

Summary of Evidence Session “Energy, Infrastructure and Growth”¹
Stephen Fries, David Newbery, and Bridget Rosewell, 23rd of May 2012

The LSE Growth Commission’s evidence session on “Energy, Infrastructure and Growth” was held on Wednesday 23rd May 2012. **Stephen Fries** (Department of Energy and Climate Change), **David Newbery** (University of Cambridge) and **Bridget Rosewell** (Volterra Partners) shared their views on the relationship between infrastructure investment and economic growth. The session was chaired by Lord Nicholas Stern, who was joined by commissioners Professor John Van Reenen, Sir Richard Lambert and Professor Francesco Caselli. This note provides a summary of the main evidence and arguments made.

The panel started by providing evidence on the aspects of infrastructure and energy that are particularly important for productivity and growth. At the micro level, David Newbury was of the view that infrastructure has very high marginal productivity if it constrains production. On the other hand, once the *optimal* amount of infrastructure is in place, its marginal productivity falls dramatically. For Bridget Rosewell, the real return to infrastructure lies in its ability to provide spare capacity and flexibility in production. Instead of being on the efficiency frontier, infrastructure projects must operate with spare capacity to aid economic growth. For instance, it was the spare capacity generated by Victorian and later transport investments that provided for the structural shifts in London jobs over the past forty years, from manufacturing (mainly in outer London) to services (much more centrally located). Another example is Crossrail. It is been estimated that without it 35,000 people would be crowded out of access to central London jobs by 2035 (Rosewell, 2012). This represents a loss of additional output to the UK economy of £80bn, simply on the basis of the higher productivity which is generated across all activities in a dense location (Rosewell, 2012).

¹ **Disclaimer:** This summary document represents the views of the evidence givers and not necessarily those of the commissioners.

At the macro level, Stephen Fries pointed out that energy efficiency and low carbon technology policies help reduce macroeconomic volatility by reducing the oil and gas intensity of the GDP and by reducing exposure to oil price shocks. Oxford Economics (2011) estimates that a 50% increase in the price of oil and gas reduced UK real GDP in 2010 by 0.9%. Instead, if the demand for oil and gas² are respectively 10% and 20% lower in 2020 than today, a 50% oil price increase would reduce GDP by 0.7% only. Egert, Kozluk and Sutherland (OECD, 2009) shows a positive impact of infrastructure investment on growth. They also show that this effect varies across countries and sectors and over time. In some cases, these results reveal evidence of possible over-investment, which may be related to inefficient use of infrastructure. In particular they provide evidence that infrastructure investment in telecommunications and the electricity sectors has a robust positive effect on long-term growth (but not in railways and road networks). Furthermore, this effect is highly nonlinear as the impact is stronger if the physical stock is lower. Evidence on the international rankings of UK energy infrastructure presents a mixed picture. The Global Competitiveness Report ranks *quality* of UK electricity supply 4th in the EU, while the Doing Business ranks *access* to UK electricity supply 54th in the world and the latest World Economic Forum rankings put the UK 34th in terms of infrastructure. David Newbury's own research had shown that UK's road transport in the 1990s was poor by international standards and has not improved since.

All panellists echoed the view that the UK was definitely under-investing in infrastructure. We are suffering acutely from a stalled road-building programme, with rising congestion and deferred maintenance raising future costs. The Eddington Report (2006) showed that the wider economic benefits of transport were positive (outweighing any environmental and social damage). However, a large number of *potential* transport projects with benefit/cost ratios above 3-4 have not been implemented³. Bridget Rosewell highlighted that connectivity and energy are the key elements of infrastructure in the UK but the country has underinvested in both. The same view was shared by Stephen Fries who suggested that substantial investment is needed in energy infrastructure and particularly, in the electricity grid and in natural gas pipelines to maintain the service and to de-carbonize the economy.

² Demand relative to the level of GDP.

³ A project with a benefit-cost ratio above 1 should be implemented.

There was a very insightful discussion surrounding the challenges holding back growth-enhancing investments in UK infrastructure and energy. This was followed by a round-table discussion between the commissioners and the presenters. The main arguments and points are summarised below. Three main challenges emerged from the presentations and arguments.

The first impediment which the commissioners, too, thought was very important was the lack of a proper and sensible form of public accounting. David Newbury highlighted that the balance sheet of the public sector contains debts, but does not account for assets adequately. The fiscal measure of debt-to-GDP ratio is the level of total debt, not *net* debt, as a fraction of GDP. The implication of this mismeasurement is that it does not distinguish between economic stimuli which increase consumption and debt liabilities, and, those that increase productive investment that adds assets to balance the liabilities issued. If we created assets that improve growth and were higher in value than the debt, it improved the public sector balance sheet but did not reduce the commonly used debt-to-GDP ratio. This sole focus on the total debt, not net debt, imposed a serious constraint on rational public sector decision making. If the public sector took assets into account, it would justify productive public investments to be financed by additional borrowing without prejudicing ability to pay. Hence, it is a misleading to focus solely on the total debt-to-GDP ratio and cut back investment in times of stress, as we are witnessing now.

Related to the issue of accounting, David Newbery noted the current accounting practices make under-investing look cheaper than it actually is. This is because the public sector does not account for the depreciation of the asset value of existing stock of assets. The direct implication of this is very high replacement costs in publicly financed infrastructure. If roads were instead treated as a regulatory asset base that depreciates if not properly maintained and that can be augmented by investment, and if road charges were set on that basis to create a revenue stream, then the financial constraints on transport investment would be relaxed.

The second reason behind under-investment in infrastructure in the UK is the lack of an objective and comprehensive cost-benefit framework. A proper cost benefit analysis is imperative for guiding any infrastructure investment decision. However, as Bridget Rosewell pointed out, the existing methods of cost benefit analysis were unreliable. They did not capture welfare effects and dynamic impacts adequately. For example, the static cost benefit analysis of Cross-Rail leaves out

any agglomeration effects. Similarly in the energy sector, a proper evaluation is difficult without agreement on the social cost of carbon and ways to quantify the benefits of R&D.

Finally, the panellists identified political expediency as a challenge for investment in infrastructure in the UK. They argued that policies in this area are largely based not on social cost-benefit analysis but on political expediency. The best example of that is planning regulation which is economically perverse but politically difficult to change. Planning for infrastructure is a long term activity. It requires willingness to develop a strategic vision and to pursue it with flexibility. The mind-set of planners and regulators in the UK has been missing this focus on economic returns. The discussion between the commissioners and the presenters focussed on how the process of public sector decision-making could be changed to align public sector incentives to social welfare objectives. The debate generated a consensus around the need to improve policy decision tools such as accounting and cost benefit evaluation.

References

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