Infrastructure Investment to Revitalize American Cities?

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Infrastructure Investment to Revitalize American Cities?

My three questions

- Can we revitalize lagging cities with infrastructure investment?
- Can we strengthen all cities and the American economy with infrastructure investment?
- What are the prospects for a boom in infrastructure spending?
My three answers

- Can we revitalize lagging cities with infrastructure investment?
  *No, it’s a bad idea*

- Can we strengthen all cities and the American economy with infrastructure investment?
  *Yes but don’t expect miracles and appropriate infrastructure investment will require solving hard problems*

- What are the prospects for a boom in infrastructure spending?
  *Unlikely*
There may be an infrastructure problem

- Some cities are struggling

⇒ Why not kill two birds with one stone?

To come to an answer to this question we need to understand what drives the growth of American cities and the role of infrastructure
Infrastructure investment for declining American cities?
Infrastructure investment to strengthen all cities and the economy?
Prospects for a boom in infrastructure spending

Engines of growth of US metropolitan areas: education

Population growth 1980 to 2010, in log

Sources: US Census Bureau, own calculations
Infrastructure investment for declining American cities?
Infrastructure investment to strengthen all cities and the economy?
Prospects for a boom in infrastructure spending

Engines of growth of US metropolitan areas: amenities

Sources: US Census Bureau, ICPSR, own calculations
Engines of growth of US metropolitan areas: ‘good sectors’

Sources: US Census Bureau, own calculations
Patterns of growth for US metropolitan areas

- Cities that grow enjoy:
  - An educated workforce
  - Strong amenities (including good weather)
  - A favorable mix of economic activity

- Cities without skills, amenities, or a favorable mix of activities struggle

- This is the same story that has been going on for at least 30 years

Can infrastructure help?
Infrastructure investment for declining American cities?
Infrastructure investment to strengthen all cities and the economy?
Prospects for a boom in infrastructure spending

Engines of growth of US metropolitan areas: infrastructure

Sources: US Census Bureau, US DOT, own calculations
The micro evidence about infrastructure

- Urban roads lead to modest population growth
- They also lead to some decentralisation
- Regional corridors tend to benefit major cities that already do well
- Road corridors and airports also lead to some economic specialization
- Much of what we observe is displacement and not true growth
- Beyond transportation, knowledge on the effects of water, electricity, telecom, or ports is thin but not super encouraging
Growing vs. declining cities

Growth and decline are symmetric phenomena for cities. Declining cities face strong headwinds of past negative economic shocks.

- When a bad shock hits a city, some residents start to leave.
- But the housing stocks stays and its price plummets.
- The cost of living goes down and this keeps residents in the city despite poor labor market prospects.
- They only leave in the long run as the housing stock depreciates.
- A city that declines in population during a decade is very likely to decline again the next decade.
Infrastructure investment to revive declining US metropolitan areas?

- Infrastructure investment is a VERY expensive way to increase the population of a typical city.
- Even decried policies like attracting million-dollar plants seem more cost effective.
- The case is weaker for declining cities which are in worse shape than they look.
- The costly building of suburban highways that will create further decentralisation in cities that need to shrink to greatness does not seem like a good idea. Major transit infrastructure is no better.
The US infrastructure is old and decaying:

- Bridges collapse and roads are full of potholes
- Water poisons residents in some places like Flint, MI
- Electricity is not always reliable
- Airports and ports are under strain
- Cellphone coverage is piecemeal

There is some truth to this picture... So maybe infrastructure investment could be used to strengthen all cities and boost the American economy?
The macro picture is somewhat different. The US is slightly behind but not out of line with the rest of the developed world:

- Various layers of governments spend about 400+ billion dollars per year or about 2.5% of GDP
- A figure stable for 30 years
- Not too far from other developed countries
- Mostly on highways, water utilities, rail/transit

How can we resolve the tension between the macro and the micro picture?
The **US** infrastructure problem: Institutional misallocation

- The public sector plays a disproportionate infrastructure role in the **US**
  - In France, highways, water, airports, and some public transit are private...
- Highways and major roads, the main item under federal control, are run by the legislative branch. This is for historical reasons. Three implications:
  1. Not enough maintenance: New projects have a higher political payoff than maintenance
  2. Too much building that is too costly: The main tool is a 90% subsidy after a project is politically approved
  3. Infrastructure is built where it is politically useful instead of where it is economically necessary
- Non-road infrastructure:
  - Transit projects are federally subsidized and politicized like highways
  - Direct federal control over ports and airports (agencies)
  - Water is extremely decentralised (municipal)
  - Little control over energy, or telecom outside of regulations (mostly private)
The US infrastructure problem: Costs

