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Local incentives and national tax evasion: The response of illegal mining to a tax reform in Colombia[☆]

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ABSTRACT

Achieving a fair distribution of resources is one of the goals of fiscal policy. To this end, governments often transfer tax resources from richer to more marginalized areas. In the context of mining in Colombia, we study whether lower transfers to the locality where the taxed economic activity takes place dampen local authorities' incentives to curb tax evasion. Using machine learning predictions on satellite imagery to identify mines allows us to overcome the challenge of measuring evasion. Employing difference-in-differences strategies, we find that reducing the share of revenue transferred back to mining municipalities leads to an increase in illegal mining. This result highlights the difficulties inherent in adequately redistributing tax revenues.

1. Introduction

Achieving a fair distribution of resources is one of the goals of fiscal policy. To this end, governments often transfer tax resources from richer to more marginalized areas. Yet, a smaller share of revenue transferred back to the locality where the taxed economic activity takes place could dampen local authorities' incentives to curb tax evasion (Banerjee and Hanna, 2012). This is a classic agency problem in tax collection and evasion enforcement between central and lower levels of government. We study this dimension of tax evasion in the context of illegal mining in Colombia. We find that reducing the share of mining royalties transferred back to the mining municipalities leads to an increase in illegal mining.

One challenge to studying tax evasion (or any illegal activity) is measuring its extent (Banerjee and Hanna, 2012; Slemrod and Weber, 2012; Fisman and Wei, 2004). To overcome this issue, we construct a novel dataset using machine learning predictions on satellite imagery to detect mining activity. We assess the legality of identified mining activity using georeferenced mining permits issued by the central government.¹ The specific mineral mined in each location is approximated, based on research conducted

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¹ We measure illegal mining following the Colombian government's definition: "mining activity without a mining permit registered with the National Mining Registry" (Ministerio de Minas y Energía, 2003, p. 108). According to the 2010 Mining Census, among mines without a permit, 85% evade royalty taxes.

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