

Replacing the Services Sector and Three-Sector Theory: Urbanization and Control as Economic Sectors

Accepted for publication in Regional Studies

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Abstract: Developed during World War II, “three-sector theory” popularized the notion of the “services” sector. It has quietly underpinned understandings of economic structure ever since. The limitations and influence of this basic breakdown have led to many critiques and extensions, but no replacements. Inspired by Lefebvre’s *Urban Revolution*, we develop four-sector model which replaces services with sectors focused on urbanization and control. We argue this model is a better reflection of material economic life, and a more useful way of approaching the 21st century economy. It also offers scholars of urbanization and regional development a creative new way of seeing urbanization.

Keywords: urbanization, Lefebvre, economic structure, economic sectors, industrial economics

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Because the terms [primary, secondary, tertiary] are linguistically familiar, perhaps, everybody assumes that somewhere in economic literature lies proof of their validity (Wolfe, 1955: 404).

Almost eighty years have passed since the notion of the “services” sector was proposed as a way of understanding economic activity beyond agriculture, mining and manufacturing. In the wake of a rapidly modernizing and globalizing economy where more and more people were working outside of fields, mines and factories, “three-sector theory” (Fisher, 1939; Clark 1941)², established the basic division by which economic structure is still largely understood. The primary sector is generally considered to include agriculture and mining, extractive industries connected to the natural environment. The secondary sector is generally considered to be various forms of manufacturing and activities that produce “goods” from products of the primary sector. The tertiary or services sector includes everything from banking and legal services to retail, hospitality and waste disposal.

Even if many would draw a blank when confronted with the notion of “three-sector theory”, this basic division of economic activity has become, as Wolfe noted in 1955, “linguistically familiar”.³ It is also remarkably resilient. The World Bank and the CIA databases, common access points for international economic data, are generally rendered in three-sector fashion.⁴ Three-sector theory remains heavily used by both economists and political economists examining structural change in national economies (de Souza et al, 2016; Herrendorf et al. 2013; Eichengreen & Gupta, 2013; Krüger, 2008; Rogerson, 2007; Kongsamut et al, 2001; Schmitter and Streeck, 1994), operating as a core assumption upon which most analysis is the conducted.

Even more resilient is the notion of the services sector, whose influence extends beyond industrial or sectoral economics (Bryson et al., 2013).⁵ The empirical link between service sector growth and GDP growth (Eichengreen & Gupta, 2013) has helped maintain the model’s influence over development studies. The apparent connection between service sector growth and post-industrial regional growth have embedded the notion of the service sector

² See also Fourastié (1945),

³ Tertiarisation is now a word in both English and French.

⁴ The World Bank’s primary data portal, data.worldbank.org provides value added data only aggregated into the three sector model.

⁵ Multiple academic journals focus entirely on changes in the sector, including *Service Business* (Elsevier), *Journal of Service Management* (Emerald Insight), *The Service Industries Journal* (Taylor & Francis)

into studies of urban and regional change, whether questions of inequality (Hamnett, 1994), urban hierarchy (Taylor and Walker, 2001), regional convergence (Caselli & Coleman, 2001) or agglomeration (Kolko 2010). Kolko (2010, p. 151) sums up the degree to which the notion of services is embedded in regional studies by arguing

The economic future of cities depends on services, and understanding why services are in cities is essential to understanding the function of cities in modern economies.

While the data clearly seems to back up the centrality of services to both urban and post-industrial economies, it does so in part because “services” is such a catch-all category, a “capacious vat” in the poetic terms of Sayer and Walker (1992). Virtually any economic activity not involved in agriculture, mining or manufacturing can be considered a service. Yet how do we account for the building and rebuilding of cities? Is construction manufacturing, or a service? What about transportation? Is the buying and selling of property a service? The service sector would include banking and hamburger-cooking in the same economic sector. While perhaps equally vital to human happiness, are they truly part of the same broad economic sector? Perhaps most critically, is the notion of the service sector helpful under current economic conditions?

Building on a long history of frustration with three-sector theory in general and the services sector in particular (Wolfe, 1955; Sayer and Walker, 1992; Herrendorf et al., 2013), this article develops and proposes an alternative framework for envisioning the economy as a whole through economic sectors. We largely leave as is the extractive and manufacturing sectors, although we break from some economists (cf Kongsamun, 2001) who would place construction in the manufacturing sector. Instead, inspired by Henri Lefebvre’s (2003 [1968]) notion of the “urban revolution”,⁶ we develop a new sector based on the economies and industries of urbanisation. By this we mean the industries which fix or move materials, both tangible and intangible, to form human settlements of any size or scale: real estate, construction and the production of the built environment, core systems of social reproduction like schools or health care, major systems of consumption like retailing and wholesaling, and

⁶ Ours is obviously an alternative use of the urban revolution hypothesis, focused on his proposed change in the dominant mode of production from the industrial to the urban. The two most prominent interpretations are Harvey’s (1974, 1985) theory of capital-switching, and current work on planetary urbanisation (cf Brenner & Schmid 2013; Merrifield 2013).

the systems which move goods and people. What remains is primarily finance, law and government, a sector which we refer to as the control sector.

In what follows, we first examine the history of three-sector theory and the services sector, both in terms of how it was developed and how it became such a dominant force. We look at attempts to extend or modify it in recent years, including the idea of the “knowledge-economy”, often rendered as the “quaternary” sector, and at key critiques of the services sector. We then lay out our new framework, explaining it in detail and discussing how it can be understood and analysed using widely available national accounts data, making it exceptionally practical, and can be utilized to consider capital, production, and labor. We then briefly illustrate the framework using data from Lefebvre’s France, and discuss some of the limitations and internal questions of our framework.

We then devote substantial space to discussing the potential utility of this new framework. While conceptually and empirically rudimentary at this stage, we argue that this framework offers a vision of economic activity more firmly rooted in material reality than three-sector theory, and moves beyond critiques of services towards a viable and testable alternative. It is a holistic vision of economic activity based largely on how the economy materially – natural resources are extracted by one sector, manufactured by another, fixed and moved and distributed by another, and controlled and regulated by yet another sector. It is not based on arbitrary definitions of goods and services or tangible and intangible assets. Even more critically, it is not based upon perceived economic or historical importance, i.e. new technology or hip industries, on the difference between “productive” and “unproductive” economies, or on industries perceived to be central to economic growth.

