced servicization is generally "off the radar screen" and reference to that reality lacks support from prestigious analyses and statements and confronts hostility (Rodrik's reference to "premature deindustrialization"). This may easily jeopardise, if put up on a slide in the PowerPoint presentation, the hoped-for success of the presentation. Not all countries show great respect for such international expertise (Turkey and Vietnam are recent examples). But as an important characteristic of the contemporary global political economy, a central conclusion of the article is that servicization and the lack of attention paid to it deserves further research and greater attention. This is not just to better understand servicization, but also why the contemporary global political economy has, as one of its many characteristics, a tension, associated with ongoing economic change processes, between an experienced and knowable average empirical reality (servicization) and a relative absence of policy-relevant knowledge to explain this and guide policy makers.

The article has argued that this is probably not mainly caused by inertia in research and knowledge production but by various technical difficulties of the mainstream, centrally the problems applying the apparatus of production functions given issues with constant price sectoral GDP. This issue is central, for it explains how such problems, by producing estimation results that are spurious (apparently empirically significant, but not), greatly increase the risks and temptations of confirmation bias. Something of this magnitude probably explains the "problem of servicization" shown in the literature metrics and the wide citation of work by mainstream economic modellers that use production functions and so cannot be empirically based by using constant price sectoral GDP data. This technical explanation, referencing long-established mainstream practices, is supported by the fact that the tensions between Tables 1 and 2—the lack of research and the observable reality—have existed for some time. This implies that the "internal" of the mainstream is constraining construction of a suitable rational basis for policy. This requires that mainstream analysts choose to preserve extant frameworks of analysis despite the problems they face. It is therefore striking and depressing that a rare and prestigious contribution to the literature on servicization in development (Helbe and Shepherd 2019) should have no interest in theoretical issues or seek to

explain, from within the mainstream, why the mainstream so strikingly and for so long has ignored servicization. Surely a basic requirement for research to be respectable is that it be self-reflective. The conclusion therefore is that the outlook for rational policies relating to structural change is bleak.

Notes

1. I use the term “mainstream” in this article with a variety of meanings; I have in mind those analytical frameworks often termed “neoclassical,” especially those that deploy production functions to model structural change and offer explanations of the determinants of wages and profits. The discussion in Section 6 treats “mainstream” as the epistemic communities involved with journals such as *The American Economic Review*. There is obviously variation within these groups, but I think that the term is fairly deployed in such ways. For reasons of space in an article that is already long I do not discuss alternative and heterodox approaches: these are not the mainstream.
2. For example, it is an easily knowable result of mainstream economic theory that the standard micro-optimisation model sometimes is inapplicable, such as where there is joint production (heterogeneous outputs from the single producer), and so there is “irremediable” market failure. So, as and if the mainstream requires its models to be plausible, there is in effect no micro theory that is applicable to many service sectors, such as education, where the output of a producer is, being changed in humans, heterogeneous. So, in turn, in an economy such as Australia’s that is highly servicized, whilst it can be reported that a high and rising share of GDP likely suffers from “irremediable” market failure, mainstream economics has almost nothing to say about this (Fforde 2022a, 2018b).
3. Vu (2014) states confidently that “The lack of robustness of Vietnam’s economic growth is evident in its slowness to improve its labor productivity in the manufacturing sector relative to that of its Asian peers” (169). Contrast this with Nguyen Dinh Chuc and Ta Phuoc Duong (2019), to whom I owe the phrase “the rise of services.”
4. That is, that there is a citable knowledge base; the reliability of this knowledge, given the arguments here, can be disputed.
5. For references to standard manuals on NIA, see Fforde (2021).
6. Here and elsewhere in this article I save space by writing “agriculture+” for a sub-sector usually called “agriculture, forestry, and fishing,” and for other examples also.
7. The official Vietnamese NIA data is published by the Hanoi General Statistical Office in their yearly *Statistical Yearbook*. This pattern is clear from many of these, such as, from the 2001 yearbook, Tables 19, 28, 41, and 57, and from the 2020 yearbook, Tables 56 and 72. See <https://www.gso.gov.vn/en/homepage/>.
8. GDP differs from GNP because the first refers to factor income generation in the country’s territory and the second to that paid to its nationals (workers and owners of capital).
9. I ignore here well-known wider issues, such as whether mainstream theory is right in understanding the determinants of wages and rewards to capital in terms of technical factors (the shapes of production functions and demand curves, etc.).
10. The use of a technical basis for grouping sub-sectors within GDP is standard—see Fforde (2021) for reference to the standard NIA manuals.
11. This is a result well-known in mainstream economic theory—for example, Bailey and Friedlaender (1982) and citations of later work in Fforde (2018b). Market failure is therefore “irremediable,” unlike standard examples, such as monopoly, with well-known policy options.

12. This may evoke criticisms that what we are observing here is the persistence of deterministic “stagist” development modelling.
13. It is noteworthy, but for reasons of space and data limitations I do not examine this, that in some countries, the share of GDP coming from agriculture+ has shown rising trends, especially in the 2010s.
14. The Vietnamese General Statistical Office—NIA data is available on their website. <https://www.gso.gov.vn/en/homepage/>.
15. See <http://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?end=2013&page=4&start=1991>. Accessed May 5, 2017.
16. See <http://www.tradingeconomics.com/congo/gdp-growth-annual>. Accessed May 5, 2017.
17. Data revisions were large: the 55.1% share reported when the database used here was constructed compares with 48.7% earlier.
18. Again, the argument needs to be nuanced by reference to worker numbers. But the central point stands.
19. Kaldor asserted that manufacturing had higher than average GVA/worker, as a “law”—see Kaldor ([1966] 1978) and Marconi, de Borja Reis, and de Araújo (2016).
20. I thank Andrew Young for pointing me to these, arguing that “There is a substantial theoretical literature on balanced aggregate and unbalanced sectoral growth, much of which speaks to the evolution of services versus manufacturing (industry).” (Personal communication). His “speaks to” seems to match what Yonay and Breslau identify as a “vague but plausible” relationship to “reality,” which is far from a reliable basis, because predictively untested, for policy.
21. The reader of their article may also note their remark that “Balanced growth paths are easy to study” (Kongsamut, Rebelo, and Xie 2001, 870)—this does not refer to the “external” of their conceptual world, but to the expositional and algebraic tractability of such models.
22. I am fully aware that outside the mainstream there are a wide range of alternative economic theories; my point is that this is outside the mainstream.

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