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HELPDESK REQUEST

What are the features of urbanisation and cities that promote productivity, employment and salaries?

Howard Miller

Nathan Associates

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Abbreviations

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| DFID | Department for International Development |
| IFC | International Finance Corporation |
| ILO | International Labour Organization |
| LIC | Low Income Country |
| NBER | National Bureau of Economic Research |
| SME | Small or Medium Sized Enterprise |

1 Introduction

Standard country growth dynamics suggest that urbanisation and industrialisation are closely linked and that urban populations will swell as a country develops. This follows from a stylized three stage growth model, in which agricultural peasant societies undergo structural transformation into manufacturing and then finally into service economies. However in recent decades the rise of the poor mega-city¹ has provided a significant counter-example to this, particularly in Africa where large cities have developed without industrialisation². This begs the question: if urbanisation isn't linked to economic development through industrialisation pulling in labour from rural areas, how is it linked? What are the features of urbanisation that lead to the gains in productivity, employment and salaries that will have significant and sustainable impact in DFID's priority countries?

This paper provides a short synthesis of the evidence around these questions. Section 2 provides an overview of the methodology and the tools used to assess the strength of the evidence. Sections 3, 4 and 5 discuss the evidence on linkages between urbanisation and productivity, employment and salaries respectively. Section 6 looks at other factors and how there might be limits to the urbanisation-productivity relationship. Section 7 provides some of the author's thoughts on policy implications of the debate and section 8 is a brief conclusion, suggesting avenues for further research. The final section provides a list of references with an indication of the quality of the research.

¹ Glaeser, Edward, 2013. "A World of Cities: The Causes and Consequences of Urbanization in Poorer Countries." NBER Working Paper No. 19745

² Fay, Marianne, and Charlotte Opal. 2000. "Urbanization Without Growth : a Not-So-Uncommon Phenomenon." The World Bank Policy Research Working Paper Series 2412

2 Methodology

This short paper provides a summary of the evidence and a synthesis of the key arguments around how a range of features affect the relationship between urbanisation and productivity, employment and salaries. This was a desk-based review that built on a small sample of papers by following chains of references and internet searches. Given the time constraints, an extensive review of all relevant literature was not possible and emphasis was placed on peer-reviewed academic work. The two primary starting points were the acknowledged experts in the field (such as Vernon Henderson, Gilles Duranton and Edward Glaeser), and the World Bank, which has published widely on the subject³.

In assessing the quality of the available evidence, we used as the basis DFID's "How to Note – Assessing the Strength of the Evidence"⁴. Given the scale and complexity of urbanisation, there is limited room for experimental research designs and there is little evidence available at this level. Most evidence tends to be observational, with researchers using what data is available from external sources to test hypotheses, or reviews (some systemic, some non-systemic). This paper itself is very much a non-systematic review and should be treated as such.

The literature has historically treated urban growth in poor countries as primarily a story of rural-urban migration (rates of natural increase are often actually slightly higher in rural areas⁵). Recent population data from Sub-Saharan Africa casts some doubt on this assumption, with evidence that in many countries urban-rural migration rates have slowed⁶ and natural increase has a greater role to play in urban population growth⁷. The provenance of urban population growth varies from across cities it is important that policy makers understand the dynamics in order to design appropriate urban policy. In the context of this paper, and because most urbanisation models focus on migration, most of the discussion treats urbanisation through the lens of migration. However there is little doubt that the populations of most urban areas in LICs are growing and, regardless of the source of this growth, most features of urbanisation remain consistent.

³ Much of it compiled here <http://www.worldbank.org/en/topic/urbandevelopment>

⁴ Available at <https://www.gov.uk/government/publications/how-to-note-assessing-the-strength-of-evidence>

⁵ Cohen, Barney, 2005, "Urbanization in developing countries: Current trends, future projections, and key challenges for sustainability," *Technology in Society* (2005) 1–18

⁶ UN Habitat, 2014, "The State of African Cities 2014 – Re-imagining sustainable urban transitions"

⁷ Potts, Deborah, 2012, "Whatever Happened to Africa's Rapid Urbanisation?" Africa Research Institute

3 Urbanisation and productivity

There are a number of reasons why areas towards the top of the hierarchy of urban structures, with dense population of people and institutions, should lend themselves to high productivity growth. This is a well-developed literature, based on two fundamental principles of economics: division of labour and economies (and diseconomies) of scale⁸. Division of labour means that productivity gains are made when companies specialise and trade. Further efficiencies are then harnessed when similar companies group together to exploit network effects, knowledge transfer and share infrastructure costs: these are economies of scale. The economics of agglomeration are generally accepted to work through three channels, each explored further below: thick markets, shared infrastructure and other services, and knowledge spillovers (learning effects).

3.1 Thick markets and division of labour

Markets function effectively when demand and supply meet at an efficient clearing rate. Cities provide thick markets with large numbers of buyers and sellers of products, services, property and labour. It is this market thickness that facilitates Ricardian efficiency gains from specialisation and trade. Firstly, when the market is large, companies are incentivised to focus on a small number of products or processes, in the process becoming very good at them. This leads to a large number of specialised products and services, and increased competition (which is good for consumers). When the costs of trade are low (such as in a densely-concentrated urban environment), the risks of failing to trade decrease; if one relationship fails, you can always find another. This reduces the risks of specialisation and encourages the growth of a large market⁹.

