



# On the gains of committing to inefficiency: Corruption, deforestation and low land productivity in Latin America

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## Abstract

We present a new explanation and empirical evidence showing that rural subsidies to large farmers tend to be associated with low land productivity and excessive deforestation. We develop a lobbying model where wealthy farmers trade bribes or political contributions to government politicians in exchange for subsidies; farmers are able to tilt the terms of the bargaining game with policy makers in their favor by pre-committing to an inefficient choice of semi-fixed inputs. Government proneness to accept political contributions or bribes and its willingness to provide subsidies cause farmers to adopt inefficient modes of production as a mechanism to capture such subsidies. Our predictions are consistent with stylized facts on land use in Latin America, and suggest that subsidy schemes have been counterproductive—distorting and constraining development, and triggering excessive depletion of natural resources. We validate some of the predictions of the model through econometric analyses using a new data set for nine countries in Latin America.

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## 1. Introduction

Government subsidies to resource-intensive industries are ubiquitous. For example, global farm subsidies exceed \$500 billion per annum [33], subsidies to fishing are estimated at between \$15 billion and \$21 billion [31] and subsidies to the energy and coal sector approximate \$245 billion per annum [21]. Subsidies are generally considered economically inefficient as they tend to distort prices and trade patterns, and are a blunt instrument to address social or economic objectives.

This paper provides a rigorous explanation for the persistence of mainly perverse subsidies. By developing a lobbying model, where producers can ‘purchase’ subsidies by bribing or by providing political campaign

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contributions or other less tangible benefits to elected politicians, this paper provides a formal analysis of the political economy aspects of subsidy provision. We theoretically and empirically show that a greater government's proclivity to provide (non-social) subsidies leads producers to choose more extensive modes of production thus lowering resource or land productivity. Producers thus have the ability to pre-commit to extensive (often inefficient) modes of production, which in agriculture means over-investing in land, as an instrument to attract public subsidies when governments are corrupt or prone to exact political contributions. Large land holdings play not only a productive role but also constitute a signal by producers to government that they can obtain greater benefits from government subsidies and, consequently, are willing and able to pay greater bribes or to support incumbent politicians campaigns to remain in office.

While the subsidy and pre-commitment issue is global in scale, and our analysis applies to a much wider set of subsidized resource-based industries, the motivation and focus of this paper is on agricultural subsidies in Latin America, where agriculture often expands onto forested areas. These countries inherited institutions that benefit elite groups at the expense of the majority of the population [11,35]. About 50% of the total rural government expenditures in Latin America are subsidies to private goods instead of expenditures related to the provision of public goods [28,1,23]. These include subsidized public credit to selected producers, grants directed to particular activities, marketing promotion targeting specific crops, free irrigation services financed with public monies directed mainly to a small number of often wealthy producers, fertilizer subsidies and so on [11]. Findings suggest that these subsidy schemes have been counterproductive—distorting and constraining development, lowering productivity, and triggering excessive expansion of farmland and possibly depletion of forests and other natural resources.

We validate some of the predictions of the model through econometric analyses using a new panel data set for nine countries in Latin America over the period 1985–2000. In particular, our empirical analyses show that: (i) More corrupt governments tend to spend more in (non-social) subsidies mainly directed to wealthy producers to the detriment of public and social goods; (ii) Government subsidies to the rural sector significantly reduce agricultural land productivity; and (iii) Government subsidies, *ceteris paribus*, promote the expansion of the agricultural land area and induce more deforestation.

This application of the model to Latin America is of general economic and policy significance for at least two reasons. First, the analysis provides a novel political economy explanation of the widely documented 'inverse farm size-productivity' relationship in developing countries that has been considered to be particularly relevant to Latin America [9]. Our model suggests that this phenomenon is consistent with income maximizing behavior of subsidized industries and rent-seeking policy makers. While it is often argued that rural subsidies are necessary to stimulate development in backward regions, our results suggest that the effect may be the opposite of what is intended—subsidies can contribute to rural stagnation. Second, extensive agricultural systems have led to excessive expansion of agricultural land into forested areas and other environmentally sensitive ecosystems [18,10]. The resulting external costs are likely to spill over beyond the region, and have global repercussions.

Some authors have argued that low agricultural yields lead to greater deforestation pressures as farmers would need more land to sustain their income, providing an incentive to convert forest land into agriculture. Others have pointed out that low yields mean low returns to land (and low land values) and, therefore, reduced incentives to deforest. A consensus has recently emerged in the sense that the first argument applies mostly to poor subsistence farmers whose main objective is to survive while the second argument is more relevant for commercial profit maximizing operators [25,4]. We show that the relationship between these two endogenous variables, deforestation and agricultural yields, critically depends on the underlying processes causing their changes. We show that low agricultural yields are likely to be associated with more deforestation even for profit-seeking commercial farmers if subsidies are guided by political economy and corruption.

The paper is organized as follows. In Section 2 we sketch the existing literature and stylized facts on land use in Latin America. In Section 3 we develop the lobby model and in Section 4 we present the main results. Section 5 presents the econometric estimates that support much of the theoretical results. Finally Section 6 concludes.

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