Addressing risk and uncertainty in long-term PPP contracts

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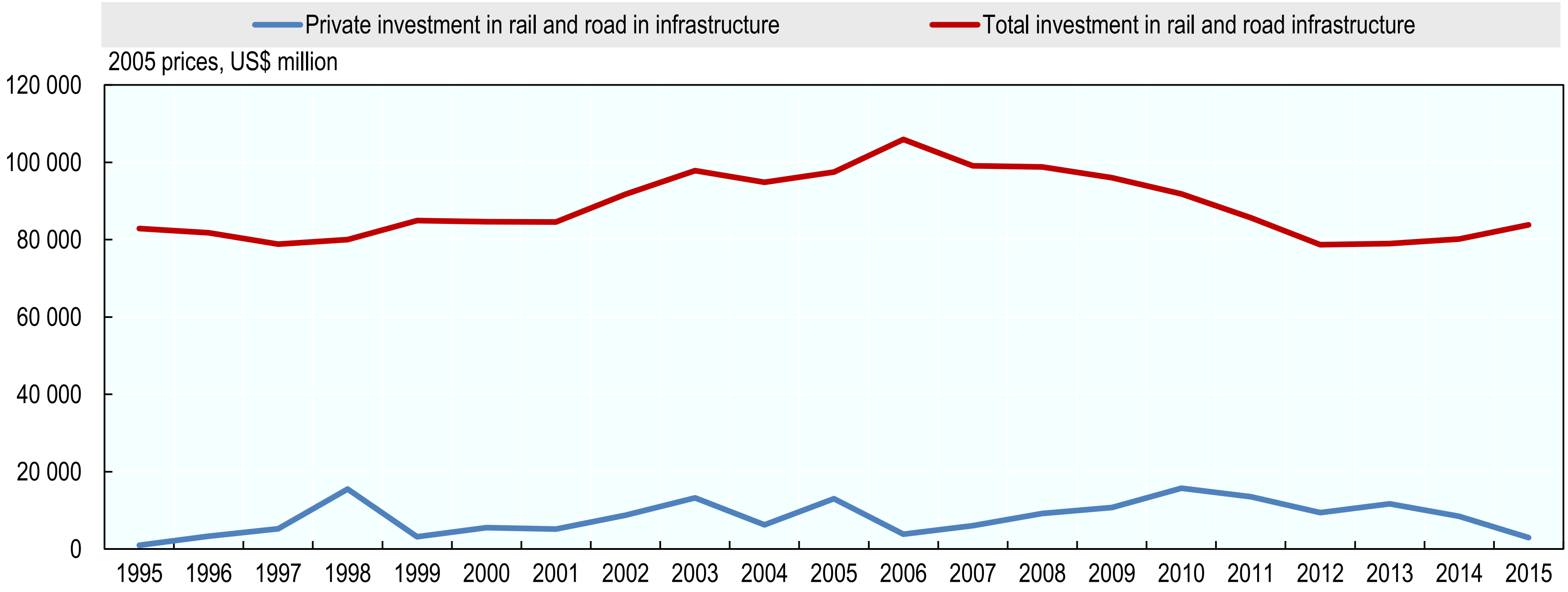
Working Group Papers , International Transport Forum, 2018

1. Makovšek, D., "Mobilising Private Investment in Infrastructure: Investment De-Risking and Uncertainty"
2. Vasallo, J. M., "Public-Private Partnerships in Transport: Unbundling Prices from User Charges"
3. Engel, E., R. Fischer and A. Galetovic, "Dealing with the Obsolescence of Transport Infrastructure in Public-Private Partnerships"

Idea 1: private participation in transport infrastructure is modest

Total and PPP investment in road and rail infrastructure in OECD7* countries (1995-2014, in USD million 2005 prices)



Source: Makovsek (2018)

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Annual world infrastructure spending, (2008-10, USD billion)