This market thickness in well-functioning cities has been shown to be a significant driver of economic growth in developed and developing economies¹⁰. Thick markets allow firms to pick and choose inputs from a wide pool and adapt more easily to market changes. Unlike in subsistence environments where small numbers of low-skilled people can do most of the generalised necessary work, in a city it makes sense to specialise skills, and high-skilled occupations become more productive than the low-skilled activities. In this way, highly trained workers with scarce skills (such as doctors, engineers and scientists) should be able to command higher remuneration than manual workers, further incentivising others to invest in productivity-enhancing education and training.

Entrepreneurs and start-ups particularly benefit from ready access to a concentration of capital, business services and appropriately skilled labour. This in turns makes urban areas excellent breeding grounds for innovation, and homes of the creative destruction that Schumpeter predicted would drive economic progress. Urban areas tend to be very good at supporting the entrepreneurial activity and innovation that can generate jobs and firm growth in more productive areas of the economy¹¹.

⁸ Turok, Ivan, and McGranahan, Gordon, 2012. "Urbanisation and Economic Growth: The Evidence for Africa and Asia" DFID Ti-UP Help Desk

⁹ Spence, Michael, Clarke Annez, Patricia and Buckley, Robert M., 2009, "Urbanization and Growth," World Bank Commission on Growth and Development

¹⁰ Moretti, Enrico, 2013. "Cities and Growth" International Growth Centre Evidence Paper

¹¹ Duranton, Gilles, 2013, "Growing through cities in developing countries" Wharton School, University of Pennsylvania

3.2 Shared infrastructure and service providers

Firms tend to cluster in urban areas not just because of the thickness of markets but also for the opportunity to share service providers and gain economies of scale from shared infrastructure. As Porter stated¹²: a cluster allows each member to benefit *as if* it had greater scale or *as if* it had joined with others without sacrificing its flexibility. Productive cities tend to have a high concentration of support services, from high end legal and accounting services, public services like education and policing, and other services like shipping, repair and logistics.

In addition, well-planned and effective infrastructure is a huge source of scale economies with minimal marginal cost for additional users of roads, utilities and the internet. Infrastructure raises productivity and reduces the costs of private production and is disproportionately pro-poor as it reduces costs to access markets, raises returns on existing assets, can facilitate human capital accumulation and facilitates agglomeration economies and the dissemination of knowledge¹³. In an urban environment, large numbers of firms can share the fixed costs of an infrastructure investment that would be too costly, with insufficient demand, in a smaller settlement. Network effects mean that the value of an investment, for example in telecommunications, electricity transmission or water/sanitation, is increasing in the number of users of the network (up to a congestion point). This can go some way to explain economic clusters such as technology in Bangalore and the Suame metalworking cluster in Kumasi, Ghana.

3.3 Learning from knowledge spillovers

Innovation rarely occurs in isolation and is mostly a cumulative, iterative and interactive process in which existing knowledge is transferred between various innovating institutions¹⁴. While formal knowledge has low friction of distance, particularly with the spread of internet access, tacit knowledge can only be transferred through personal, regular and often informal contact, and so has a highly spatial character. This means that urban centres, with their dense and often disproportionately-educated populations, are excellent catalysts for knowledge transfer. In the USA, since 1980 the economic success of a city has been increasingly defined by its number of high-skilled workers¹⁵.

Productivity-enhancing knowledge transfer takes place not just through formal institutions such as universities, research centres, business organisations and the media, but through the informal networks that proliferate in urban areas through regular and repeated business and personal interaction. Evidence from the USA¹⁶ finds that productivity of low-skilled workers increases with the overall level of human capital, proxied by the proportion of college graduates in the city. Businesses benefit from the cross-pollination of ideas that comes from flexible job markets and this in turn drives competition.

¹² Porter, Michael E., 1998, "Clusters and the New Economics of Competition," Harvard Business Review November-December 1998

¹³ Henckel, T. and McKibbin, W., 2010, "The Economics of Infrastructure in a Globalized World: Issues, Lessons and Future Challenges" Brookings Institute

¹⁴ Coenen, L., Moodysson, J., Asheim, B.T., Jonsson, O., 2003, "The Role of Proximities for Knowledge Dynamics in a Cross-Border Region: Biotechnology in Oresund" Department of Social and Economic Geography at Lund University, Sweden

¹⁵ Moretti, Enrico, 2013, "Where the Good Jobs are – and Why" Wall Street Journal, Sept 17, 2013

¹⁶ Moretti, Enrico, 2004, "Workers' Education, Spillovers, and Productivity: Evidence from Plant-Level Production Functions" American Economic Review, 94(3): 656-690