The framework offers urban and regional studies fresh perspective into the economic role of urbanisation in the contemporary moment, helping to envision the centrality of the *economies* of urbanisation, not simply the *economics* of urbanisation. Seeing urbanisation as an economic sector offers potentially new approaches to the conundrum of urbanisation without industrialization occurring in parts of the global south and its link to Sustainable Development Goals, and to the challenges of increasingly unequal urbanisation everywhere. Separating the “urbanisation sector” from the “control sector” offers a new lens on the growing challenge of financialization and investor-ownership of the core economies of urbanisation, including infrastructure. Finally, our approach provides a new platform from the

broader effort in economics to rethink what matters and to see core, foundational (Bowman et al., 2014) social reproductive activities are a major part of our economy.

Economic sectors and structural change

The concept of economic sectors dates back at least to the pioneering work of William Petty in 17th century Britain (Clark, 1941). It began a tradition of what Kenessey (1987, p. 359) calls the “sectoral-structural” approach to economics, one which was particularly influential on the early political economies of Smith, Ricardo, Marx and Mill. It was the epitome of historical (spatialized) materialism, asking how the material production of some sector of the economy related to the production of another.

Some basic delineation of agricultural/extractive and manufacturing as separate sectors became standard early on. But with the transformation of major industrial economies in the 20th century, it was clear that a more complex understanding of sectors was needed. First developed by Allan Fisher (1939), the tertiary sector was initially aimed at understanding economic transformation and new aspects of consumer demand which went beyond basic agricultural and manufactured goods. He was particularly concerned with isolating the “relatively new” (p. 33) aspects of the economy.⁷

Yet it was the broader definition used by Colin Clark (1941) in his treatise on *The Conditions of Economic Progress* that became an established component of the economic lexicon. In *Economic Conditions*, Clark describes a tripartite economic structure consisting of primary, secondary and tertiary economic activities. Primary activities are agricultural or extractive in nature and are limited by natural growth factors. Secondary activities are primarily composed of manufacturing and production activities and are limited by mechanical factors. Tertiary activities are service based and are dependent on, and limited by, human skill and expertise. Primary and secondary activities can be further distinguished from tertiary activities by the nature of their output, which is tangible in nature, whereas tertiary activities produce intangible outcomes. The tertiary for Clark is also a repository for activities which do not fit under the narrower and much more traditional understandings of the first two sectors.

⁷ Fisher’s (1939, p. 33) idea of the tertiary sector included being founded on “direct satisfaction to the consumer”, a consumption-centred understanding which is closer to our understanding of the urbanisation sector.

Clark's intervention became particularly influential as a means of tracking economic progress and structural change (Wolfe, 1955; Kenessey, 1987). Clark's central thesis is that technological progress parallels a decline in primary and secondary activities and an increase in tertiary activities. Over time, according to the parameters of the economic model outlined by Clark, the tertiary sector becomes the dominant economic sector within a nation. Structural change or transformation is, therefore, the reallocation of economic activity and capital across the primary, secondary and tertiary sectors.

Clark's work became part of a long tradition attempting to understand national economic growth through the lens of sectoral structures.⁸ Nobel Laureate Simon Kuznets, arguably the most influential American economist of the 20th century, would also be a leading practitioner of sectoral-structural thinking, but in a way that would challenge the overly simplistic, linear and prescriptive approach to theorising economic progress that characterized Clark and later scholars like Rostow, whose stages of economic growth remain highly influential (Kuznets, 1968; Rostow, 1971; Ingram, 1993).

The notion that economies proceed in stages has been universally criticized (cf Bryson et al., 2013), leading many to dismiss the theory, even as it became more and more influential. Even without its foundation in economic "progress", the three sector model has been widely, almost universally (and often uncritically) adopted as a basis for classifying, categorising and monitoring economic progress at various spatial scales, despite the fact that no standard definition has ever taken hold. As noted by Wolfe barely 15 years after Clark first published his book (1955: 404),

the terms "primary, secondary and tertiary" have become common currency. But it is painfully obvious that those who use them have no clear idea of what they represent.

Wolfe (1955) chastised the wider economic community for their uncritical acceptance of the three sector classification theorised in Clarke (1941). He notes that the working out of a theory of economic sectors had hardly begun, yet, as quoted above, "because the terms [primary, secondary, tertiary] are linguistically familiar, perhaps, everybody assumes that somewhere in economic literature lies proof of their validity" (Wolfe, 1955: 404).

⁸ For a review see Herrendorf et al. (2013).

A quaternary sector?

One response to the limitations of the model was to extend it into a quaternary or quinary sector. Developed initially by Foote and Hatt (1953, p. 365) as an explicit attempt to pull apart Clark's messy tertiary category, this early version saw the tertiary sector rendered as "domestic and quasi-domestic services"; the quaternary sector included finance, administration, communication, transport and commerce; quinary involved activities that required "the refinement and extension of human capacities (ibid.)." Foote and Hatt's work would be very influential on that of Daniel Bell, and between Bell and noted geographer Jean Gottmann, who used the concept of the quaternary sector in his classic megalopolis study in 1961, the quaternary sector achieved some degree of acceptance in the economic establishment (see Selstad 1990 for a review).

Whilst all of these early definitions differ in their definition, they share two important things in common. One was the general struggle with the question of the post-industrial economy; the second is some definition based on knowledge or "human capacities". This trend would continue, as both Kenessey (1987) and Selstad (1990) would develop very different ideas of the quaternary sector (each leaving behind the quinary) with some aspect of knowledge or power involved. Kenessey's 4th sector is a mix of FIRE (finance, insurance, real estate), public administration, and "services", which under the old SIC classification included everything from hotels to amusement parks, health care to computer programming. Selstad (1990, p. 22) adopts a much narrower understanding, focusing entirely on the very narrow band of the "knowledge-based service industries" which essentially include universities, R&D and consultants (see also Peneder et al. 2003).