	Total	Private		
	(1) Públic+ private	(2) PPP	(3) *Project finance*	(4) Corporate
Transport	1,040	[45–75]	–	nd
Airports	*80*			
Seaports	*110*			
Rail	*400*			
Roads	*450*			
Social infrastructure	490	[12–20]	–	na
Water & sanitation	160		–	na
Oil & gas	200	[3–5]	na	na
Electricity	810		[140–160]	na
Telecommunications	300		[42–48]	na
Total	3,000			
Total private	1,000	[60–100]	[180–220]	[680–760]
World GDP (2010)	63.000			

Idea 2: PPPs have worked well in seaports and airports; less so in roads and rail

PPP performance in transport infrastructure

- Seaports and airports (≈ 20 percent of total transport infra spending)
  - Drewry database: 252 landlord container ports (2014)
  - PPIAFF database: 141 private/concessioned airports (2014)
  - Private investment accomodated massive increases in capacity & trade
- Rail, roads, tunnels and bridges (≈ 80 percent of total transport infra spending)
  - Small participation in general, and concentrated in a few countries
  - Contracts are often renegotiated

Idea 3: risk and insufficient funding are different problems

- **Funding:** who will pay for the project (users/tolls; taxpayers/budget; a combination → see Vasallo)
- **Risk**: unpredictable variation in total project value (Revenues – Costs): you don't know which outcome will realize

Idea 4: the key question about a risk is: can some party do something about it?

The answers

- Yes (endogenous risks)
  - Make good outcomes more likely, and bad oucomes less likely
  - De-risking: invest/spend to clarify what the risk is about or reduce the magnitude of the unpredictable variation
  - The questions: (i) who should be responsible for the risk; (ii) what do you get in exchange for the risk transfer
- No (exogenous risks):
  - Who is best suited to bear/spread the risk?
  - The party that bears exogenous risk “sells” insurance
  - The question: who should sell insurance to whom?

Idea 5: thoughtful risk allocation is a de-risking strategy by itself

An example: demand risk in ports and roads

- Seaports: quality & speed of service can affect demand for the port dramatically → substantial part of demand risk is endogenous → let the PPP bear demand risk
- Roads: largely exogenous once road is available → should the government "buy" or "sell" insurance?

Fixed term PPPs create demand risk ($600)

Year	1	2	3	4	5	6	7	8	9	10	11	12
High demand (p = 0.5)	100	100	100	100	100	100	100	100	100	100	100	100
Low demand (p = 0.5)	50	50	50	50	50	50	50	50	50	50	50	50
Expected traffic	75	75	75	75	75	75	75	75	75	75	75	75

Roads and demand risk

- Hard to think that PPP investors are in the insurance business (SPV + capital market?)
- Government can spread risk among taxpayers
- Private infrastructure (terminals, pipelines) use take-or-pay contracts
- Lot’s of renegotiations because demand was too low

An availability contract ($600)

Year	1	2	3	4	5	6	7	8	9	10	11	12
High demand (p = 0.5)	100	100	100	100	100	100	100	100	100	100	100	100
Low demand (p = 0.5)	50	50	50	50	50	50	50	50	50	50	50	50
Expected traffic	75	75	75	75	75	75	75	75	75	75	75	75

A Least-Present-Value-of-Revenues contract ($600)

Year	1	2	3	4	5	6	7	8	9	10	11	12
High demand (p = 0.5)	100	100	100	100	100	100	100	100	100	100	100	100
Low demand (p = 0.5)	50	50	50	50	50	50	50	50	50	50	50	50
Expected traffic	75	75	75	75	75	75	75	75	75	75	75	75

Idea 6: the government has more and better options if the road PPP doesn't bear demand risk

- PPP revenues and bids are tied to investment, not user demand, and fixed at the beginning of the concession
- A buyout call option is easier to value (Total – Extant Revenues); the government can retain flexibility without expropriating
  - Option to revamp the infrastructure
  - Option to bear obsolescence risk
- Separation of tolling and funding of PPPs: a road fund which pools availability-based contracts (Vasallo’s proposal)

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Thank you!

OECD