4 Urbanisation and employment

4.1 Sources of growth

There is a direct link between the standard growth trajectory of a country and off-farm job creation. As an agricultural economy graduates to mechanisation, manufacturing and industry, provided that the manufacturing is a sufficiently large source of demand and the jobs are sufficiently low-entry for rural migrants to access them, large-scale job creation follows. A very simple version of this is formalised in Lewis's dual-sector model¹⁷ which describes the transition of labour from the subsistence to the capitalist sector. In this, a large rural population is engaged in low productivity agricultural work and with a limited quantity of land to cultivate, the marginal product of an additional farmer is zero. As soon as urban industry gets off the ground, it sucks in workers from the countryside but for a long transition period, manufacturing wages and agricultural wages are equalised as the large agricultural population keeps urban wages flat (factories can always find more workers). In the final stage, as the supply of rural workers begins to run short, wages start to rise, agriculture begins to mechanise and urbanisation slows down.

There is good evidence that there is a positive relationship between firm productivity or employment and urban density, and that, until diseconomies of scale and congestion dominate it, the strength of this relationship is increasing with the size of the urban area¹⁸. It has been estimated that doubling the size of a city increases productivity by an amount that ranges from 3-8%¹⁹. However there is much debate as to whether these productivity gains are due to localisation economies (those that work within firms and industries in the same economic sector and tend to be more effective in specialised and smaller cities) or urbanisation economies (the cross-sector agglomeration economies that are more prevalent in larger, more diverse cities)²⁰.

Evidence from the USA²¹ suggests a positive link between agglomeration and productivity through the effect of competition on level of effort. Professionals were found to work harder in areas where the density of other workers in the same occupation was high, and young professionals were particularly sensitive to this effect. Possible explanations include self-selection of hard workers to cities, higher productivity of agglomerated labour or an "urban rat race" in which workers use long hours to signal for ability.

There is also some emerging evidence that this link only holds when urbanisation and growth are driven by industrialisation, not by resource-led growth. The argument goes that positive examples of urbanisation on economic outcomes tend to be driven by industrial sectors that are open to trade. Where urbanisation results from the income effect of natural resource endowments rather than structural change in the economy,

¹⁷ Lewis, W. Arthur, 1954, "Economic Development with Unlimited Supply of Labour" The Manchester School, Volume 22, Issue 2, pages 139-191

¹⁸ Puga, Diego. 2010, "The magnitude and causes of agglomeration economies." Journal of Regional Science 50(1):203-219.

¹⁹ Rosenthal, S.S. and Strange, W.C., 2002, "Evidence on the Nature and Sources of Agglomeration Economies" Prepared for the Handbook of Urban And Regional Economics, Volume 4

²⁰ For a good summary of the evidence on this see page 12-13 of Rosenthal, S.S. and Strange, W.C., 2002, "Evidence on the Nature and Sources of Agglomeration Economies" Prepared for the Handbook of Urban And Regional Economics, Volume 4

²¹ Rosenthal, S.S. and Strange, W.C., 2003, "The Urban Rat Race," Syracuse University Working Paper

resource rents are spent disproportionately on consumption rather than investment and demand for labour is focussed in non-tradable services²².

Where a city has been formed not by the presence of agglomeration economies but as a result of resource rents, the urban structure and the relationship between urbanisation and employment can be much weaker. However it is also possible to follow resource-led growth followed by diversification and industrialisation for more sustainable development, for example in Malaysia, Chile and (to a lesser extent) South Africa²³. In each case, positive government policy and trade openness are key.

Different urban structures also link to productivity and employment in different ways based on the degree of specialisation of a city²⁴. Smaller, highly specialised cities that tend to focus on one or two sectors, usually around manufacturing, heavy industry or technology, can be particularly useful to harness the benefits of industrial agglomeration and localisation within the narrow bounds of a specific industry. Such cities tend to be very good at creating jobs but less good at innovating, and are also highly exposed to the fortunes of an industry (for example Detroit). Other more diversified cities, that tend to be larger, have developed without an anchor industry, tend to be more dynamic, more effective at facilitating innovation and better-prepared to sustain productivity and employment growth in the long term.

4.2 Informal networks and employment

Informal networks and social capital also have a role to play in linking urbanisation to employment, and in the structure of that employment. Information about higher wages and quality of life relative to rural areas travels through existing social networks to attract more people to cities, increasing the supply of labour. Assuming that most workers migrate to urban areas in search of jobs rather than to take up already arranged ones, and that first generation migrants tend to group with family, friends and similar groups, these connections are crucial for linking up the supply and demand for jobs. The strength of these social networks are a function of the network's structure, the strength of ties and the resources embedded in the network²⁵. Informal jobs, like low end manufacturing and rickshaw driving, are typical entry points to the job market for newly-urbanised migrants and informal networks are vital for filling these roles.

Entrepreneurship also has been seen to thrive in the informal sector and informal networks can provide the customer base for young firms to grow²⁶. There is some evidence that agglomeration effects are greater in the informal than in the formal sector, because entrepreneurs tend to work better with other small entrepreneurs than with large, vertically integrated suppliers. Evidence from India suggests that this is informality might be linked to higher employment growth in urban areas because the majority of new enterprises that locate in cities are in informal sectors²⁷.