While one can still find occasional references to the quaternary sector in scholarship on both economic structure (Thakur, 2011) or emerging work on environmental sustainability and place (Day et al., 2014), this version of the "four-sector" model never replaced the "three-sector" version as the dominant paradigm. When it came to understanding the post-industrial economy, the "knowledge" part of the quaternary sector developed a life of its own (Powell & Snellman, 2004), rivalled only by a related emphasis on the "creative economy" (Nathan, 2007) or a hybrid of the two (Leslie & Rantisi, 2012). No longer simply the site of industrial activity, cities and regions became themselves the answer to questions about what drove economic growth. Jane Jacobs' (1986) helped usher in a generation of urban economists and

economic geographers who would find in city-regions key spatial processes which would gradually be seen as the keys not just to urban economic growth but to the nation as a whole (Storper, 2013). Even as three-sector theory maintained a quiet dominance in basic economic understandings and in international development data infrastructure, the emphasis on post-industrial creativity, innovation and knowledge developed such a bandwagon of importance that they were increasingly studied on their own.

Pulling apart the services sector

Operating in parallel to literatures pushing for new sectors, economic geographers in particular turned a critical eye to the service sector itself. Arguably the most influential critique of the services sector came from Andrew Sayer and Richard Walker (1992). In various iterations that have been cited more than 1000 times, they anticipate the current focus on the “foundational economy” (and this paper) by tearing apart the notion of services in pursuit of what they call the “social economy”. The services sector is a “capacious vat” in which a “panoply of ideas” has been swept, and as a descriptor of the new economy they find it “sorely wanting” (1992, p.104).

Yet whilst their critique is both trenchant and prescient, they dismantle the services sector (and by default three-sector theory), but don’t replace it. This is in part because the services sector and three-sector theory is ultimately not the target. Their goal isn’t to rerender the economy, but to critique and understand post-industrial *capitalism*, to critique the services sector for its failure to explain the means and methods of production. Whilst they point out myriad empirical failures of this “capacious vat”, they don’t replace it with something more accurate, or more useful.

Bryson, Daniels and Warf (2013) take a different tack, embracing services but rejecting the notion of a sector. Drawing on decades of literature documenting the breadth and depth of service economies, occupations and functions, they argue for a conception of “service worlds”, a way of seeing services more generally, without being beholden to “three-sector” theory. They insist on the continued utility of services as a concept, with its differentiation from goods, emphasis on intangible versus tangible products, or indirect relations with the final product, as a useful way of understanding changing geographies and systems of production. Services to them remains a useful paradigm, but only if detached fundamentally

from Fisher and Clark and the sectoral tradition, stained as they are by notions of “economic progress” occurring in stages.

Finally, some scholars have argued for maintaining both the service sector and the overall model, but renewing attention to core definitions. Herrendorf et al. (2013) call for a rethink on how accurately the existing three sector approach captures the underlying characteristics and foundations of the economy. In a review of the structural transformation theory, place emphasis on the need to reengage with the concept of economic sectors:

Moving forward, we also think it will be useful to refine the standard three-sector focus of the literature. As today’s advanced economies are increasingly dominated by services, it will be important to distinguish between different activities within services (Herrendorf et al., 2013: 90).

As an example they point to the very different skills and infrastructures needed for ‘Education’ and ‘Healthcare’ on the one hand and ‘Retail Trade’ on the other. However, in the three sector approach both are captured under the umbrella of the tertiary sector, thus masking the underlying economic heterogeneity across these industrial classifications. Jorgenson and Timmer (2011) provide empirical evidence to underpin this observation by distinguishing between different types of secondary and tertiary sectors. Their results suggest that a more refined approach that distinguishes between industries with vastly different economic characteristics (e.g. finance and business services versus non-market services, including health, education and real estate) offers a more accurate means of capturing economic progress.

All told, scholarship has dealt with the failure of the three-sector model and the services sector in general by either adding on additional sectors, embracing or critiquing services without the larger model, or arguing for changes around the margins. We argue a fourth approach is needed. The value in sectoral-structural thinking is that it is holistic, and this tradition needs to be embraced. What is needed is more experimentation with different ways of conceptualizing the full economy, ways which are not focused exclusively on hyper-productive or new sectors, but on the economy as a whole.

Agroextractive, Manufacturing, Urbanisation and Control: A new four sector approach

The boundary-line between secondary and tertiary production may be different at different times and in different places. If, however, the definitions chosen are useful for the purposes which we have in view, this difficulty need not embarrass us, and indeed, even for statistical purposes, movable boundaries of this kind are not always to be condemned (Fisher 1939, p.32).

Clark used the supposed division between tangible and intangible goods as the core means of defining the services sector. Even if Fisher disagreed with this way of defining a tertiary sector – he favoured a definition which focused more on the historical moment in time – he summed up the basic idea behind this division perfectly (1939, p. 30):

People did not want transport or retail services for their own sake, but merely because they were aids in getting access to biscuits or boots or bedsteads or other things which afforded direct satisfactions.

This notion of tangible versus intangible goods has long been problematic. A good, after all, is not tangible unless you have access to it in the right place at the right time. Nor are “services” necessarily intangible – a massage or a visit to the doctor is just as much a product or good as a roll of toilet paper. A meal in a restaurant is a good, even if we currently classify it as a service. Could a kitchen be considered a small factory?

Rather than flounder on the shoals of tangibility or newness, we divide economic activity based on the product of those economies itself. For clarity, and to avoid any implied hierarchy, we eschew the language of primary and secondary. We attempt to define these economies without using the term services, again for conceptual clarity and as a signal of our intent to break from prior understandings. This is a conceptualization of human economic activity that is not based on an arbitrary division between tangible or intangible goods, production processes or methods, nor based upon any specific moment in history or any geographic region, as it has been historically (Fisher, 1939; Kenessey 1987). It is not based on a supposed difference between goods and services. *Instead, we base our sectoral divisions based on how the economy works materially* – we extract materials from the earth, we process

them into widgets, we fix and move these widgets to form the nests in which we live, all the while having certain sectors which function to control or regulate these other three sectors.

As they have stood for centuries and are largely logical, two sectors are familiar.

Extractive sector: Materials we pull from the earth, oceans and sky.

- Energy, Agriculture, Mining, Water supply.

Manufacturing sector: The formation of materials into **widgets**. This included mostly extracted materials, but increasingly recycled materials and nonmaterial materials, like ideas. Unlike some definitions, it does not include construction.

- Manufacturing, but also some parts of recycling, computer programming, arts, R&D, etc.

