

ECOSOC Forum on Financing for Development follow-up
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1. Introduction

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Let me start by expressing my sincerest gratitude to H.E. Mr. Frederick Musiiwa Makamure Shava, Ambassador and Permanent Representative to the United Nations, Ms. Bettina Luise Rürup, Executive Director, and Ms. Sara Burke, Senior Policy Analyst, both at the Friedrich-Ebert-Stiftung New York Office, for inviting Sanjay Peters and myself to present today in front of such a distinguished audience.

It is both an immense honor and a great responsibility to stand in front of you today and to speak about issues that could have a transformational effect on the lives of hundreds of millions of people around the world. Infrastructure investment for the future is indeed at the heart of the mission attributed to the ECOSOC forum on FfD, as it should. Our goal today is to share the results of a research project on infrastructure investments and inequality that we carried out jointly with Emma Hooper.²

2. Why some research on infrastructure and inequality?

Infrastructure investment has a long history of being undisputedly seen as a powerful engine of growth. Such a view has continued to progressively gain intellectual support and policy relevance over the years, to be embodied as a major part of both conventional wisdom and political agendas globally.

In the context of low-income developing countries, it is widely acknowledged that the presence of indivisibilities and the associated increasing returns call for a large-scale

¹ Sanjay Peters and Patrick Pintus are grateful to H.E. Shava, Luise Rürup and Sara Burke for the invitation and Michael Shank for moderating our talk.

² See the Banque de France working paper # 624, "To What Extent Can Long-Term Investment in Infrastructure Reduce Inequality?" by Emma Hooper, Sanjay Peters and Patrick Pintus, available at <https://ideas.repec.org/p/bfr/banfra/624.html>

investment program to build up industries. By looking at historical evidence, we can see that a “Big Push” strategy has been associated with two notable features. First, the private sector did not undertake long-term investments in infrastructure, despite the deregulation policies that took place during the 1980s, particularly in most mature markets, to increase the incentives to invest. This effectively meant, and continues to mean that the State has an important role to play to fund and manage infrastructure. Second, the prominent role of public investment in infrastructure stressed that the State must develop what has once been labeled Social Overhead Capital, which takes the form of investment in backbone industries, such as power, transport, communications, and also in the institutions fostering education and enforcing law and order. Those public investments should be undertaken first, before large scale investments in productive activities are carried out, and as such they should be given even higher priority in low-income developing countries.

While what we are proposing here is not exactly original, it only seems fair to say that it is today part of a consensus among both policy-makers and academics alike. We would venture to argue that this view is also widely shared among many branches of the United Nations and Bretton Woods Institutions.

One of the questions that our research poses is whether the growth benefits from large-scale infrastructure investment **distributed fairly**? Do they contribute more or less equally to improve standards of living for all segments of the populations, rural and urban, white collar, blue collar and no collar workers?

The history of intellectual ideas provides us with an answer to this question. In trying to make sense about how development and economic inequality relate, one may have in mind the great structural transformation that saw an increasingly larger proportion of the labor force transferred away from agriculture and into manufacture industries. The assumption was that in the early stages of development through industrialization, inequality would increase and farmers would migrate to cities to get better-paid jobs.

After reaching later stages of economic development, when higher levels of per capita are attained, inequality was said to decline, and the growth benefits trickle down to society, with the development of the welfare state. This view is aptly summarized by the now famous Kuznets' curve.

Taken together, therefore, the "Big-Push" theory of large-scale infrastructure investment and the Kuznets' curve could lead us to believe that infrastructure-led growth should ultimately reduce inequality. In close accord with such a view, the empirical literature on the growth and inequality nexus has indeed suggested that boosting growth should be accompanied by a reduction in inequality.

In contrast, it is now a well-known fact that such a rosy view has been forcefully disputed for quite some time, in the context of both developing and developed economies, as exemplified in the popular writings of Branko Milanovic, Jonathan Ostry, Thomas Piketty, and Joseph Stiglitz, just to mention a short list of prominent scholars who are specialists on researching inequality. The contention here is that income inequality will not decline automatically in a mechanized fashion after standards of living have surpassed a certain threshold level.

What is missing though, we think, is compelling evidence from available data. Are there any stylized facts that can be established? What do the observed data reveal about how infrastructure investments affect inequality? Unfortunately, the available body of evidence is rather scant on this issue.

Some related research carried out by the International Monetary Fund and the World Bank is certainly worth acknowledging. This body of literature has provided cross-country evidence showing that infrastructure investments go hand in hand with a reduction in income inequality. However, an important limitation of this early literature is that it does not go beyond using aggregate data at the national level and, moreover, it typically pools developed and developing countries together, and this makes the obtained results rather difficult to interpret.

One of the conclusions we reach while going forward in our research is that there is an urgent need for case-studies which focus on particular countries and use disaggregated data on the income and wealth distributions to shed light on such a potential link. Of course, this means that despite common patterns, it is likely that there is no blueprint for infrastructure investment policy. Through our joint research with Emma Hooper, we have taken a modest step towards empirically examining disaggregated data by carrying out a pilot project of the US economy, at a state level over a 60-year period.

