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# Urban Economics for the Developing World: An Introduction

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## I. Introduction

From the dawn of humanity to 1950, the world's urban population grew by less than 750 million people. According to the U.N., the world's urban population will increase by more than 750 million between 2010 and 2020. In 1899, Adna Weber wrote that "the most remarkable phenomenon of the present century is the concentration of people in cities." This claim seems even more applicable to the 21<sup>st</sup> century than for the 19<sup>th</sup> century.

Yet 21<sup>st</sup> century urbanization is different, most obviously because of the accelerated growth of cities in the world's poorer areas. Between 2000 and 2020, the United Nations projects a total increase in urban population of 1.48 billion, and of that 1.35 billion will come from "less developed regions." In 1950, Europe and the U.S. together accounted for 51.4% per of the world's urban population. By 2010, Europe and the U.S. account for 22% of the world's urban population.

Yet the pages of this journal, which reflect the interests of the wider community of urban economists, have been overwhelmingly dedicated to the cities of Europe and especially the United States for more than 40 years. In a sense, the geographic focus of urban economics has been profoundly backward-looking focusing on the cities that were dominant at the end of World War II, rather than the cities the will come to dominate the 21<sup>st</sup> century. We do not mean to minimize the contributions of early authors who focused on urban issues in developing countries like Harris

and Todaro (1970), Malpezzi (1998) or many others.<sup>1</sup> But no one can deny the overwhelming orientation of our field towards western cities.

The focus of urban economists on wealthy world cities has created a knowledge gap. We know a great deal about rich urban areas but far too little about poor urban areas, where the policy problems can be far more severe. We do not want this journal to publish papers that are targeted only at the one-fifth of the world's urbanites who live in Europe and the U.S. This special issue on cities in the developing world signals a commitment of this journal to publish research on urban issues worldwide. We note with pleasure that we were able to assemble 13 very high quality papers on "Urbanization in Developing Countries: Past and Present." We emphasize that all of the papers were refereed and went through the same evaluation process as other papers appearing in the journal.

## II. What's Different about Developing World Cities?

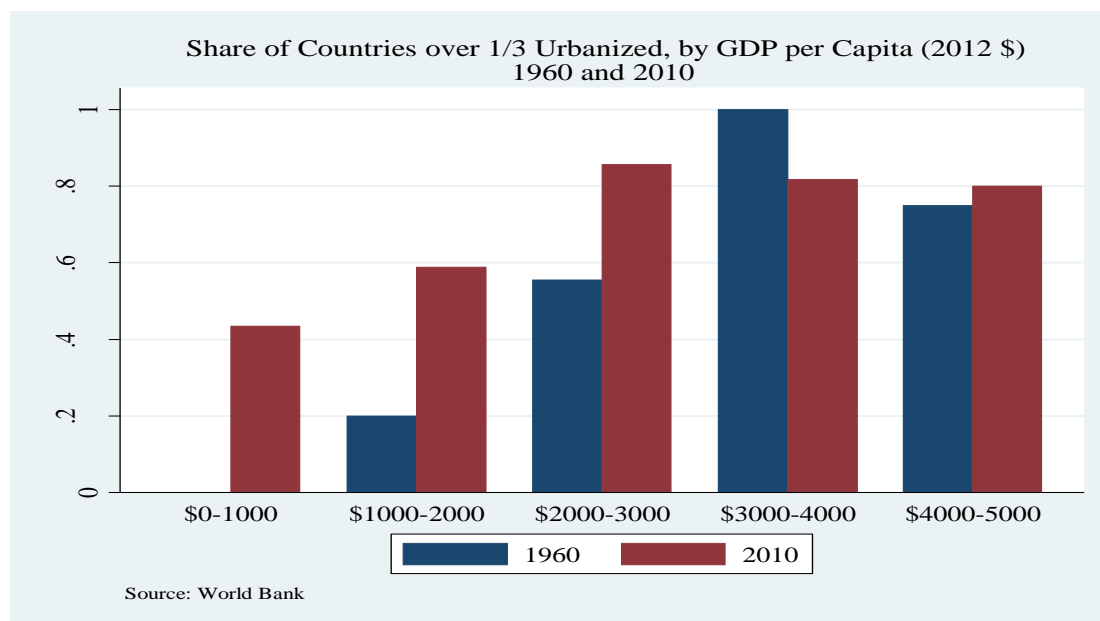
The need for developing world urban economics is significantly reduced if we believe that models and facts established in the developed world also hold in poorer places, and in many cases, we think that is likely to be true. For example, the Alonso-Muth-Mills model seems no less relevant in a mono-centric Latin American city than in a mono-centric North American city and the Fujita-Ogawa (1982) model of multi-centered cities and dispersed work places may have special relevance in certain developing country cities with transport infrastructure. And for national economies, transportation-cost based models of urban agglomeration (e.g. Krugman, 1991) seem more relevant in sub-Saharan Africa than in the U.S., because transportation costs are so much higher.