The above definition of manufacturing takes into account the fact that making recorded music or software or smart phone apps is manufacturing. Coding is an industrial process for making widgets, just as stamping and casting are for making cars.

Again, instead of adding quaternary sectors based on new technology or changing economies, we seek a more timeless definition based on basic human life. We start by following the widgets. After all, a pair of pants doesn't do you any good if you can't obtain them. Raw food is wonderful, but cooked food is generally better. Cooking requires a kitchen, which though made up of manufactured goods is not itself generally a manufactured good. The pants must be both moved to a place, and fixed in that place. The stove and the food must be moved a place, and fixed in that place. The gypsum gets extracted, then manufactured into sheetrock, but only when fixed into a place does it become a wall in a house or office. A play is a widget, but until it is either sold in a store as a text (or through an online retailing venture) or performed in public, it can't be consumed. Antibiotics are a manufactured product, but until they are prescribed and picked up at the pharmacy, they don't do you much good. A beer is an industrial product made out of extracted materials, but it then gets fixed through two very different economies – the retail outlet which allows you to consume it in private, or a bar or restaurant where you may be consuming it together with social space – which itself is also a complex product. These acts of fixing things in place, or moving them so they can be fixed,

are the heart of the urbanisation sector. This is the production of the nests where humans live, the settlements in which all but a miniscule percentage of humans live. As the human settlement sector would be a mouthful, we deem this the urbanisation sector.⁹

Note that this is not a spatial definition. We deem it urbanisation as it is the sector that involves fixing and moving products of the manufacturing and extractive sectors in space and into *settlements of any shape, size or density*. The urbanisation sector has a spatiality, as does every economic sector, but *rather than be defined by space* (as many definitions of the city/urban are), like all other economic sectors *it defines space*.¹⁰

Thus:

Urbanisation sector: The transformation of materials and widgets into the nests we inhabit (of any size or scale) through both **fixing and movement**.

- Fixing: Construction, Real Estate¹¹, Retailing, Entertainment and Recreation, Accommodation and Food Services, Health, Education, Social Services
- Movement: Transportation, Wholesaling

⁹ In many ways, the definition of the urbanisation sector is rooted in consumption, and the framework overall rooted in the need to valorize consumption and not just production. What do we do with the things we pull from the ground? What do we do with all these widgets we make in factories (or office buildings that are actually factories)? Fisher's (1939, p. 33) original understanding of the tertiary sector actually provides a clue. He argued that there was something critical about providing "direct satisfaction to the consumer". In Fisher's day, the point of interaction between the consumer and the widget was not considered nearly as important as the manufacturing of this widget. This has begun to change, as facts on the ground slowly changed the perception of consumption. Urban and suburban space have been reconfigured around consumption throughout the world, in both deindustrialized and still industrializing regions. Retail giants now hold power in the supply chain, a radical shift from a century ago. But the centrality of consumption in this framework is ahistorical. Online retailing or informal retailing may change the spatiality of consumption, but it does not change its sector, nor does it obviate the need for a broader economic framework that considers consumption more central to the economy.

¹⁰ Following Brenner & Schmid (2013) in this instance, we disregard the arbitrary, culturally-specific and scientifically-indefensible definition of a city as somehow separable from a suburb or a rural area, and instead define city as a form of human settlement of any size or density. This does not mean we do not recognize the fact that the notion of the city as a political creature (Roy 2016) or the many other differences that the size and scale and spatiality of human settlements have accrued over the years are not real.

¹¹ Including real estate in the urbanisation sector, rather than the control sector, is not done without hesitation. The financialization of the real estate economy (Fernandez & Aalbers, 2016; Fields 2017) suggests that real estate corporations may belong more in the control sector. As the take over of real estate by finance varies geographically and is highly uneven, for now we leave real estate in the urbanisation sector for conceptual clarity. As discussed in the conclusion, separating real estate from finance is also useful conceptually in the study of financialization. But we welcome both theoretical and empirical challenges to this decision, and remain open to recategorization.

What remains are finance, accounting, law, government and related forms of administration, economic sectors which are not directly engaged in the production of materials, widgets, or settlements, but exercise control over all three of the other sectors. In much of the literature, the majority of these industries are referred to as Advanced Producer Services, but this nomenclature is too connected to the notion of the service sector, which we argue needs to be replaced, and seems to imply that only “advanced producers” consume these products. A better name is one built on Sassen’s (1990) landmark work on these economies: the control sector.¹² While Sassen focuses on corporate, for-profit institutions, our goal is a more ahistorical and aspatial understanding. In many places and at many times, the state sector is more powerful than the finance sector. Hence for this purpose, we group them into one category – the control sector. Thus:

Control sector: The governance and control of all three other sectors.

- Finance, accounting, law, government, certain civil society actors, other administration

[insert figure 1 here]

Viewed together, they can be imaged according to the diagram in Figure 1. Again, we don’t use the terminology of primary, etc. to avoid confusion or implied hierarchization (all four sectors are important), the arrows indicate the general direction of inputs. Things are extracted, turned into widgets, fixed and moved into the urban, and all the while the control economies influence all three sectors yet constitute a set of industries and a sector by themselves.

Like three-sector theory, this framework can be operationalized and tested using numerous readily available national datasets. Table 2 shows the operationalization of this taxonomy using one of the most standard datasets, the United Nation’s International Standard Industrial Classification Rev. 4, using the highest level of aggregation. This is roughest aggregation, but the scale at which data is most readily available.

[insert Table 1 here]

¹² We recognize that naming the sector in this way exposes us to the various debates within the global cities literature - see Parnreiter (2017) on whether Sassen uses command and control together, or Kleibert (2016) on whether these controlling sectors give cities command . Thanks to the editor for this point.

To demonstrate, we use Value Added Data from Lefebvre's France, charting the evolution of the French economy from 1959. As data going back that far is difficult to disaggregate below these large sectors, we do not initially split the Wholesale & retail, etc.(VG), Professional, scientific and technical activities (VM) and Information and communication (VJ) sectors. We leave out the Activities of Households as employers (VT) sector entirely at this point, which in France is not an issue (it is never more than a 0.35% of the total economy).