- Building infrastructure in the US is often immensely more costly than elsewhere.
- Examples abound. Among the most egregious:
  - NYC: Second avenue subway expansion: about 1.7 billion dollars per mile
  - Korea: subways for about 150 million dollars per mile
- More systematic evidence is needed
- The root causes are unclear:
  - Regulations?
  - Labor costs?
  - Corruption?
  - Overly demanding design specifications?
  - Funding formulas that incentivize profligacy?
The **US** infrastructure problem: ‘Geography’

- **US** is big and sparsely populated. True but that matters only for inter-city connectivity and telecommunications.
- **US** cities have very low levels of density by international standards.
  - This is likely costly as we expect significant economies of density in infrastructure provision.
  - Hence we may need lots more infrastructure to obtain the same level of infrastructure ‘service’.
My sad resolution of the US infrastructure puzzle

- We invest more or less the same share of GDP as comparable countries but...
- ... we get less real infrastructure out of this investment...
- ... and this investment yields low returns because of institutional misallocation...
- ...while we would need more infrastructure to accommodate our low-density lifestyle
How policy makers and economists (should) think about infrastructure

Direct effects / ‘user benefits’
- Greater mobility for urban transportation projects
- Lower freight costs for corridor projects
- Lower sanitation costs for water projects
- More reliable and cheaper electricity/communications/etc

Indirect effects / ‘wider economic benefits’
- Better job accessibility for urban transportation projects
- Emergence of clusters or structural transformation with corridors
- Public health benefits for water projects
- Productivity gains, etc

Direct and indirect benefits are then weighted against the costs. If costs are high, maybe we don’t want to invest much.
A more macro approach

A key question, how does infrastructure enter the aggregate production function and interact with other factors of production?

- If infrastructure is neither a substitute nor a complement to other factors of production, we should invest a constant share of GDP in infrastructure. But because we are expensive at producing infrastructure, we will not get very much of it and because we are not very good at choosing projects, we will get even less out of these investments.
- If infrastructure is a substitute to other factors of production, we should invest less than other countries.
- It is only if infrastructure is a complement to other factors that we want to invest more.

Current macro evidence suggests that the first case is perhaps a relevant first-order approximation with a share of infrastructure in production of 0.10-0.15 consistent with a steady-state level of investment of 2.5-3% of GDP.
A more macro approach

This is consistent with four ‘folk’ facts about infrastructure:

- Insufficient infrastructure can cripple growth and development
- Modest aggregate effects are consistent with modest direct and indirect micro effects
- There is no clear cross-sectional correlation between infrastructure and GDP per capita or growth among rich countries. Otherwise, Japan and France would be world economic leaders
- Some evidence that causality runs in the opposite direction: prosperity leads to infrastructure investment. Korea and Spain built their infrastructure after many years of prosperity, not the other way round.
Some suggestions

- Do serious cost-benefit analysis (the UK is the leading country on this one)
- Take Congress, state legislatures, and municipal boards out of the equation. They should decide on aggregate budgets and broad directions, not specific projects
- If you can’t take politicians out, change the existing formulas (lower capital subsidies, more for maintenance, etc)
- Get to the bottom of the great American infrastructure cost disease
- Be wild, imitate France and rely more on the private sector (but avoid botched privatisation and ‘backwards’ PPPs)
- Rely more on user fees (including tolls, congestion fees, etc)
- Can we rely more on land appreciations?
- Think long-term and establish meaningful norms for future technological disruptions (e.g., a telecommunication infrastructure for self-driving cars)
A boom in infrastructure spending in the US?

Two reasons for skepticism:

- Can this go through Congress?

  - Only slightly more than 100 billion dollars could be spent on infrastructure over several years (in 800+ billion)
  - Only 27 billion dollars could be spent on roads and bridges
  - A lot of the rest of the ARRA infrastructure spending was on renewables...
Conclusions

- Using infrastructure to prop-up declining places may bring short-term ‘make-work’ effects and be politically advantageous but this is a bad idea
- US infrastructure investment is plagued by misallocation and high costs
- We should do better infrastructure investment rather than more infrastructure investment
Thank you
Extra: what would be the effect of a boom on infrastructure spending?

Despite my skepticism, we would happen in case of a boom in infrastructure spending?

- In the short-run, it can boost the economy just like any short-run stimulus can.
- But the US unemployment rate is a low 4.4%.
- Even though labor market participation is still lower than before the great recession, there are doubts about the potential for lots more extra jobs.
- So the Fed is likely to respond and raise the interest rate...