Yet there are many reasons to believe that the new urbanization is different from the old urbanization, primarily because of the related problems of extreme poverty and poor governance. Figure 1 illustrates how different 21<sup>st</sup> century urbanization is from urbanization in the past.

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<sup>1</sup> <http://www.sciencedirect.com/science/article/pii/S0166046298000210>.

Glaeser also wishes to emphasize that his co-author was a particularly early advocate and practitioner of urban economics in the developing world (e.g. Henderson, 1988).



Each bar captures the share of countries that is more than one-third urbanized within each income bracket, where incomes have been corrected for inflation. The one-third mark was chosen as a rough indicator of whether the nation has moved significantly down the urbanization path. The wealthier countries in this group have shown little change over this time period. For example, approximately 80 percent of countries with per capita incomes between four and five thousand dollars were more than one-third urban both in 1960 and 2010. The large gap occurs in countries with per capita incomes that are less than \$2,000. One-fifth of countries with incomes between one and two thousand dollars were more than one third urbanized in 1960 but more than one-half are significantly urbanized today. Today, more than 40 percent of countries with per capita incomes below \$1,000 are one-third urbanized. In 1960, no country that poor was significantly urban. Indeed, throughout all of history, poor countries were predominantly rural. Today, great metropolises, like Kinshasa or Nairobi, have grown up in places of desperate poverty.

Moreover, the few historic mega-cities of their time that existed in nations with low per capita incomes were all capitals of large empires, such as Rome, Abbasid Baghdad, and Kaifeng. These cities may not have been rich by modern standards, but they were the seats of great empires precisely because their governments were the most effective of their era. Consequently, Julius Caesar could address traffic congestion by banning wheeled vehicles from Rome during daylight hours and Cato the Elder could effectively protect the public water supply. One can visit a more typical city of the Roman Empire at its height, Pompeii, and see the imposed regularity of city layout, infrastructure provision, and traffic flows. It is hard to

imagine Kinshasa's rulers being so effective today, and they also have to deal with much larger populations.

The great challenge of 21<sup>st</sup> century poor mega-cities is that they must fulfill the requirements of connectivity in production for businesses and address the negative externalities for consumers of density with extremely limited financial resources and public capacity. Cities may be dense but employment can be dispersed with insufficient clustering. Congestion can be so extreme with no public transport, that walking is the dominant mode of consumer trips, over 70% in Dar Es Salaam for example (IAPT, 2010). While this may in part reflect the problem of urbanization under such limited financial resources, there are other problems. Corruption is endemic. In some countries, both in Africa and in Latin America, the state does not enjoy a monopoly on violence. And urban institutions are weak: property rights are often unclear and poorly established. In the key slums in Nairobi, the majority of housing is controlled by landlords who have no legal claim to the land but are major political figures. Not only do they earn high economic rents, but they block redevelopment and formalization of the land to which they have no legitimate claim (Henderson et al, 2016).

Yet amidst these challenges, key leaders in certain developing world mega-cities are trying to address congestion, contagious disease, crime and high housing costs. In many cases, the experience of the modern west may be irrelevant and even misleading for them. Some experts argue that exporting western institutions to the poorer world has caused great harm. For example, Bold, Collier and Zeitlin (2009) argue that embracing the post-war European model of direct state provision of services was a mistake in sub-Saharan Africa. Brueckner (2014) reminds us that extremely large minimum lot sizes in sub-Saharan Africa are often "an overhang of colonial planning" and the 1947 British Town and Country Planning act, despite "the fact that African per capita incomes are less than five percent of British incomes." Over 90% of dwelling units in Dar Es Salaam fall below the minimum footprint regulation. While that might suggest that sometimes bad regulation simply doesn't matter, that is incorrect. Such regulations place these buildings in an illegal or quasi-legal status; and, in different developing country contexts, this inhibits public servicing, investment and redevelopment.