The results are visible in **Figure 2**, which shows each of the four sectors as a percent of the total economy. The “urban revolution” that Lefebvre imagined in 1968 yet never defined enough to test empirically becomes clear, as does the continuing decline of the extractive sector. Lefebvre's revolution had in fact already occurred under this definition.¹³

[insert figure 2 here]

Limitations and internal questions

This paper is not an argument for the purity of our specific way of microcategorization, i.e. whether a certain subcategory belongs in this broader category or that, but rather the general act of recategorization away from the three sector model and in particular the notion of “services”. Some of the limitations are conceptual, others related to data and disaggregation.

Conceptually, there are many challenges. The placement of real estate in the urbanisation sector, as opposed to the control sector, is not done without some hesitation.¹⁴ In a coal- or oil-based energy economy, one could theoretically separate out the extraction industries from the distribution industries, especially in coal where the extractors and energy generators are often separate companies. But with wind and solar, this becomes more complicated. Similarly, as Fisher understood well, it is hard to separate the transportation of good from mine to factory from the transport from factory to warehouse to store, both conceptually and in terms of data. Is water something extracted, or distributed? The majority of the economy of water is in the network, not in extraction, so perhaps it belongs in the urbanisation sector. One could

¹³ Even if one takes a very conservative definition and only considered the urban as construction + real estate, those two sectors combined surpassed manufacturing in the mid 1990's in France.

¹⁴ Supra note 11

define finance as a widget, but we treat finance as primarily capital, which is a process designed to control and seek profit, not simply a product for consumption.

Some broad categories like VT (Activities of Households as employers, undif. Goods and Services-producing activities of Households for own use) are household economies which need disaggregation. While these may be relatively minor in the global north, they play a much greater role in the global south. Unlike three-sector theory, this framework is imagined from the outset to be different in different places, reflecting the different material reality of economic process and urbanisation. Similarly, the one socially and environmentally significant if economically small sector which somewhat defies categorization is sewerage and waste management. Is this the end product of the cycle we describe, linking the urban back to both the extractive sector (it is where we put things back into the earth, sky water or burn waste as a replacement for another extracted material), or part of the manufacturing sector when waste is reused?

Finally, much more precise work is possible, especially in recent years as data has improved, and with additional access to original data and proprietary datasets. Fisher well understood the limits of precision, arguing that (1939, p. 37) , “that the definition suggested will not fit in very easily with the work of the practising statistician is readily admitted, but the concept was invented for purposes other than the statistician’s convenience.” Rather than see this new framework as a demand to overhaul all renderings of national accounts data, what is needed instead is for agencies to provide more disaggregated data. By working with less aggregated sectors, we can create a more nuanced version of this conceptual framework, develop economic models based on this framework, and generally encourage others to creatively experiment with other reconfigurations of the human economy. The framework is also not intended to rest forever on formal economic data – the breakdown here can integrate all manners of innovative means of quantifying the informal economy, which we fully recognize are central in most of the world, particularly in the urbanisation sector (Caldeira 2016).

Utilizing the framework

Reimagining economic structure in a way that defines both urbanisation and control economies as economic sectors opens the door to creative approaches to many key problems in global development, urban and regional studies, and economics/political economy in general. As a

final piece of this paper, we touch on some of them, in the hopes of stimulating discussion and debate as to the utility of the proposed framework.

The Urbanisation / Industrialization/Development nexus

In 19th and early 20th century Europe and North America, industrialisation drove the rapid expansion of urban areas. This brief historical window helped produce a series of problematic assumptions regarding the links between urbanisation, industrialization and development. As discussed above, one of the fundamental problems of three-sector theory was that it was designed in a way that imagined economic development in historical stages (Kenessey, 1987). Increasingly, empirical changes in the North and the South are seeing development economists and urban theorists are find common ground in a 21st century urbanised version of Bairoch's (1995) observation that "there exist no 'laws' or rules in economics which are valid for all periods of history or for every economic system."

Recent research shows that in much of the Global South, urbanisation is decoupled from industrialisation (Turok and McGranahan 2013, Gollin, Jedwab and Vollrath 2016, Christiaensen, Gindelsky and Jedwab 2013, Jedwab 2012, Hollingsworth et al 2013). There is growing recognition that the processes underway outside Europe and North America do not adhere to historical models of urbanisation (cf Robinson 2006, Roy 2009, Simone 2010, Goldman 2011) in arenas which go beyond (but of course include) economics. State structures, local politics, cultural forms, relationships to colonialism – the grist of urbanisation and economic change is vastly different, even if certain processes remain similar. As Simone and Pietrse (2017, p. 2) observe about major urbanizing regions in Asia and Africa, "urbanisation is something that seems increasingly to make itself," a form of urbanisation-driven urbanisation.

In the Global North, the combination of deindustrialisation and the growth of finance and technology clusters have similarly destabilized this relationship over the past half century, with widely divergent outcomes (Sassen 2001). Industrial restructuring has been linked to widespread abandonment and depopulation, rising housing prices, sprawl and gentrification, and often both (cf Hamnett 2000). Scholarship has also begun to recognize that in nations like the United States, urbanisation in the form of suburbanisation drove industrialisation ('urbanisation-led industrialisation') by providing an unprecedented market for automobiles and consumer goods (Beauregard 2006).

This conceptual reframing we offer here has the potential to help understanding of economic structure across historical and geographic divides, without engaging in universalism. It can capture key historical and emerging differences between countries that urbanized on the back on manufacturing and those whose urbanisation is linked to extractive industries or control industries. It has particular utility to those who might hypothesize that urbanisation as a spatialized process in their country is linked to urbanisation industries themselves, i.e. Simone & Pieterse's urbanisation-based urbanisation. As the framework is scalable, it can be used to examine differences in economic structure between regions which have thrived in a postindustrial economy and those that have struggled, a major source of political and economic anxiety in countries like the United States and the United Kingdom.

Taking the economies of urbanisation more seriously

Another fundamental challenge which has been exposed by industrial restructuring across the globe is that collective understanding of how places grow and change has taken a backseat to a quasi-obsessive focus on why they grow. Not only was three-sector theory and the study of economic structure heavily focused on imagined "stages" of economic growth, there were been two other traditional foci: to identify "the importance of key sectors in various historical epochs", and to delineate "productive from non-productive labor" (Kenessey 1987, p. 362).

