

Economic Growth and Smart Cities

There is an assumption that a large part of future economic growth will be due to the application of information and communication technologies to non-traditional areas, such as health care, the delivery of new services, entertainment and of course the idea that by embedding these technologies into the fabric of cities, this will enhance our productivity. But Robert Gordon (2012) asks us to think again. He argues that over the very long term, thinking from the time when the world began its very slow and thence rapid march to modernity, economic growth of the kinds of proportions we have seen in the last 250 years, is probably a blip occasioned by mankind's move from manual work to mental computation, from machines through electricity to information technology. He argues that when one examines and discounts various trends and structural changes that affect the level of productivity, real growth in GDP has hovered around 0.2% per annum certainly since 1300 until about 1750. It only began to take off in the mid 18th century when it rose inexorably through the steam and machine age to the age of electricity and chemistry which peaked for America around 1950 with average GDP growth at around 2%. Since 1960 it has been falling to around 1.2% now. By the end of this century it will have collapsed back to its historical average of about 0.2%, so he argues.

His argument relates to the US of course and he qualifies it accordingly. It may be overly pessimistic but there is a strange logic to many of the more recent innovations in ICT that he argues are not likely to generate intrinsically massive productivity gains. There are of course enormous gains still to be made in health but these will come at the expense of a changing geo-demographics – the end of population growth, massive migration, and aging – and it is likely that there will be some major changes in the way we generate and use energy. But assuming his argument has some truth in it – Paul Krugman and others do give him the time of day – then his portent for a world where we are still embracing ICT in new ways is disturbing. This has enormous importance for the idea of the smart city. Many of us have been making the assumption that the large IT companies such as IBM, Cisco, Intel and so on see the dissemination of computers into the wider environment as an obvious expansion of markets, premised on the fact that there are efficiency gains, perhaps even improvements in the quality of life that could come from such automation. Improvements in energy and transport are very obvious applications. But these benefits are tiny compared to those that appear to have driven growth in the western world in particular and the world in general during the last 200 years. Improvements in sanitation, health in terms of longevity and quality of life, transportation in terms of access and speed, material production, robotic automation of routine tasks – all of these appear to be much greater in terms of their impact than improvements in information associated with transit and energy systems. Admittedly improvements in energy due to better conservation and use will result in improved productivity but one of the key issues is that these are benefits that consumers, not producers will reap. Many of the ideas about the smart city are nothing to do with increases in the profit of those producing the automation but more for the collective benefit of user populations. Indeed, the first ideas about using the internet for disseminating services were largely associated with non-profit public sectors and much of the hype now surrounding the smart city is based on the use of ICT to improve such activities – to make cities more sustainable, greener and so on, issues that are not obvious with respect to improvements in our GDP.

In fact, it is difficult to trace through the impacts of how cities might become smarter using both area-wide and specific ICT, largely because few if any have thought these through. The large ICT companies although fast pedaling their wares into this domain, do not appear to have sensed the market and to an extent this is no different from the traditional role of these companies and the computer industry in general in second-guessing where the productivity gains might lie in their future products. Indeed the predictions of many of those at the top of those companies defy what has happened over the last 30 or 40 years. Ken Olson, the founder and CEO of the Digital Equipment Corporation, one of the inventors of the mini-computer, said in 1977 about the time when Apple first got going, that there was “ ... no reason why a person needed a computer in their home”. These predictions just as those today by the large IT companies that cities will gain massive wealth by applying wide area ICT to transport and energy systems need continued scrutiny. A close analysis of what such innovations have brought and might bring has never been conducted, notwithstanding the difficulties of unraveling such impacts. We need such an analysis if we are to explore and adapt these technologies to cities in the most appropriate ways. We have a duty to be skeptical.

Reference: R. Gordon (2012) Is US Economic Growth Over? Faltering Innovation Confronts the Six Headwinds, <http://www.nber.org/papers/w18315>, NBER, NY. available at <http://faculty-web.at.northwestern.edu/economics/gordon/Is%20US%20Economic%20Growth%20Over.pdf>

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