Positive linkages between formal and informal sectors (coagglomeration) are also important as the interaction of the two provides greater opportunity for job creation and

²² Gollin, Douglas, Jedwab, Remi, and Vollrath, Dietrich, 2013, "Urbanization with and without Industrialization"

²³ *ibid*

²⁴ Duranton, Gilles, and Puga, Diego, 1999, "Diversity and Specialisation in Cities: Why, Where and When Does it Matter?" Research Papers in Environmental and Spatial Analysis No. 56 (Department of Geography & Environment, London School of Economics)

²⁵ Nordman, Christophe J. and Pasquier-Doumer, Laure, 2013, "Transitions in a West African Labour Market: The Role of Social Networks" Université Paris-Dauphine

²⁶ Ghani, Ejaz, and Kanbur, Ravi, 2013, "Urbanization and (In)Formalization" World Bank Poverty and Economic Management Network, Economic Policy and Debt Department

²⁷ *ibid*

market efficiency²⁸. This is particularly true in India, where formal firms tend to cluster with informal firms not just to form vertical linkages but also to maximise technical and knowledge spillovers from the formal to informal sector. One study found that informal-formal coagglomeration is explained by buyer-supplier linkages between formal and informal firms in the same industry (as well as technological and knowledge spillovers), and that this coagglomeration has a positive effect on the birth rate of formal SMEs (and hence job creation)²⁹. However, the same study found that coagglomeration had little impact on intra- or inter-industry clustering and in fact the linkages may not all be positive – there may be antagonism between formal and informal sectors. In Africa, the evidence on this is less strong and given that almost half of job growth in Sub-Saharan Africa is projected to be generated in the informal sector³⁰, a greater understanding of informality, how it links to job creation and the links between formal and informal sectors.

4.3 Urban planning and infrastructure

Physical networks also matter for employment, and the internal structure of a city can significantly affect its ability to generate employment. Geographical distribution can provide a significant barrier between workers and jobs. For example in a city where economic activity is concentrated in the centre and where city centre rents are very high, poor workers can face significant transport costs just getting to and from work. Building infrastructure like roads and mass transport systems can help but only when properly planned, coordinated and financed (in that order)³¹. In South Africa, the government built two million subsidised homes for workers in an area badly connected to job markets (but with lower land values, and thus cheaper), with no effective plan to link them. The result is mass commuting in slow, inefficient taxis and significant efficiency loss³².

Infrastructure investment is such a key priority in most developing cities that the link between the investment itself and job creation can be significant. However, the capital intensiveness and long term nature of infrastructure investments can mean limited potential for short term employment. The World Bank estimates that for every billion dollars invested in infrastructure projects that combine sectors, annualised direct and indirect short term job creation could be between 4,000 and 50,000³³. Longer term employment comes from the services required to maintain infrastructure networks and the indirect impact of the infrastructure on costs and productivity.

²⁸ Mukim, Megha, 2013, "Coagglomeration of Formal and Informal Industry, Evidence from India" World Bank Finance, Economics and Urban Development Department

²⁹ *ibid*

³⁰ Fox, L., Haines, C., Muñoz, J.H., and Thomas, A., 2013, "Africa's Got Work to Do: Employment Prospects in the New Century" IMF Working Paper

³¹ World Bank, 2013, "Planning, Connecting and Financing Cities – Now. Priorities for City Leaders"

³² *ibid*

³³ World Bank, 2014, "Strong, Sustainable and Balanced Growth: Enhancing the Impact of Infrastructure Investment on Growth and Employment" Background note for the G20 prepared by Staff of the World Bank Group

5 Urbanisation and salaries

The evidence on how urbanisation interacts with and promotes higher salaries in developing countries is relatively weak, though there is well-established theory on the subject and some evidence from advanced economies and particularly the USA.

At a very simple level, large-scale rural-urban migration is driven by the opportunity to earn more money in manufacturing and other industries. In Lewis's model, rural and urban incomes are equalised until the supply of rural immigrants dwindles, at which point urban salaries rise. The fact that people would migrate from rural to urban areas even with equalised wages is explained in the Harris-Todaro model, which suggests that it is not just the differential in wages that incentivises rural workers to migrate to urban areas, rather it is the longer term expected income differential. This means that migrants would be willing to accommodate a spell of unemployment or underproductive employment in the informal sector if the long run expected wage, given rural and urban wage rates and the probability of finding employment, was higher in the urban area than the marginal product of an agricultural worker. This model can explain the scale of informal urban economies and how unemployment can be explained even among economically rational agents.

There is some evidence that workers earn higher wages in large cities, with an urban wage premium of 33%³⁴. A significant proportion of this was found to accrue to workers over time implying that the dominant force in increased urban salaries is agglomeration economies and knowledge spillovers, rather than selection effects (more capable people moving to urban areas). Other research backs this up, suggesting that wage rates in urban areas increase over time because agglomeration economies have a dynamic component³⁵, however the nature of these spillovers has not been fully explored.