Both goals speak to a long tradition of hierarchization in economics, of separating economic activities, actors and industries in a normative fashion based on their perceived contribution to growth. Productive versus nonproductive labor is part of a long tradition in economics of dividing economies into what Schaffer (2010, np) talks of as "opposing parts". From Adam Smith's distinctions between the manufacturer and the servant to Marx's necessary versus surplus labor, from Sombart's builders versus fillers to the idea of basic versus non-basic industries which emerged from it, we have long created hierarchical systems of value which determine that certain industries and certain economies are more important to the overall economy than others.

Seeing the economies of urbanisation as a sector integral to economic structure can help ensure they are given greater political and scholarly attention. Too often, these vital economies are considered in some way as secondary. They are often rendered as inputs into

the “real economy” whose purpose is not to house or move people, or to grow the specific economies of housing and transportation, but to spur growth of some other sector by attracting investment, firms or certain types of people.¹⁵ In other understandings they rendered as by-products of the “real” economy, the result of a “multiplier effect”, “non-basic” goods provided as a result of “basic” industries. Scholars and policymakers have long touted a line attributed to Hans Blumenfeld (1955, p. 115) that people cannot “live by taking in each other’s washing”.¹⁶ This is seen as a shorthand explanation of why scholarly and economic resources should be devoted to figuring out the economic base which drives the region. But Blumenfeld, a practising planner, argued clearly that what is basic or non-basic, primary or secondary, was a material fact, not just a question of imports and exports. He saw what is obvious, that “no “basic” industry in a modern city could function without such services as water, transportation, and communication (p.116).”

But he went further, speculating that as places grow and become more connected, becoming more “metropolitan, ...the more its inhabitants do ‘live by taking in each other’s washing.(p. 129)”. More and more, activists and scholars alike are recognizing that a focus on innovation and innovators, on the “special sauce” which makes region’s grow, has blinded us to the economic and social importance of “maintainers” (Bliss, 2016), part of the legion of people working in the economies of urbanisation who literally or proverbially take in *everyone’s* washing.

An emerging school of “foundational economics” (Bowman et al., 2014) is striving to rethink the economic importance of social reproduction, and has shown clearly that the existence of these economies cannot simply be assumed. Although it may seem counter-intuitive, as we use the traditional national income measurements (i.e. GDP by sector) to illustrate our central argument and propose to use the national and sector accounts to empirically test the implications of the argument, the framework proposed can actually contribute to the efforts to identify alternative forms of economic prosperity in the post-crisis period (e.g. Stiglitz et al.,

¹⁵ Even critical heterodox and neo-Marxist approaches like those of David Harvey (1974, 1985) can be hamstrung by the relegation of urbanisation to a “spatial fix” for capital or as a “secondary” circuit of capital which only becomes important *economically* by virtue of a crisis of accumulation in the “primary” (i.e. manufacturing) sector. Related work on collective consumption (Castells 1977; Pahl 1978) see cities as sites of state-supported social reproduction, as opposed to seeing social reproduction and city-making as a large economic sector.

¹⁶ Blumenfeld was actually rephrasing a claim made in a 1944 British planning study. His famous article is actually quite critical of economic base theory. See also Rutland & O’Hagan’s (2007) questioning of economic base theory for a convincing argument as to how these relationships are changing empirically.

2009). Decomposing the three-sector economy and combining different sub-sectors into the realm of the urbanisation sector helps moving away from production-centric measures to human-oriented wellbeing measures, in part because of the deep connection between the economies of urbanisation and basic social reproduction.

This is becoming more and more evident as inequality grows throughout the world. Having a wildly “successful” economic base is no guarantee that the housing, transportation, health systems, food systems etc., the “foundational urban systems (Hall & Schafran, 2017) will be built or be successful. This is particularly critical given the ways in which provision of these economies is rapidly changing. Alternative mobility and housing practices, rapidly multiplying “sharing” platforms, privatization and restructured governance institutions are changing how, where and for whom these core urbanisation economies are being produced and consumed. By developing a new and holistic framework for economic activity that is detached from ideas of progress and free of assumed quid pro quo, we can better investigate how these foundational economies operate, both in conjunction with export base economies and independently.

Urbanisation, Control and the bigger picture

A final set of possibilities emerge from the larger framework. The establishment of the control sector can potentially shed light onto the size and scope of the financialization of housing and infrastructure (Fernandez & Aalbers, 2016; Fields 2017), and to the related exploration of Harvey’s capital-switching hypothesis, which has received renewed attention as of late (Gotham 2006; Christophers 2011; Buckley and Hanieh, 2014).. The tradition under three-sector theory of merging many industries into the FIRE sector and studying them as Advanced Producer Services may have yielded important insights as to the growth of global cities, but a different approach is needed to understand the control of real estate by finance.¹⁷ Moreover, exclusively capital-centric approaches can miss the vast scope of real estate and construction as industries and sources of labor.

Relatedly, this framework can help build new empirical foundations for the growing focus on infrastructure (cf Amin 2014). While much of the infrastructure economy would fall within the urbanisation sector, there are important issues with this discussed above. But what is

¹⁷ Supra note 11

critical is that this framework allows for a deeper dive into the economies of infrastructure, again seeing infrastructure as a key set of industries and not merely a set of inputs. A framework that sees the full economy through a more spatialized and materially accurate version of the economy is better suited to investigating infrastructure in the 21st century.

While imprecise in the way all sectoral economics is imprecise, we hypothesize that this new division of economic activity can yield important insights into how, rather than why, contemporary economies grow and develop. A fundamentally reconceived idea of how the economy is divided and the particular role urbanisation and control economies play overall can help reinvigorate international efforts around the Sustainable Development Goals (in particular SDG11 on inclusive cities), the Addis Ababa Action Agenda or the New Urban Agenda emerging from Habitat III.