3. Preliminary results from a pilot project on US states

The United States makes for an interesting case study to test a potential empirical link between infrastructure investment and economic inequality. It is amongst the wealthiest countries in the world, but one which also has one of poorest track records on income inequality in the world. Data availability and data reliability in the US on infrastructure expenditures and inequality over a 60 year period, offer important lessons that can be learned by both developed as well as developing economies.

We are today gathered in New York, a major city within the US which planned a higher-education golden age and a big push in interstate highways spending from 1950 to 1970. Those state policies have been followed by a retreat in infrastructure financing at the federal and state level. The state has also witnessed rapidly rising inequality since 1980. It is a well- known fact that US infrastructure networks are in urgent need of maintenance and upgrading. It was even a major topic in the recent political campaign for the US presidential elections, which was commented on by all of the leading contenders. Any meaningful discussion of the rising inequality over the 40 years did not feature prominently in the election debates, but it is unquestionably a major concern that is threatening long term growth, political and social stability in the US.

Our research analyzes how infrastructure investments, could have a major impact on reducing inequality makes use of US state-level data from 1950 to 2010. It focuses on US local governments, which own the vast majority of public capital and account for

nearly 75% of spending on infrastructure. More specifically, we focus on US states, in which schools and surface transportation represent the lion's share of spending on public capital. At the same time, those two items account for nearly 70% of the infrastructure funding gap. By carefully examining disaggregated data at a state level, our main objective is to better understand the long-term effects of infrastructure investments and its capacity to reduce inequality. More specifically, the idea is to ask whether the growth rate of spending on infrastructure in a given decade has any effect on income inequality at the end of that decade.

Our response is that it does and that such a relationship is negative. Across the 51 states (including Washington DC) and over the period from 1950 to 2010, states that have been investing more than others in infrastructure ended up benefiting from a lower level of income inequality. In particular, growth in infrastructure investment on higher education and highways in a given decade translates into lower income inequality ten years down the road. In addition, the inequality-reducing effect of infrastructure investment is stronger at the bottom 40% of the US income distribution, than at the top 40%. Finally, our results show that investing in highways is associated with a larger fall in income inequality than by investment in educational infrastructure.

Our interpretation of these findings is that investment in highways and in higher education help people have better access to more job opportunities and to a larger set of educational institutions. Such an interpretation accords with several recent studies that have shown that poor neighborhoods in the US are typically characterized by non-existent, or extremely low social mobility and poor-quality infrastructure. Of course, these results firmly establish that infrastructure investment in a given decade is associated with smaller inequality at the end of the decade, but they only show correlation and as such may appear as not being very insightful. After all, the literature about the growth- inequality nexus speculates that a possible explanation for this negative link is that concentration of income and wealth results in opposition to financing public goods. Gated communities, in which many services are offered to

private neighborhoods as alternatives to public ones, exemplify environments that could be conducive to such outcomes. However, to the best of our knowledge, such a detrimental, and possibly causal, effect of inequality on infrastructure spending has not been put to empirical scrutiny.

As a matter of fact, our data do not tell us that a high level of inequality today translates into smaller infrastructure investment in the following decade. In other words, infrastructure investment today is accompanied by lower income inequality 10 years later, according to our analysis, but not *vice versa*.

In an attempt to go **beyond correlation**, we have in fact recently designed an ongoing project with an empirical component that allows us to test whether infrastructure investment could be at the origin of a reduction in inequality. Needless to say, one difficulty in such an endeavor is to identify sources of spending on infrastructure that would be exogenous in the sense that they are not driven by economic factors that also have first-order effects on income inequality.

It turns out that a useful candidate that qualifies as a quasi-exogenous source of spending on highways is the allocation of federal grants through the so-called Appropriation Committees in the US Congress. Importantly, the nomination of committee members depends on considerations related to political balance rather on anything else. In addition, when nominated, committee members tend to finance projects located in their own state, as rewards to their constituency, in particular on highways and university research.

As a consequence, infrastructure investment in highways in a particular state that gets membership or chairmanship in one committee is rather exogenous. To be short, we use this source of infrastructure investment as an instrument, at annual frequency, and we show that spending on highways reduces income inequality after only a few years. We interpret those preliminary results as showing that the correlation emphasized earlier actually reflects a true and honest causal effect.

Again, for the sake of time, it's worth at least pointing out that the two different time horizons, annual and decennial, considered in both studies point at a rich set of effects of infrastructure investment on inequality reduction. On the one hand, infrastructure investment may result in a booming construction sector which, in a very Keynesian-like manner, boost aggregate demand and also pull part of the labor force out of unemployment and from low-paid jobs, and this would contribute to reducing income inequality. On the other hand, investment in infrastructure related to higher education, such as, to community colleges and universities in our sample, may contribute to reducing inequality over a longer time horizon by allowing human capital formation for a larger fraction of the population. Highways and other types of surface transportation infrastructure can play that role too to the extent that they encourage job mobility that is motivated by the will to acquire a new set of skills in order to access jobs in newly created sectors favored by destructive creation.