Evidence from the USA³⁶ suggests that salaries increase with the density of employment in a worker's occupation, and that this effect is substantially larger for professional workers, implying that the productivity-enhancing agglomeration effects outweigh any competitive pressure (that would pull wages down). Where competition is very high, such as for young professionals, the signalling effect that results from rivalrous behaviour (discussed in section 4.1) leads to decreasing productivity and reduced wages. In addition, the benefits of higher wages in urban areas can be eroded by higher costs of living³⁷. If a graduate moves to a city like San Francisco because of a perceived increased demand for graduates, rather than because they want to live in San Francisco, the increase in their real wage and overall utility will be smaller than the increase in nominal wage. This implies that the difference in well-being between skilled and unskilled workers may be smaller than expected.

³⁴ Glaeser, E.L., and D. C. Mare, 2001, "Cities and Skills" *Journal of Labor Economics*, Vol. 19, No. 2, 2001

³⁵ Henderson, J.V., 1997, "Externalities and Industrial Development," *Journal of Urban Economics*

³⁶ Rosenthal, S.S. and Strange, W.C., 2003, "The Urban Rat Race," Syracuse University Working Paper

³⁷ Moretti, E., 2011, "Real Wage Inequality," *American Economic Journal: Applied Economics*, 5 (1), 2013

6 Other variables

6.1 Government policy

The development experience of countries and their urban areas around the world (and the lack of advanced rural societies) suggests that while not sufficient in itself for economic growth, urbanisation is a necessary condition to achieve development beyond a modest level of income. In some cases, such as South Korea, urbanisation has been a cornerstone of a sustained and rapid economic transformation. The nature of urbanisation can vary significantly however and governments can heavily influence the structure of city growth and how it impacts on productivity. For many middle income countries, such as those in Latin America and Southeast Asia, that went through rapid urbanisation from approximately 1920 to 1970, a few mega-cities have traditionally dominated the productivity growth that have driven economic growth. It is common in developing countries for one very large city to dominate economic output (see section 6.3 below). The growth of these cities, such as Mexico City and Bangkok, has often been driven by government policies which heavily favour a national capital³⁸.

Government policy can be important not just in directing the trends in urbanisation but also in shaping its form. The development of new capital cities at Brasilia and Abuja are obvious examples of the power of national governments in driving radical urban reforms. Conversely, the presence of broad and unplanned urban sprawl is a symptom of a lack of central urban planning. Cities often have their own government arrangements (city councils and mayors with varying degrees of power), which may conflict with national or state-level politics. Market failures are rife in urban areas, both in terms of positive externalities (e.g. returns to agglomeration) and negative (e.g. congestion) and therefore the ability of governments to coordinate and manage these will influence the social and economic impacts of urbanisation³⁹. In particular, the role of infrastructure investment, public services and regulation are key to shaping urbanisation.

6.2 Diseconomies of scale

Since the 1970s, growth rates in cities like Rio de Janeiro and Mexico City have been slower than the national averages⁴⁰. The fact that even large, rapid population-growth cities tend to eventually slow down suggests that there may be an optimum city size (that is a function of a number of variables including country size, level of development, geography, quality of government and quality of institutions) and a maximum city size beyond which further urbanisation may lead to decreases in economic output.

The reason for this seems to be linked to the quality of life that can be sustained in such massive metropolises. When urbanisation is more rapid than housing construction, the output tends to be large, densely populated slums, increased crime and a large informal economy (with few linkages to the formal economy) that can entrench poverty⁴¹. Similarly, if population growth is greater than the capacity growth of transport networks then gridlock will hamper productivity growth. The anonymity that comes with being one of millions in a city can minimise the value of the social contract and lead to institutional failure⁴². Cities (and even relatively small urban areas) demand a type of governance

³⁸ Henderson, Vernon, 2003, "The Urbanization Process and Economic Growth: The So-What Question" *Journal of Economic Growth*, Vol. 8, No. 1

³⁹ Moretti, Enrico, 2013. "Cities and Growth" International Growth Centre Evidence Paper

⁴⁰ Cadena, Andres, Remes, Jaana, and Resrepo, Alejandra, 2011, "Fulfilling the promise of Latin America's cities" McKinsey Insights

⁴¹ Moretti, Enrico, 2013. "Cities and Growth" International Growth Centre Evidence Paper

⁴² Glaeser, Edward, 2013. "A World of Cities: The Causes and Consequences of Urbanization in Poorer Countries." NBER Working Paper No. 19745

that is much more challenging than in rural areas. It requires strong management skills, with the challenge to maximise economies of scale at minimal cost. Investment decisions and infrastructure projects are typically very large scale with long planning horizons, and diversity of population brings with it a wide range of vested interests. These difficulties are exacerbated when urban sprawl absorbs other towns leading to coordination problems between municipal (often mayors), regional and national governments⁴³. It has indeed been argued that in theory, there is no limit set by technology or infrastructure on how big or how fast cities can grow, but only if government and business leaders are capable of managing the increased complexity that comes with scale⁴⁴

With weak institutions and poor governance, draconian policies can be the only way to curb negative externalities leading to a difficult trade-off between dictatorship and disorder⁴⁵. There is some evidence to suggest that very high per capita infrastructure and housing investment costs in mega-cities in developing countries crowds out investment in productive and innovative sectors⁴⁶. It may also be the case that the competitive forces that grow with the size of a city bring down the profitability of firms and hence the funds available for investment.

