Gold Mining and School Education: 
Evidence from Colombia

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Introduction

What are the effects of the Colombian 2006-2012 gold boom on dropouts and school performance?

Relevance:
• Extensive evidence of child labor in gold mining (ILO, 2006; ICBF, 2009).
• Mining is considered a Worst-Form of Child Labor in Colombia and therefore should be eradicated (ILO - Convention 182).
• Mining booms are transitory, schooling effects are permanent.

Previous literature:
• Cross-country regressions: Mining has negative effects on human capital accumulation (Gylfason, 2001; Birdsall et al., 2001; Stijns, 2005; Cogneau & Jedwab, 2012).
• Ambiguous effects of aggregate economic shocks on schooling and child labor: Institutions can make a difference (Ferreira & Schady, 2009; Kruger, 2007; Cogneau & Jedwab, 2012).

Colombian Gold Rush

During the Financial crisis, international gold prices and Colombian production rose, particularly between 2006 and 2012

5 departments account for 96% of the national production: Antioquia and Chocó are by far the leaders.

Chocó, rich in river gold, contributed to 66% of the boom:
• Extraction: artisanal miners and floating dredges (mostly owned by illegal companies)
• Poorest region of Colombia: Behind in most education and labor outcomes
• Conflict, environmental degradation and health problems have increased since 2006 (CITAR)

Identification strategy

Potential endogeneity of municipal-year Gold Production:
• Omitted variable and reverse causality
• Measurement error

Panel IV:

\[
Y_{it} = \beta_0 + \beta_1 X_{it} + \mu_i + \gamma_t + \epsilon_{it}
\]

• School and year fixed effects
• Instrument: Geological potential for gold interacted with international price

Preliminary Results

School Dropout Rate and Gold Production IV (Gold departments, 2006-2011)

Conclusions

Dropouts
• Negative effects on primary and middle school and none on high school.
• No significant differences between by gender, urban/rural.
• Most of the improvement happened in public schools.

High School Exit Exam
• Negative and significant effects on everything but language.
• No significant differences between by gender, urban/rural of private/public schools.

Extensions
• Regional heterogeneity and the role of institutions: royalties, public investment in education, child labor eradication programs.
• More outcome: test scores at grades 5 and 9, enrollment in higher education (ICFES), children health and child labor (DHS).