It is an approach which also offers new conceptual and methodological tools to appreciate the centrality of the material economy to the contemporary world. While influenced by recent work on peripheral and non-western urbanism (Simone & Pieterse 2017; Caldeira 2016; Simone 2010), infrastructure networks (Amin 2014) and debates about the ontology of urbanisation and its related concepts (Brenner & Schmid 2013; Scott & Storper 2015; Roy 2016; Simone 2016), this vision of urbanisation as an economic sector is not meant to replace any of the myriad understandings of urbanisation, cities or regions. Rather, it uses the recent critical wave in urban studies to push industrial economics to itself be more creative, throwing off the shackles of the three-sector theory, whose originators in the 1930's never intended for it to become set in stone in the way it has (Wolfe, 1955), with its widespread and uncritical adoption by major institutions (e.g. World Bank, OECD). The notion of the service sector, while perhaps useful in the post-war era, is no longer suitable for a 21st century urbanized world. Critiquing it is not enough (Sayer & Walker, 1992). It must be replaced, and instead of thinking about all these people in cities engaged in services, we need to ask much more materially-specific questions about how their economic activity relates to the building and provisioning of all the settlements in which we live.

There are many next steps to this line of investigation, including much deeper empirical engagement along the lines demarcated above. But this paper is fundamentally an invitation to debate and engage, and we hope that other researchers who see value in this approach will challenge us and help develop superior methodologies and more refined theorizations based

on this approach. Urbanisation is arguably the most powerful economic force in the 21st century, not only because it produces growth or innovation, but because it has the largest number of participants and is central to our basic reproduction. More and more, people are engaged in the economies of building and provisioning the settlements we call home, and it is time these economies have greater visibility. This can only happen effectively if these economies are conceptualized within a holistic framework of economic structure, as part of a vision of the full human economy. We hope that the ideas herein help push us collectively to a better understanding of these transformations, and of our time.

References

- Amin, A. (2014). Lively infrastructure. *Theory, Culture & Society*, 31(7-8), 137-161.
- Arvanitidis, P., & Petrakos, G. (2006). Understanding economic change in the cities: a review of evidence and theory. *European Spatial Research and Policy*, 13(2), 97.
- Bairoch, P. (1995). *Economics and world history: myths and paradoxes*. Chicago: University of Chicago Press.
- Bliss, L. (2016). Innovation Is Overrated: An obsession with disruption has obscured the work that goes into just keeping everything up and running. *The Atlantic*, April 11, 2016
- Bowman, A., Froud, J., Johal, S. and Law, J., 2014. *The end of the experiment?: From competition to the foundational economy*. Manchester University Press.
- Brenner, N. (2013). Theses on urbanisation. *Public Culture*, 25(1 69), 85-114.
- Brenner, N., & Schmid, C. (2014). The 'urban age' in question. *International Journal of Urban and Regional Research*, 38(3), 731-755.
- Bryson, J., Daniels, P., & Warf, B. (2013). *Service worlds: People, organisations, technologies*. Routledge.
- Buckley, M., & Hanieh, A. (2014). Diversification by Urbanisation: Tracing the Property-Finance Nexus in Dubai and the Gulf. *International Journal of Urban and Regional Research*, 38(1), 155-175.
- Caldeira, T. P. (2016). Peripheral urbanisation: Autoconstruction, transversal logics, and politics in cities of the global south. *Environment and Planning D: Society and Space*, 0263775816658479.

- Caselli, F., & Coleman II, W. J. (2001). The US structural transformation and regional convergence: A reinterpretation. *Journal of political Economy*, 109(3), 584-616.
- Castells, M., & Sheridan, A. (1977). The urban question: a Marxish approach. *Social Structure and Social Change*, (1).
- Christophers, B. (2011). Revisiting the urbanisation of capital. *Annals of the Association of American Geographers*, 101(6), 1347-1364.
- Clark, C. (1967). The conditions of economic progress. The conditions of economic progress.
- Cooke, P., Uranga, M. G., & Etxebarria, G. (1998). Regional systems of innovation: an evolutionary perspective. *Environment and planning A*, 30(9), 1563-1584.
- Crampton, G. R. (1999). Urban unemployment in the EU, tertiary-sector employment growth and urban size. *Urban Studies*, 36(12), 2121-2133.
- Christiaensen, L., Gindelsky, M., & Jedwab, R. (2013). The Speed of Urbanisation and Economic Development: A Comparison of Industrial Europe and Contemporary Africa. World Bank, Washington, DC.
- Daniels, P. W., O'Connor, K., & Hutton, T. A. (1991). The planning response to urban service sector growth: an international comparison. *Growth and Change*, 22(4), 3-26.
- Day, J. W., Moerschbaecher, M., Pimentel, D., Hall, C., & Yáñez-Arancibia, A. (2014). Sustainability and place: How emerging mega-trends of the 21st century will affect humans and nature at the landscape level. *Ecological Engineering*, 65, 33-48.
- de Souza, K. B., de Andrade Bastos, S. Q., & Perobelli, F. S. (2016). Multiple trends of tertiarization: A comparative input-output analysis of the service sector expansion between Brazil and United States. *Economía*, 17(2), 141-158.
- Eichengreen, B., & Gupta, P. (2013). The two waves of service-sector growth. *Oxford Economic Papers*, 65(1), 96-123.
- Fernandez, R., & Aalbers, M. B. (2016). Financialization and housing: Between globalization and Varieties of Capitalism. *Competition & Change*, 20(2), 71-88.
- Fields, D. (2017). Unwilling subjects of financialization. *International Journal of Urban and Regional Research*, 41(4), 588-603.
- Goldman, M. (2011). Speculative urbanism and the making of the next world city. *International Journal of Urban and Regional Research*, 35(3), 555-581.
- Gollin, D., Jedwab, R., & Vollrath, D. (2016). Urbanisation with and without Industrialization. *Journal of Economic Growth*, 21(1), 35-70.
- Gotham, K. F. (2006). The Secondary Circuit of Capital Reconsidered: Globalization and the US Real Estate Sector 1. *American Journal of Sociology*, 112(1), 231-275.