Given these diseconomies of scale, an obvious question to ask is whether there is an optimum size of a city at which agglomeration gains are maximised but before diseconomies of scale manifest. This has not been much-studied, in part due to data constraints, however some evidence from China suggests that an inverse-U shape of real income per worker against city employment does exist⁴⁷. Urban agglomeration effects are high but level out and then decline very slowly past a peak. The authors find that in China, the vast majority of cities are undersized by this analysis.

6.3 The growth of the secondary city

These diseconomies of scale have in recent decades have driven a trend toward middleweight or second tier cities, which offer an alternative model of urbanisation (as discussed in section 4.1). As the size of the largest cities is capped by diseconomies of scale and the increasing complexities of urban management, there is evidence from Latin America and Asia to show that productivity growth may be greater in smaller, secondary cities (roughly defined as those with populations between 1 million and 10 million). Such cities often have a specific industrial focus which draws in a focussed tool of talent and investment. These cities can remain centres of innovation and creativity within a specific field without suffering the same levels of congestion and crime. They can also be more affordable and manageable than mega-cities as destinations for new migrants from rural areas.

Zipf's law is a curiosity of urban research that suggests that the size of a city's population decreases in proportion to the city's size rank in a country⁴⁸ (so relative to the largest city, the second largest is half as big, the third largest is a third as big etc.). This has been shown to hold well across very different economic structures (e.g. mid-nineteenth century China, early-twentieth century India and the USA today)

⁴³ Dobbs, R. and Remes, J., "What's the biggest limit on city growth? (Hint: it's not steel or cement)" McKinsey Global Institute

⁴⁴ *ibid*

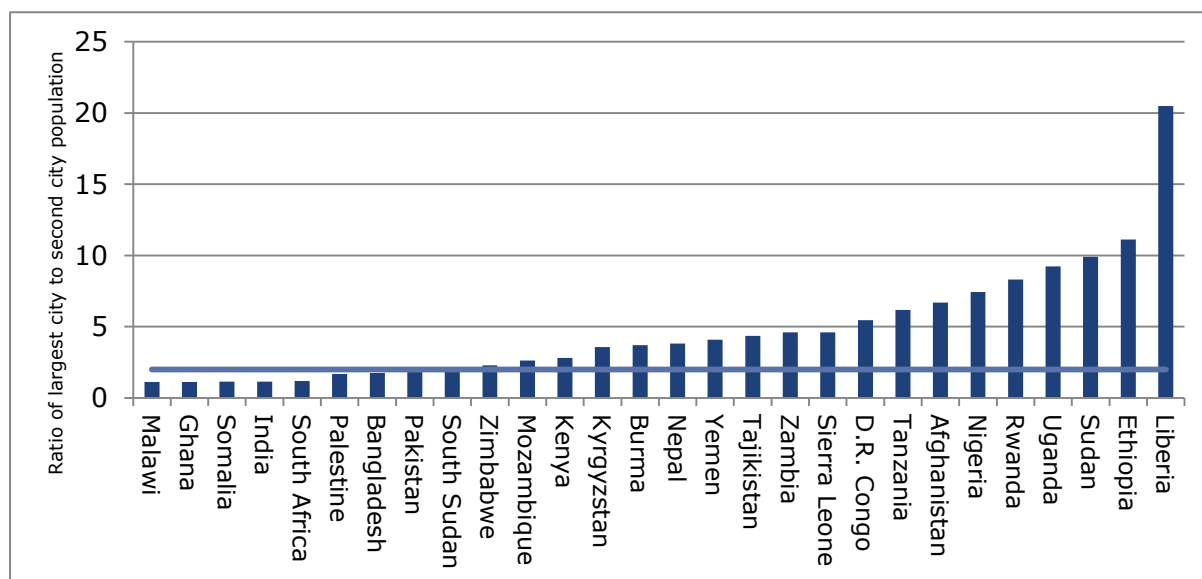
⁴⁵ Glaeser, Edward, 2013. "A World of Cities: The Causes and Consequences of Urbanization in Poorer Countries." NBER Working Paper No. 19745

⁴⁶ Richardson, H, 1987. "The Costs of Urbanization: A Four-Country Comparison," *Economic Development and Cultural Change* 33, 561-580.

⁴⁷ Au, C-C., and Henderson, J.V., 2005, "Are Chinese Cities Too Small?" *Review of Economic Studies* (2006) 73 (3): 549-576

⁴⁸ Gabaix, X, 1999, "Zipf's Law for Cities: An Explanation," *The Quarterly Journal of Economics* (1999) 114 (3): 739-767

Despite the presence of many smaller, specialised cities in the developing world, there is less evidence of migration of people and industries from the largest cities (as has been the developed country experience). Though Korea was successful at transitioning away from a concentration of resources in Seoul to a system of differentiated cities⁴⁹, and there is some evidence on peri-urbanisation of industry in India, in most of Africa and Asia there is little evidence of relocation of industries away from largest cities, leading to increased overcrowding and congestion in these (usually capital) cities⁵⁰. This is demonstrated by the disproportionately large role of largest cities in many poor countries – the graph below shows the relative size of the largest to the second largest city in DFID priority countries (following Zipf’s law, this would be approximately two but for this sample the mean is 4.8 and in some cases is far higher).