In some cases, the Western past may be more relevant for developing world cities today than the Western present, which is one reason why this issue contains several papers on urban history. Western cities were poorer in the past, and hence closer in income to the modern developing world. Historically, western cities also suffered from corruption and weak public capacity. Yet while the fight against cholera in mid-19<sup>th</sup> century New York has parallels with the fight against cholera in 21<sup>st</sup> century Lusaka, there are also important differences. Modern Lusaka has access to antibiotics that did not exist in old New York, but it has significantly less ubiquitous land titling, which makes it harder to impose requirements, like not connecting to sewers, on land owners (Ashraf, Glaeser and Ponzetto, 2016).

We therefore conjecture that developing world urban economics will be more focused on the downsides of density than traditional urban economics, both because the problems are so severe and because the ability to just import knowledge from the west is more limited. While the literature on the advantages of agglomeration may translate readily to poorer places, we know little about the details. We expect inter-city transport linkages may well be more important in the developing world. But what about human capital externalities? Will these be more or less important? Will the young gravitate towards the mega-city of each country because these cities offer better learning opportunities (Puga and de la Rocha, 2016), or simply as a location of last resort?

One particularly salient feature of developing world urban economies is the prevalence of the informal sector in both production and housing. The prevalence of the informal sector is driven by poor regulation, weak land market institutions, constraints on financing, and perhaps a lack of demand for formality. Informality can limit the public sector's ability to influence the local economy. In the business sector, informal firms which are heavily located in informal neighborhoods may rely more on trust and face-to-face interactions which suggests agglomeration economies will be important. However the volume of built space and potentially of economic activity in cities like Nairobi is much higher in the formal than informal sector (Henderson et al., 2016) at comparable locations, hinting at insufficient clustering overall as a challenge to building competitive cities.

A second feature of developing world urban economies is the dominance of the state sector. Many of the developing world mega-cities are built around political capitals, perhaps reflecting the tendency of rents to cluster around power. The role of the public capacity is particularly pronounced in major countries like China. There, the government dominates input markets; and many of the firms involved in use and production of "strategic materials", as well as development of new housing and commercial buildings are state owned.

### III. The Papers in this Issue

This volume contains thirteen papers. The first five address the fundamentals of agglomeration. The next three consider transportation linkages and urban networks, reflecting the large importance of transportation costs in the developing world. Two papers deal with the disamenities of city life and the last three with housing. The sparsity of such papers on the developing world in regular issues of the JUE reflects an unfortunate lack of supply of high quality research in this area, and we hope that the Journal of Urban Economics will publish many more papers in this area in the future.

We begin with "Demography, urbanization and development: rural push, urban pull and ... urban push?" by Remi Jedwab, Luc Christiaensen, and Marina Grindelsky. This paper highlights a particularly important distinction between rich and poor world urbanization. The urbanization of the west was largely driven by rural-urban

migration, which made up for high urban mortality rates and lower fertility rates. Poor world urbanization is often driven by high urban fertility rates. Consequently, poorer world cities are less likely to be filled with migrants who chose cities because of high economic returns and their demographics tilt much more strongly towards the very young. This tilt makes the humanitarian case for improving the quality of urban life particularly strong.

The second paper in the issue is “What is Different About Urbanization in Rich and Poor Countries? Cities in Brazil, China, India and the United States” by Juan Pablo Chauvin, Edward Glaeser and Kristina Tobio. This paper asks whether key stylized facts that are well established in the U.S. and Europe also hold for Brazil, China and India. Some facts, such as the strong correlation between agglomeration size and incomes or the connection between human capital and local success are, if anything, more robust in the developing world. Other facts, such as the connection between income and housing costs, appear to be weaker.

Gibrat’s Law, the independence of population growth rates and initial population levels, also appears to be much weaker in India and China than in the modern United States, but the third paper in this issue notes that Gibrat’s Law appears to be a relatively recent phenomenon in the United States. “The Settlement of the United States, 1800 to 2000: The Long Transition Towards Gibrat’s Law” by Klaus Desmet and Jordan Rappaport document that before World War II, smaller counties displayed convergence and larger counties displayed divergence. Both tendencies have moderated in recent decades producing Gibrat’s Law. If the urban systems of China and India are in a formative stage, much like the 19<sup>th</sup> century U.S., then perhaps it is unsurprising that they do not display Gibrat’s Law.

