

Infrastructure investment and growth: market failures can be corrected by the government

By Vladimir Popov March 13, 2019

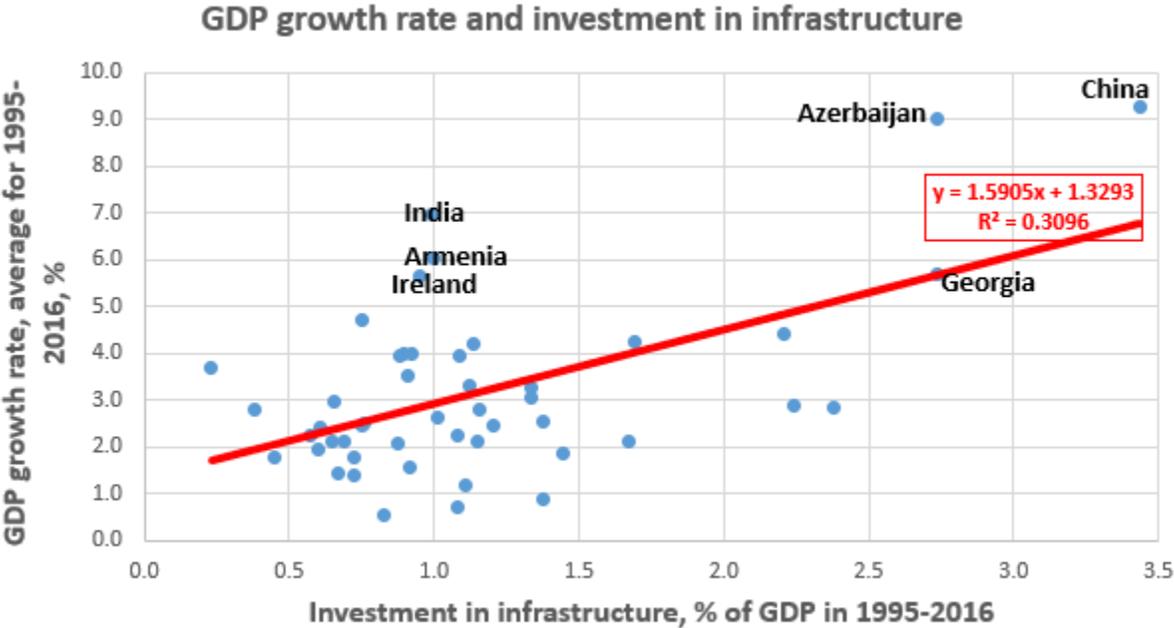


There are many studies praising investments into infrastructure and proving that they are good for economic growth. The estimates of the multiplier – by how much output increases due to a unit increase in infrastructure investment – vary greatly because of the very nature of the multiplier process – it operates in the short term and reaches its full strength only when the economy has unloaded production capacities and unemployment.

The long term economic benefits of the infrastructure investment are easier to detect: as the chart suggests, the increase in the share of

infrastructure investment in GDP by 1 percentage point (p.p.) is associated with the increase in GDP growth rates by 1.6 p.p.

China and Azerbaijan had growth rates of GDP of about 9% on average in 1995-2016 with the share of infrastructure investment in GDP of 2.7-3.4%, whereas many developed countries (Austria, Belgium, France, Germany, Italy, the Netherlands, Portugal) were growing at less than 2% a year with infrastructure investment of less than 1% of GDP (table).



Source: See table.

This relationship is endogenous, as economists like to say: infrastructure investments cause economic growth and economic growth, in turn, pushes up infrastructure investments, so that investments into infrastructure go hand in hand with general economic

growth. The recent study of infrastructure investment in the Chinese provinces found that debt-financed infrastructure investment released structural bottlenecks and had substantial growth impact[1].

The efficiency of the infrastructure investment – increase in GDP per 1 unit of investment in infrastructure – varies greatly (table) – from 1 to 4 in developed countries and to 7 and more in developing countries (India, Mexico). But the efficiency of course depends on the measurement period – investments can be made in one period and their benefits reaped in many years to come. But whatever the efficiency of infrastructure investment is, in most cases it is possible to raise the growth rate of the economy by boosting investment into infrastructure.

Why then countries underinvest into infrastructure? The answer is that the return on infrastructure investments is often uncertain and the pay off period can be very long – private investors normally do not like it. There are also large externalities involved (infrastructure investments benefit not only the investor, but many companies and households all over the economy that do not pay for this investments, so there is a free rider problem). It is a classic case of market failure: If left to the market alone, infrastructure investments are below the optimal level.

That is why the governments should step in to correct the market failure and to stimulate/finance investment into infrastructure. If governments fail to do it, it is called government failure.

[1] Justin Yifu Lin, Xinqiao Ping, and Xin Huang. China's growth-promoting public debt financed infrastructure investment. – Macroeconomic policy in the Countries of the Global South. Ed. By A. Chowdhury and V. Popov. DOC-RI, Nova Publishers, 2019 (forthcoming).

Table. GDP growth rates and share of infrastructure investment in GDP

Country	Infrastructure investment as a % of GDP, average for 1995-2016	GDP growth rate, average for 1995-2016, %	GDP increase per unit of infrastructure investment
Albania	2.2	4.4	2.0
Armenia	1.0	6.0	6.1
Australia	1.3	3.3	2.4
Austria	0.7	1.8	2.4
Azerbaijan	2.7	9.0	3.3
Belgium	0.4	1.8	3.9
Bulgaria	1.2	2.8	2.4
Canada	0.8	2.4	3.2
China (People's Republic of)	3.4	9.3	2.7
Croatia	1.7	2.1	1.3
Czech Republic	1.2	2.5	2.0
Denmark	0.7	1.4	2.2
Estonia	0.9	4.0	4.4
Finland	0.7	2.1	3.2
Former Yugoslav Republic of Macedonia	2.4	2.8	1.2
France	0.9	1.6	1.7
Georgia	2.7	5.7	2.1
Germany	0.7	1.4	1.9
Greece	1.1	0.7	0.7
Hungary	1.1	2.2	2.1
Iceland	1.1	3.3	3.0
India	1.0	7.0	7.0

Ireland	0.9	5.7	6.0
Italy	0.8	0.5	0.6
Japan	1.4	0.9	0.6
Korea	1.7	4.3	2.5
Latvia	0.9	4.0	4.5
Lithuania	1.1	4.2	3.7
Luxembourg	0.9	3.5	3.9
Malta	0.2	3.7	15.9
Mexico	0.4	2.8	7.3
Moldova	0.7	2.9	4.5
Montenegro	0.6	2.2	3.9
Netherlands	0.6	1.9	3.3
Norway	0.9	2.1	2.4
Poland	0.9	4.0	4.3
Portugal	1.1	1.2	1.1
Romania	2.2	2.9	1.3
Russia	1.3	3.1	2.3
Serbia	1.0	2.6	2.6
Slovak Republic	1.1	3.9	3.6
Slovenia	1.4	2.5	1.8
Spain	1.2	2.1	1.8
Sweden	0.8	2.5	3.3
Switzerland	1.4	1.9	1.3
Turkey	0.8	4.7	6.2
United Kingdom	0.7	2.1	3.1
United States	0.6	2.4	3.9

Source: OECD iLibrary, https://www.oecd-ilibrary.org/transport/infrastructure-investment/indicator/english_b06ce3ad-en?parentId=http%3A%2F%2Finstance.metastore.ingenta.com%2Fcontent%2Fthematicgrouping%2F8dac707-en; World Development Indicators, <https://datacatalog.worldbank.org/dataset/world-development-indicators>.