⁴⁹ World Bank. 2013. "Urbanization beyond Municipal Boundaries: Nurturing Metropolitan Economies and Connecting Peri-Urban Areas in India" Directions in Development. Washington, DC: World Bank. doi:10.1596/978-0-8213-9840-1. License: Creative Commons Attribution CC BY 3.0

⁵⁰ Henderson, V., Todd, L., and Yung, J.L., 2001, "Scale externalities in Korea" Journal of Urban Economics

7 Policy recommendations⁵¹

Cities work best at creating sustainable jobs and increasing productivity when the private sector is allowed to innovate, respond to market demand and maximise the benefits associated with thick markets. The role of government in this context is to provide the enabling environment, necessary bureaucracy (such as effective labour laws) and social security for businesses to flourish and for large numbers of people to live. Much of this role in a growing city is management of growth and correcting market failures, such as underinvestment in long term projects. For this to be effective, and given the role that major cities often play in poor countries, it is important that there is coordination between national, regional and local governments.

Given the role of government in providing (or at least coordinating) the development of infrastructure networks such as roads, railways and communications, there may be a direct way for governments to promote job creation. Though infrastructure projects tend to be very capital-intensive, governments could promote more labour-intensive infrastructure. For example, the ILO has argued that promoting labour intensive road construction will generate twice the number of jobs compared to capital intensive road construction and irrigation⁵².

The evidence on agglomeration economies and the advantages of positive spillovers within thick markets suggest that the role of government should be to as far as possible facilitate these transfers of knowledge and skills. Explicit policies encouraging clustering of horizontally- or vertically-integrated businesses are commonplace in many countries, for example by designating areas of land for certain industries or using the fiscal system to adjust market incentives. It is important that the enabling environment is supported not just for growth businesses but also for the support services that allow them to operate efficiently and effectively.

The role of government is particularly important when cities grow around resource rents that cannot be sustained in the long term. Cities formed by localisation economies are often exposed to single-industry risk and this is particularly acute when the industry necessarily has a limited lifespan. In this case, government policy can promote economic openness, diversification and direct investment into other, more sustainable industries and longer term productivity enhancements such as education systems.

⁵¹ These recommendations are based on the opinions of the author, not necessarily other referenced sources or DFID

⁵² IFC, 2013, "Poverty Literature Review Summary: Infrastructure and Poverty Reduction"

8 Conclusion

There is some good evidence that there is a positive relationship between urbanisation and income/productivity levels and that this relationship is a function of the ability of cities to share fixed costs, efficiently match supply and demand of specialised goods, services and workers, and to spread and use knowledge. Different city structures can in part be explained by the relative forces of urbanisation, industrialisation and localisation. Cities, under the right conditions, can generate large-scale, productive employment – which can be a driver for growth and development for the city and the country beyond.

However, urbanisation is a necessary but not a sufficient condition for urbanisation and growth in productivity, job creation and rising wages and there is no clear mechanistic link. The independent variables that are at the core of the relationship between urbanisation and development indicators are not clearly established, and while there is a clear array of theoretical candidates the empirical evidence available is unclear as to what are the dominant forces. A particularly interesting area for further research is the poor mega-city – how cities like Kinshasa fit into the urbanisation-development nexus and what this means for the future of poor countries.

9 Evidence Summary Table

| Reference | Authors | Region/ Country/ City | Method | Quality (H/M/L); | Variables | Key Findings |
|--|--|--|---|---------------------|--|---|
| Business Environment, Economic Agglomeration and Job Creation around The World | George Clarke, Yue Li, Lixin Colin Xu (World Bank) | World | Primary observational; Secondary worldwide firm survey | H | Business environment, economic agglomeration, job creation | Economic agglomeration is most important for job creation, especially modern telecommunications, access to export markets, concentration of economic activity in large cities, and capacity agglomeration |
| Growing through cities in developing countries | Gilles Duranton (World Bank) | Developing countries | Secondary systematic review | H | Productivity, jobs, wages, innovation, entrepreneurship, urban systems | Cities in developing countries bring benefits to workers. Differentiation between larger and smaller cities is key for an urban system to work effectively |
| Diversity and Specialisation in Cities: Why, Where and When Does it Matter? | Gilles Duranton, Diego Puga | USA | Theoretical and primary observational | H | Productivity, efficiency, urban structure, specialisation, innovation | Urban structures vary significantly between specialised cities and larger diversified cities and each provide different policy challenges |
| Urbanization and (In)Formalization | Ejaz Ghani, Ravi Kanbur (World Bank) | Developing countries (focus on India) | Primary observational; Secondary systemic review | H | Agglomeration, formalisation, job creation | Informal sectors are large and persistent and increasingly displacing formal firms from cities. Cities generate agglomeration economies in the informal sector |
| A World of Cities: The Causes and Consequences of Urbanization in Poorer Countries | Edward Glaeser | Developing countries, specifically mega-cities | Theoretical and primary observational | H | Openness, agricultural development, governance, institutional quality | Poverty and weak governance reduce the ability to address the negative externalities that come with density. This can lead to a painful trade-off between dictatorship and disorder |
| Cities and Skills | Edward Glaeser and David C. Maré | USA | Theoretical and primary observational | M | Urbanisation, wages, productivity, knowledge spillovers | Workers in cities earn 33% more than non-urban counterparts and most of this is explained by agglomeration economies and knowledge spillovers, rather than selection |