“Political favoritism in China’s capital markets and its effect on city sizes” by Ying Chen, Vernon Henderson and Wei Cai reminds us that political power can also drive urban size and growth. Different Chinese cities face different capital costs largely for political reasons. This is not simply favoritism of state owned firms but biases in the allocation of capital to private firms in particular cities. These biases adjust over time, as national leadership and appointment of affiliated local leaders change. Those cities with access to cheaper capital have grown more quickly. This provides concrete evidence of the power of political favoritism to shape urban futures, which we suspect generalizes to many other developing world settings.

“Breaking into tradables: urban form and urban function in a developing city” by Tony Venables analyzes when a city may move from simply producing services for a local agriculture hinterland to producing internationally traded manufactures or services. In Sub-Saharan Africa, most secondary and smaller cities are not industrialized and are highly oriented to agricultural hinterlands. With increasing returns to scale cities potentially face multiple equilibria, where outcomes may be driven by expectations and/or history. A city’s ability to break into international markets is in part dependent on its cost structure as influenced, for example, by the effectiveness of infrastructure investments and internal organization.



The sixth, seventh and eighth papers all address transportation. Yatang Lin's "Travel Costs and Urban Specialization: Evidence from China's High Speed Railway" documents the impact that high speed rail has had on urban growth in China. This paper uses a difference-in-difference methodology to show that places that experienced significant increases in market access because of high speed rail also experienced significant increases in employment and housing prices. The employment growth is concentrated in services, not manufacturing, which is natural because high speed rail is a more efficient means of transporting business people than goods over space.

"Locomotives of Local Growth: The Short- and Long-Term Impact of Railroads in Sweden" by Thor Berger and Kerstin Enflo performs a similar analysis of railroads in Sweden over a 150 year period. They find that population growth was significantly higher in places that received early access to rail lines. These population increases largely persisted over time, which supports the importance of path dependence in city sizes.

An even more extreme case of path dependence is examined by Maarten Bosker and Eltjo Buringh in "City Seeds: Geography and the origins of the European City System." This paper documents the importance of rivers, and other examples of "first nature", in driving the location of European cities 1,000 years ago. Transportation by water was much less expensive than transportation by land. The fact that these early locational choices continue to shape Europe's cities provides an extreme example of the power of historic transportation advantages to drive modern urban location.

The ninth and tenth papers both deal with urban disamenities. "Malthus living in a slum: Urban concentration, infrastructure and economic growth" by David Castells-Quintana follows Henderson (2003) and examines the correlation between urban concentration and economic growth. While the correlation is weakly positive, the overall relationship is negative in poorer countries, such as those in Latin America and sub-Saharan Africa. Within these countries, when infrastructure provision as typically measured by sanitation access is poor, urban concentration has distinct negative effects on growth, while there are positive effects when there is better urban infrastructure. This suggests that the quality of urban infrastructure may have significant macroeconomic effects.

"Sewers diffusion and the decline of mortality: The case of Paris, 1880-1914" by Lionel Kesztenbaum and Jean-Laurent Rosenthal looks at the impact of sanitation in Paris a century ago. At the start of their period, Parisians typically had access to clean drinking water but sewers did not yet remove urban waste. The staggered rollout of the sewerage system enables the authors to estimate the impact of sewers on both mortality and housing costs. They find that sewers added several years of life to the impacted residents and significantly increased housing rents. This work reminds us that urban sanitation was an extremely important part of making western cities livable and taken

together these two papers suggest that sanitation is likely to help enable developing world cities to be both healthier and more economically productive.

The final three papers in the issue all deal with housing. “Shelter from the Storm: Upgrading Housing Infrastructure in Latin American Slums” by Sebastian Galiani, Paul Gertler, Ryan Cooper, Sebastian Martinez, Adam Ross, and Raimundo Undurraga examines a large scale experiment providing pre-fabricated housing in Latin American slums. They find that housing improvements have large effects on self-reported well-being. In two of their settings, they also find significant effects on children’s health. This work suggests that investments just in housing quality may significantly improve urban lives in the developing world.

“The Demand for Space in China,” by Michael Murray and Guoqing Sun examines income and price elasticities for housing in the People’s Republic of China. In this case, the results do not look so different from many findings in the developed world. The income elasticity of demand for housing space is .3 and the price elasticity is -.4. The elasticities of demand for housing services, which include neighborhood amenities, are .7 and -.64. Larger elasticities for total services than for space are also a well-known feature of the U.S. data.

