



Why Rebuild BR-319? Economics of an Amazon Road

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Road construction and paving in the Amazon can generate economic benefits by lowering transport costs. At the same time, roads drive deforestation and stir up social conflicts in lawless frontiers. Given the diverse and sometimes transformative impacts of roads, it's important that their economic efficiency is properly demonstrated and that measures are taken to ensure an equitable distribution of costs and benefits.

A new study does that kind of analysis on a proposed road in Brazil, known as BR-319. The route once connected Porto Velho and Manaus but now requires extensive paving, bridges and reconstruction of an entire 406 km section. This

stretch has been virtually impassable since 1986. The reconstruction project is part of the federal Accelerated Growth Plan (known by its Portuguese acronym PAC). Our analysis focuses on the R\$557 million

(US\$265 million) needed to rebuild this section and four new bridges, which would enable the continuous flow of traffic between Manaus and Brazil's more populous South.

Currently, there is no other rigorous study available on this road's broad economic efficiency. To support discussion of the project, we constructed two scenarios, a "conventional" one,

which reflects the approach commonly used in the evaluation of projects for road infrastructure, and an "integrated" scenario, which aims to incorporate environmental costs in the conventional scenario. We do not consider social costs in the analysis.



Map of Proposed BR-319

Source: Ministry of Transport

The conventional scenario shows that the project is economically inefficient, causing net losses of about R\$316 million (US\$150 million). Each dollar invested generates only around 33 cents of benefits. The project remains infeasible even at

discount rates as low as 3%. We performed a risk analysis using Monte Carlo simulation to incorporate uncertainties in estimating variables such as costs and traffic and found that the project has a 0% probability of attaining economic feasibility.

Recent models indicate that the project will cause extensive deforestation between the

Purus and Madeira rivers unless policy measures of unprecedented effectiveness are taken to restrain forest clearing. Deforestation costs could top R\$1.9 billion (US\$900 million) in present value terms. R\$1.4 billion (US\$670 million) of this cost corresponds to the emission of carbon

stored in tropical forests. These estimates are based on deforestation models presented by Soares Filho et al. (2006).

In the integrated scenario, which includes the environmental costs, the losses of the project could go as high as R\$2.2 billion (1.05 billion), or just 6.5 cents of benefits for each dollar of cost.

Our analysis does not incorporate the potential costs and benefits of proposed mitigation measures, which consists mostly of protecting land in parks and reserves. Basic protection of these areas would cost around R\$469 million (US\$233 million) in present value terms. This means that, in the case of all additional deforestation is curbed, the road project would need to generate at least R\$785 million

(US\$361 million) of additional benefits to turn the project economically efficient, 5 times the benefits actually estimated. While the Brazilian Environmental Ministry has agreed on this estimate of needed mitigation, the Transport Ministry announced only R\$39 (US\$19 million), 8% of the required investment.

The evidence available at this point suggests that BR-319 would be an inefficient use of Brazilian taxpayers' money. Alternative public investments in transportation and other public services should be analyzed to identify those with more promise of stimulating economic growth where it is most needed.



NOTES:

1. SOARES-FILHO, B. S. et al. (2006). *Modelling conservation in the Amazon Basin. Nature, 440: 520–523.*
2. *Research for this project funded by the Gordon and Betty Moore Foundation and the US Agency for International Development*
3. *Photos by Leonardo Fleck*