- Hall, S. & Schafran, A. (2017) From foundational economics and the grounded city to foundational urban systems, Foundational Economy Working Paper 3, May 2017. Foundationaleconomy.com
- Hamnett, C. (2000). Gentrification, postindustrialism, and industrial and occupational restructuring in global cities. In G. Bridge and S. Watson, *A Companion to the City*, Wiley & Sons: London, p.331-341.
- _____. (1994). Social polarisation in global cities: theory and evidence. *Urban studies*, 31(3), 401-424.
- Harvey, D. (1985). *The urbanisation of capital*. Baltimore: Johns Hopkins University Press.
- _____. (1974). Class-monopoly rent, finance capital and the urban revolution. *Regional Studies*, 8(3-4), 239-255.
- Hollingsworth, J. R., Henderson, J. V., Roberts, M., & Storeygard, A. (2013). Is Urbanisation in Sub-Saharan Africa Different? World Bank, Washington, DC.
- Herrendorf, B., Rogerson, R., & Valentinyi, Á. (2013). Growth and structural transformation (No. w18996). National Bureau of Economic Research.
- Ingham, B. (1993). The meaning of development: interactions between “new” and “old” ideas. *World development*, 21(11), 1803-1821.
- Jacobs, J. (1986). *Cities and the Wealth of Nations*. Harmondsworth, UK: Penguin.
- Jedwab, R. (2012). Why is African urbanisation different? Evidence from resource exports in Ghana and Ivory Coast. Manuscript. Paris School of Economics.
- Jorgenson, D. W., & Timmer, M. P. (2011). Structural Change in Advanced Nations: A New Set of Stylised Facts*. *The Scandinavian Journal of Economics*, 113(1), 1-29.
- Kenessey, Z. (1987). The primary, secondary, tertiary and quaternary sectors of the economy. *Review of Income and Wealth*, 33(4), 359-385.
- Kleibert, J. (2016). On the global city map, but not in command? Probing Manila’s position in the world city network. *Environment and Planning A*, 0308518X16663710.
- Kolko, J. (2010). Urbanisation, agglomeration, and coagglomeration of service industries. In *Agglomeration economics* (pp. 151-180). University of Chicago Press.
- Kongsamut, P., Rebelo, S., & Xie, D. (2001). Beyond balanced growth. *The Review of Economic Studies*, 68(4), 869-882.
- Krüger, J. J. (2008). Productivity and structural change: a review of the literature. *Journal of Economic Surveys*, 22(2), 330-363.
- Kuznets, S. (1968). *Toward a theory of economic growth, with reflections on the economic growth of modern nations*. New York, NY: The Norton Library.

- Lefebvre, H. (2003[1968]). *The urban revolution*. U of Minnesota Press.
- Leslie, D., & Rantisi, N. M. (2012). The rise of a new knowledge/creative economy: prospects and challenges for economic development, class inequality, and work. *The Wiley-Blackwell Companion to Economic Geography*, 458-471.
- Merrifield, A. (2013). The urban question under planetary urbanisation. *International Journal of Urban and Regional Research*, 37(3), 909-922.
- Nathan, M. (2007). The wrong stuff? Creative class theory and economic performance in UK cities. *Canadian Journal of Regional Science*, 30(3), 433-450.
- Pahl, R. E. (1978). Castells and collective consumption. *Sociology*, 309-315.
- Parnreiter, C. (2017). Global cities and the geographical transfer of value. *Urban Studies*, 0042098017722739.
- Peneder, M., Kaniovski, S. & Dachs, B., 2003. What follows tertiarisation? Structural change and the role of knowledge-based services. *The Service Industries Journal*, 23(2), pp.47-66.
- Powell, W. W., & Snellman, K. (2004). The knowledge economy. *Annual review of sociology*, 199-220.
- Robinson, J. (2006). *Ordinary cities: between modernity and development* (Vol. 4). Psychology Press.
- Rogerson, R. (2007). Structural transformation and the deterioration of European labor market outcomes (No. w12889). National Bureau of Economic Research.
- Rostow, W. W. (1971). *Politics and the Stages of Growth*. Cambridge: Cambridge University Press.
- Roy, A. (2016). What is urban about critical urban theory?. *Urban Geography*, 37(6), 810-823.
- _____. (2009). The 21st-century metropolis: new geographies of theory. *Regional Studies*, 43(6), 819-830.
- Rutland, T., & O'Hagan, S. (2007). The growing localness of the canadian city, or, on the continued (ir) relevance of economic base theory. *Local Economy*, 22(2), 163-185.
- Sayer, A. & Walker, R., (1992). The Brave New World of the Service Economy: the Expanding Division of Labor. *The New Social Economy*. Cambridge, pp.56-107.
- Sassen, S. (1990). *The Global City: New York, London, Tokyo*. Princeton: Princeton University Press.
- Schmitter, P. C., & Streeck, W. (1994). *Governing capitalist economies: Performance and control of economic sectors*. Oxford: Oxford University Press.

- Scott, A. J., & Storper, M. (2015). The nature of cities: the scope and limits of urban theory. *International Journal of Urban and Regional Research*, 39(1), 1-15.
- Selstad, T. (1990). The rise of the quaternary sector. The regional dimension of knowledge-based services in Norway, 1970–1985. *Norsk Geografisk Tidsskrift-Norwegian Journal of Geography*, 44(1), 21-37.
- Shin, H.B. (2009): Life in the shadow of mega-events: Beijing Summer Olympiad and its impact on housing, *Journal of Asian Public Policy*, 2:2, 122-141
- Simone, A. (2016). It's Just the City after All!. *International Journal of Urban and Regional Research*, 40(1), 210-218.
- _____. (2010). *City life from Jakarta to Dakar: movements at the crossroads*. London: Routledge.
- Simone, A., & Pieterse, E. (2017). *New urban worlds: Inhabiting dissonant times*. John Wiley & Sons.
- Stiglitz, J., Sen, A. & Fitoussi, J. P. (2009) Report of the Commission on the Measurement of Economic performance and Social Progress. Commission on the Measurement of Economic performance and Social Progress: France.
- Storper, M. (2013). *Keys to the city: how economics, institutions, social interaction, and politics shape development*. Princeton University Press.
- Taylor, P. J., & Walker, D. R. F. (2001). World cities: a first multivariate analysis of their service complexes. *Urban Studies*, 38(1), 23-47.
- Thakur, S. (2011). Fundamental economic structure and structural change in regional economies: a methodological approach. *Régionel Développement*, 33, 9-38.
- Turok, I., & McGranahan, G. (2013). Urbanisation and economic growth: the arguments and evidence for Africa and Asia. *Environment and Urbanisation*, 25(2), 465-482.
- United Nations Development Programme. (2014). "Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience", Human Development Report Office
- Wolfe, M. (1955). The concept of economic sectors. *The Quarterly Journal of Economics*, 402-420.