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On economic and urban growth

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The dominant imperative during the next decade, perhaps longer, is likely to be the quest for economic growth. In the last decade or more since the Great Recession, economic growth in Western economies has been effectively squeezed out of the system. From the end of the long boom after World War 2 that ended in the 1970s, productivity in many countries has fallen. For the last 15 years, governments in the West have gone a spending spree with moneys acquired at extremely low interest rates from a small but relatively thrifty proportion of the population. This has led to massive rises in house prices, great over-capacity in office building, and the growth of enormous bureaucracies in services and markets. Quantitative easing which involves central governments' printing money which lowers its value and exacerbates debt, has added to this. In the East, particularly in China, this has led to the construction of ghost towns often in entirely the wrong places when it comes to building in the best locations for growth and economic prosperity. The growth of information technologies (IT) has forged ahead but rather than leading to increased productivity, this too has added to bureaucracies at every level and in every sector (Gordon, 2016). The palpable waste on a day-to-day basis as IT has been rolled out everywhere has increased inefficiencies by slowing down many routine procedures rather than producing more effective and efficient automation.

Economic growth has always been difficult to define, largely because it is mainly measured as an aggregation of the fortunes of individuals, private firms, and public agencies. In general, the assumption is that the prosperity of the macro-economy can be summarised by adding together all the elements of value added or domestic product, whatever the basic unit of measurement used, and that this provides at least a sense, quarter by quarter or year by year, of how well an economy is performing and growing. Growth of course might be jobless for it need not depend on added numbers of individuals. In fact, good growth, it might be argued, is growth that is measured at the individual level, and if this is increasing without total population growing, then this is reflected in increased productivity at the finest of scales.

The problem of measuring economic growth is that the basic units which are used to record it are problematic. The biggest firms, for example, are spread out spatially and increasingly globally but when we compute their value they are usually added into units that are not necessarily associated with the places where they are located. Often it is not possible to associate firms with simple measures of growth especially if investment becomes an increasingly dominant construct in the financial development of the firm or organisation. The problem is that politicians and those responsible for macro-economic policy-making assume that the tools they have at their disposal will propel growth. But any simple examination of the major strategies of central banks and government reveals immediately that the association between growth and simple indices like GDP (gross domestic product) is tenuous at best. There is no guarantee that policies to increase investment, to develop new infrastructure, and to encourage populations to increase consumption will lead to clear increases in growth.

Steering an economy towards growth involves the interaction between fiscal and monetary policy where fiscal is based on policies for taxation and spending normally exercised by the central government and monetary is based on instruments such as interest rates which are used by central

banks to keep the economy stable. Both these sets of tools apart from conflicting with one another in different circumstances are only effective at meeting their goals in the most casual of ways, largely because the idea that the individual elements of an economy react in concert with respect to such economic policies is something that simply cannot be assured. In fact, contemporary societies are now so complex that measures of control such as the manipulation of generic interest rates or proposals to increase taxes for specific groups or agencies never work in the ways that are assumed and ever more frequently do not lead to the desired effects. In short, the instruments that we have for fiscal and monetary policy are increasingly blunt-edged and ineffective. The current situation with the UK economy illustrates the difficulty of generating growth using conventional measures. If we increase interest rates while at the same time attempting to lower income taxes, the rich are more and more likely to plough monies into property exacerbating house price increases while those with little access to housing find themselves in increasingly non-affordable positions when it comes to entering rental or buyer markets. We could repeat these kinds of perverse effects with many other examples. They have been called 'wicked problems' originally by Rittel (1972) who defined them as problems which we might want to address head on but by doing so, we make them worse, not better. These are problems that activate causal chains of negative impacts that show no sign of settling down, illustrating that the economy is never in equilibrium and increasingly volatile with respect to any policies devised with the aim of increasing the stability of the economy.

In terms of cities, the term growth although related to the economy is somewhat different from increasing prosperity that is the focus of political decision-making. In an urban context, there are much less ambiguous signatures of growth which respond much more closely to the growth of human populations. These are reflected in additional single family housing units which result from new populations and from movements from elsewhere in the city as well as migration from the rural hinterland and from other cities. When we begin to unpack growth in these terms, we immediately see how convoluted national economic policy becomes as it hits the lowest levels where individuals and households have to respond. On the way down to these levels, economic growth hits many constraints. In fact, this notion of policies trickling down in terms of growth itself is not a coherent way of thinking about urban growth: such growth takes place at the finest individual level and the way it emerges is from the bottom up. In fact, such growth is only coordinated in sofar as individuals respond to one another while competition weaves its way through every facet of the city as it begins to manifest itself in additional physical capacities such as housing, offices, transportation systems, and so on.