What are the features of urbanisation and cities that promote productivity, employment and salaries?

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|--|--|----------------------|---------------------------------------|---|---|---|
| | | | | | | effects, implying the cities speed the accumulation of human capital |
| Urbanization with and without Industrialization | Douglas Gollin, Rémi Jedwab, Dietrich Vollrath | Developing countries | Theoretical and primary observational | H | Industrialisation, openness, resource endowment, employment | Resource-rich countries have experienced urbanisation without industrialisation. Urbanisation, per se, is not necessarily conducive to long-run growth and development. |
| The Urbanization Process and Economic Growth: The So-What Question | Vernon Henderson | World | Theoretical and primary observational | H | Urban concentration, productivity, | Productivity growth is not strongly affected by urbanisation per se. There is an optimal degree of urban concentration, in terms of maximizing productivity growth and many countries are now fully urbanised |
| Are Chinese Cities Too Small? | Chun-Chung Au and Vernon Henderson | China | Theoretical and primary observational | H | Agglomeration, employment, wages, optimal city size | Urban agglomeration benefits are high, level out towards a peak city size then decline very slowly |
| Coagglomeration of Formal and Informal Industry | Megha Mukim (World Bank) | India | Primary observational quantitative | H | Coagglomeration, formal/informal linkages, firm birth | Buyer-supplier and technology linkages explain much of formal-informal coagglomeration. Within-industry coagglomeration matters mostly for the birth of new SMEs |
| Evidence on the Nature and Sources of Agglomeration Economies | Stuart S. Rosenthal and William C. Strange | Mostly USA | Secondary systemic review | M | Agglomeration | There is good evidence for all the classic agglomeration economies as well as natural advantage, home market effects, consumption opportunities, and rent-seeking |
| The Urban Rate Race | Stuart S. Rosenthal and William C. Strange | USA | Theoretical and primary observational | H | Agglomeration, hours worked, productivity | Professionals work longer hours when the density of other workers in the same occupation is high due in part to intense rivalry within thick markets |
| Real Wage Inequality | Enrico Moretti | USA | Theoretical and primary observational | M | Wage differentials, urbanisation, utility | Higher living costs in cities mean the utility gains from higher urban salaries are lower than previously thought |

What are the features of urbanisation and cities that promote productivity, employment and salaries?

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|--|---|----------------------|--|---|--|---|
| Cities and Growth | Enrico Moretti (International Growth Centre) | Developing countries | Secondary systemic review | M | Agglomeration, productivity, salaries | Agglomeration effects are key for productivity growth. Market failures are rife in modern cities and urbanisation requires heavy public investment. |
| Urbanisation and Economic Growth: The Evidence for Africa and Asia | Ivan Turok and Gordon McGranahan | Africa and Asia | Secondary non-systemic review | M | Agglomeration, productivity, economic growth | There is contradictory evidence about the link between urbanisation and economic growth in Africa. In Asia, localisation economies (from clustering) seem to be more important than urbanisation economies |
| Urbanization and the Employment Opportunities of Youth in Developing Countries | Ursula Grant (UNESCO) | Developing countries | Secondary non-systemic review | M | Youth job creation, education, skills | The low level of formal education achievement among poor urban youth is a major constraint to remunerative urban opportunities |
| Urbanization without Growth: A not so uncommon Phenomenon | Marianne Fay and Charlotte Opal (World Bank) | Africa | Primary observational; Secondary non-systemic review | M | Economic growth, incomes, quality of life | Urbanisation levels are closely correlated with levels of income, but changes in income do not explain changes in urbanisation. Urbanisation can continue through its own momentum |
| Planning, Connecting and Financing Cities - Now | World Bank | Developing countries | Secondary systemic review | M | Investment, spatial distribution, policy | For cities to be run effectively, they require good governance and should implement a framework of planning, connecting and financing – in that order |
| Fulfilling the promise of Latin America's cities | Andres Cadena, Jaana Remes, and Alejandra Restrepo (McKinsey) | Latin America | Primary observational; Secondary non-systemic review | L | Productivity, quality of life, job creation | Latin America is not harnessing the economic potential of its cities. The cities are not generating enough high-productivity jobs and thus have raised informal economic activity to damagingly high levels. This creates significant policy challenges |

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