Our analysis also delivers a counterfactual experiment that identifies which states underinvested in highways and higher education and, in so doing, ended up with a larger level of inequality. The major policy implication to be drawn from our research is that investing in tomorrow's infrastructure not only boosts growth but it has the potential to reduce inequality and hence promote development. **Infrastructure investment has distributional consequences** that can in effect mitigate income inequality, in particular by helping to improve access to more job and education opportunities with broader scope and better quality.

We are acutely aware that our research has important limitations. For example, many observers have noted the "bridge-to-nowhere" investments, that ex-post reveal themselves as close to wasteful spending, at least in the short run. In addition, many cities around the world are concerned with a gentrification process. In that process, poor neighborhoods are targeted for community development, to be transformed into geographical locations of opportunities, but often end up as places where poor population can no longer afford to live. In addition, designing large-scale infrastructure

investment projects requires a careful evaluation of their consequences on the natural environment, but also of their social impact. Such concerns stress that the beneficial effects of infrastructure investment are not measured or valued adequately.

4. Relevance for developing countries

The idea of promoting infrastructure investment as an effective policy mechanism to reduce inequality is particularly for developing economies. The infrastructure investment gap is most acute in low-income countries, in particular for those located in sub-Saharan Africa. It is stating the obvious that electrification, sanitation, and transport infrastructure are a prerequisite for development. However, it is also far too apparent that massive global investment needs are not being adequately funded. The average infrastructure investment gap amounts to around US\$1 trillion per year. But the average masks vast differences across regions of the world. While infrastructure investment needs range from a low 3% of GDP in developed economies, they reach 9% of GDP in emerging economies and more than 15% in some low-income developing countries.

A rather neglected dimension of global inequality is how it is affected by this infrastructure gap. Infrastructure deficiencies are often not the cause of migration flows from poor to rich countries, natural disasters and civil wars, but arguably they are the main factors the decision to flee for survival. The development gaps around the world are very much related to the lack of infrastructure in the countries of origin relative to the host countries. This aspect requires also careful analysis and search for evidence, and therefore could have immense policy implications.

To be sure, some observers have warned against a possible misuse of infrastructure investment in the context of developing countries. For example, short-sighted policy-makers might concentrate on investments in infrastructure that have short-run benefits in terms of growth (such as roads, railways or communication networks) and

neglect those that need more time in order to have significant effects on development (such as education), with long-run detrimental effects on human capital formation.

Overall though, to the extent that our analysis from the US can also shed light on less advanced economies, it suggests that a Big Push strategy that would boost infrastructure investment in both surface transportation and education could be very powerful as an engine of development.

5. Policy proposals to address global needs for infrastructure funding

We are confronted with a major policy challenge. The conventional wisdom states forcefully that infrastructure investments boost growth in an inequality reducing way. That the existing funding gap therefore holds back growth in rich countries and development in less advanced nations. But the question that is now becoming increasingly important and takes center stage in many policy initiatives around the world is **how to raise resources to fulfill those gigantic infrastructure needs.**

While solutions to address such an issue have in the past relied mainly on available instruments making use of public budgets, there is now a consensus about acknowledging the need for innovative ways to finance infrastructure. We are talking about solutions involving risk mitigation and risk sharing through the development of PPPs. As a matter of fact, the latter aspect has been discussed in a panel involving Sanjay Peters and Joseph Stiglitz hosted by the 2015 Financing for Development Conference organized by the United Nations in Addis-Ababa.

Based on the more recent experience of some MDBs with co-investments with private investors, there is growing consensus that MDBs can play a much bigger role in the preparation, structuring and financing of infrastructure projects along with private long-term investors such as pension funds, insurance companies and sovereign wealth funds. Not coincidentally, a number of investment platform initiatives have been launched very recently by several MDBs, most of them still in prototype stage, with the aim of scaling up the distribution of investments in PPP projects to private investors

and thereby increase the flow of origination of new infrastructure facilities. Examples include the World Bank, Global Infrastructure Facility, the European Bank for Reconstruction and Development's Equity Participation Fund and the more recent, but highly influential Asian Infrastructure Investment Bank, to mention but a few.

While such a development is underway, we believe that important aspects that would increase incentives to undertake and to finance infrastructure investment have been largely neglected. On the legal and tax sides, a promising avenue that has been unexplored is the preferential tax treatment for repatriated profits from MNCs that commit to infrastructure investment. Such an approach has potential to both improve the tax contribution of global companies while at the same time freeing vast resources for infrastructure investment funding.

Thinking hard about such solutions is needed at all levels of decision-making, both in the developing part of the world as well as in OECD countries. It is what it will take to spark a Big Push in infrastructure investments that would help to drastically reduce the development gap observed today.