If we take a long view, the urban population has been growing exponentially since the beginning of the industrial revolution (and of course long before), and in general terms, there is strong correlation between population growth and measures of the wealth of different societies. In terms of population growth, the correlation with GDP from 1820 to 2020 is some 0.99; that is almost all of the common variance in these distributions over this 200 year period is accounted for (Roser, 2022). The direction of causation must be from population to gross domestic product because population growth is the real driver of economic growth, although there may be some circumstances where economic growth determines if a population is growing. The regression of the logarithm of GDP $\log(G_t)$ on the logarithm of population $\log(P_t)$ is $\log(G_t) = -8.92 + 1.32\log(P_t)$, where GDP is measured in trillions and population is in billions. In fact, the projection of world population until the end of this century shows it levelling off, and the big question is: "Will economic growth follow this logistic trajectory with population and hence wealth in GDP converging to a relatively unchanging equilibrium?" (Batty, 2018). Perhaps the quest for economic growth is doomed already by the future population trajectory, and once we begin to factor in the move to a greener world and one where climate change is confronted, then all bets may well be off as to the form and rate of future economic growth as articulated by the G7 and such-like clubs of the richest nations.

There are several other features defining cities that imply various kinds of growth. Although the most obvious relate to city expansion and particularly sprawl, some studies have shown that the greatest change in cities involves the re-purposing and continued re-occupation of residential and commercial structures by mobile populations. The invasion and succession of neighbourhoods by different income and ethnic groups in many large cities is evidence of a kind of growth. In this context, change through internal migration and movement may not be considered as growth but even without change in the economic basis for cities, cities may become more efficient and sustainable without necessarily increasing prosperity in the most obvious sense of monetary wealth. In this context, growth needs a re-interpretation. A good example is from the impact of the pandemic. In the cores of really big cities such as London, a large amount of property has now been vacated and is underused because workers can now work from home, at least for some of their working week. The resulting available space is being re-purposed, and in this sense, their spatial configurations can become more efficient. There is also a secular increase in the numbers of workers taking early retirement, and more generally, there is a considerable increase in the mixing of populations as different age groups and genders respond to new and more flexible opportunities for working, for not-working, and for many new types of re-employment after retirement. All this suggests that in the future, cities will restructure in ways that are quite counter to the kind of growth we have been accustomed to in the previous decades.

Theories of how cities are formed and grow physically are now rooted in ideas from complexity theory where the essence of the drivers for growth and change are determined from the bottom up. Top down recipes for planning cities whether it be for purposes of better spatial organisation or increased economic prosperity rarely work unless they are closely coordinated with the actions of those who motivate the growth at the lowest levels. To achieve this, individuals and local agencies need to interact with one another, and it is no accident that cities are more likely to grow if there are multiple communication channels between their basic agents. In short, cities generate an exponentially increasing number of connections between their populations as they get bigger. Their populations P grow proportionately with the numbers of their potential connects P^{α}, where the scaling coefficient α is greater than 1, reflecting economies of scale or agglomeration. However, it is not simply scale that determines growth but also diversity as demonstrated by Glaeser et al. (1992) who show that growth in US cities is a complex function of different industries and services where in the more successful cities (which to an extent are the bigger cities), there is greater diversity of employment types and hence greater potential for interactions between different components.

This is the kind of detail that is rarely considered when growth is planned from the top down. It needs very painstaking interventions at the lowest level to make sure that the right kinds of conditions for growth are put in place and the record for this by central governments is not good. Two or more generations ago, the enterprise zones in British cities failed miserably for their potential success was not just a matter of reducing planning regulations but of putting in infrastructures and particularly housing for skilled workers in places within such zones, but little of this ever happened. The current government's 'levelling up' policy where some 100 such zones are currently being established across the UK is likely to come to the same fate unless the local agencies empowered with getting such growth going are given the right resources to be deployed from the bottom up (HM Government, 2022). In this sense, small begets large, and it is a lesson in terms of economic growth that is hard to learn.

One of the biggest problems facing the postmodern world is in disentangling the riddle of growth. In terms of policies which purportedly aim to increase aggregate economic growth, when these elements of determining the impact of fiscal and monetary policy at finer and finer spatial scales are neglected, what appears to happen is that growth begins to dissipate. Even though it might appear that growth does occur in the macro-economy, it does not show the same degree of change in the local economy, and vice versa: we may experience growth in the local economy which seems to

disappear in the macro-economy. This suggests that we do not have a clear view of how macro-economic growth can be unpacked to produce the conditions for local growth, and the same is true the other way around for the aggregation of local growth into aggregate growth. Better explanations of growth represent a very long term quest, and we need a concerted effort to unravel these complexities. We need to reconcile urban with economic growth and produce a relatively seamless linkage between these different perspectives.

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