Finally, “To build above the limit? Implementation of land use regulations in urban China” by Hongbin Cai, Zhi Wang and Qinghua Zhang examines a major determinant of housing supply, both in the west and in the developing world: maximum height regulations. They find that these regulations appear to be flouted in about one-fifth of their data, and that the rules are broken especially where land is more attractive. They also find that height restrictions place heights far below the level that would maximize land value. While China is also contrasted with India, which has even more draconian land regulations, this paper reminds us that even in China, land regulations may be significantly reducing the supply of housing.

#### IV. Unanswered Questions

This issue is a collection of papers on developing world cities, but we very much hope that it is only the beginning of a great research push on developing country urbanization. The promise of these cities is enormous. They should provide pathways out of poverty into prosperity for billions of people. The problems of these cities are also extreme. Economic research that helps define and reduce those problems would have enormous social benefit. We end this introduction with a series of questions that we believe deserve more attention from researchers in the future.

*What are the larger costs and benefits of limiting city size?* Developing countries have long featured a prejudice against urban growth, primarily because of the obvious downsides of density and their inability to deal with these. Urban economists have often argued that agglomeration economies yield both static and

dynamic benefits, including swifter economic growth. We need more research on the foundations of city growth throughout the urban hierarchy and on the macroeconomic impact of such growth on national economic growth in the developing world.

*What national policies strengthen and weaken developing world cities?* Cities can be shaped by national policies, as both the Chen, Henderson and Cai paper and the two papers on rails in this issue demonstrate. We need more knowledge about the ways in which national policies, including transportation, finance and taxation impact the growth of urban areas. If fertility is a major determinant of urban population growth in many developing countries, then perhaps policies that impact fertility, including education will have an outsized impact on urbanization. Social insurance policies may also encourage urbanization by reducing the risk-sharing advantages of staying close to one's family.

*What infrastructure investments deliver the largest benefits?* Infrastructure, such as sewers, public transport and roads can yield huge social benefits, including health and connectivity improvements. Infrastructure can also generate enormous social waste, through both bad decision making and the opportunity for graft. Governments are making vast investments in urban infrastructure across the globe. Economists need to determine which investments are most likely to yield the highest social returns. Should the marginal dollar go to roads or public transport? Is human capital a better investment than physical capital?

*What institutional improvements are most likely to make cities more livable?* Infrastructure, housing and cities more generally, rely on public institutions. Corruption can make infrastructure unsafe and wasteful. Incentives may be needed to induce adoption of better infrastructure, but then what is the feasibility of shaping institutions to provide these incentives? In the West, there is the experience with private provision of streetcars, non-profit turnpike trusts, independent public authorities such as the Erie Canal Commission and the Triborough Bridge Authority and direct public provision of urban services. The relative value of these institutions will surely differ depending on the quality of government and the strength of civic society. We need research about which institution arrangements are most likely to be effective in poor world cities.

*How will technological change interact with urban life in the developing world?* Cholera is far less deadly today than it was before antibiotics. Uber-like systems provide a tool for making the jitneys of Johannesburg more orderly. Cell phones increase connectivity; they potentially reduce the costs of migration and working remotely. Web scrapping for items such as house and land prices or satellite and aerial images depicting the detail and layout of the built environment which are assembled, processed and sold by local IT firms improve information and the working of urban markets and provision of services. We do not yet know how urban life will be shaped by new technologies, which have the power to make agglomeration economies and human capital externalities both more and less

important. Some technologies, like the television, reduce the amenity advantages of living in a city. Other technologies, like Zipcar, seem to complement urban density. What will future technologies do to urban economies and urban quality of life?

*What are the appropriate housing policies for developing world cities?* Many researchers believe that land use restrictions, borrowed from the wealthy west, have helped to make developing world cities dysfunctional. But what are the right urban policies for the developing world? How should slums be regulated? Should land titling be prioritized and is titling essential to urban redevelopment and building high? Are subsidies for homeownership appropriate? How should evictions from rental properties be handled? The land and housing markets of the developing world are very imperfect, and we need more research targeted towards the incremental improvement of these markets.

We end this introduction then with a call for more research and a commitment that this journal will, as long as we are affiliated with it, maintain a strong openness to papers written on developing world cities. Urban knowledge is disproportionately focused on the developed world, but urbanization is proceeding far more quickly in the developing world. It is time for urban economists to know as much about Dar Es Salaam as about Detroit and as much as New Delhi as about New York.

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