

A Bonanza for Bad Politicians: Informal Gold Mining and Criminal Candidates in Peru

The Economics of Informality Conference 2018
Universidad del Rosario, Bogotá

Antonella Bandiera

New York University

May 28, 2018

Madre de Dios



Figure: Left: Luis Otsuka, Governor of Madre de Dios. Right: Modesto Figueroa Minaya, Congressman from Madre de Dios

Madre de Dios



Figure: Left: Luis Otsuka, Governor of Madre de Dios. Right: Modesto Figueroa Minaya, Congressman from Madre de Dios

- Both politicians from an area that has been devastated by illegal mining

Madre de Dios



Figure: Left: Luis Otsuka, Governor of Madre de Dios. Right: Modesto Figueroa Minaya, Congressman from Madre de Dios

- Both politicians from an area that has been devastated by illegal mining
- Both being investigated for connections to the illegal mining business

Resource Booms: Informal and Illegal Industries

- We know a lot about the negative effects on governance from rents derived from legal extractive activities

Resource Booms: Informal and Illegal Industries

- We know a lot about the negative effects on governance from rents derived from legal extractive activities
- **But what are the effects, if any, of rents derived from informal and illegal extractive activities?**

Resource Booms: Informal and Illegal Industries

- We know a lot about the negative effects on governance from rents derived from legal extractive activities
- **But what are the effects, if any, of rents derived from informal and illegal extractive activities?**
- Many activities that experience price shocks are informal and sometimes even illegal

Resource Booms: Informal and Illegal Industries

- We know a lot about the negative effects on governance from rents derived from legal extractive activities
- **But what are the effects, if any, of rents derived from informal and illegal extractive activities?**
- Many activities that experience price shocks are informal and sometimes even illegal
- **What are the effects of shocks that affect illegal or informal industries on governance?**

Resource Booms: Informal and Illegal Industries

- We know a lot about the negative effects on governance from rents derived from legal extractive activities
- **But what are the effects, if any, of rents derived from informal and illegal extractive activities?**
- Many activities that experience price shocks are informal and sometimes even illegal
- **What are the effects of shocks that affect illegal or informal industries on governance?**
- Opportunity to think about how expansion of informal and illegal markets affects who governs and how do they behave once in power

Resource Booms: Informal and Illegal Industries

- We know a lot about the negative effects on governance from rents derived from legal extractive activities
- **But what are the effects, if any, of rents derived from informal and illegal extractive activities?**
- Many activities that experience price shocks are informal and sometimes even illegal
- **What are the effects of shocks that affect illegal or informal industries on governance?**
- Opportunity to think about how expansion of informal and illegal markets affects who governs and how do they behave once in power
- In this paper I find that price shocks that affect an informal/illegal industry worsens the quality of politicians

The Deleterious Effects of Extraction of Natural Resources

The Deleterious Effects of Extraction of Natural Resources

- Resource booms have a negative effect on governance and accountability

The Deleterious Effects of Extraction of Natural Resources

- Resource booms have a negative effect on governance and accountability
- The effect travels through the increase in non-tax revenues: it provides a source of rents for the politicians, and voters can't or decide not to punish (Brollo et al., 2013; Martínez, 2015)

The Deleterious Effects of Extraction of Natural Resources

- Resource booms have a negative effect on governance and accountability
- The effect travels through the increase in non-tax revenues: it provides a source of rents for the politicians, and voters can't or decide not to punish (Brollo et al., 2013; Martínez, 2015)
- If voters are unaware of the existence or can't monitor additional public funds, they can't hold politicians accountable, which allows the incumbent to dispose of the extra revenue

The Deleterious Effects of Extraction of Natural Resources

- Resource booms have a negative effect on governance and accountability
- The effect travels through the increase in non-tax revenues: it provides a source of rents for the politicians, and voters can't or decide not to punish (Brollo et al., 2013; Martínez, 2015)
- If voters are unaware of the existence or can't monitor additional public funds, they can't hold politicians accountable, which allows the incumbent to dispose of the extra revenue
- Is this the only negative consequence of natural resource booms?

The Deleterious Effects of Extraction of Natural Resources

- Resource booms have a negative effect on governance and accountability
- The effect travels through the increase in non-tax revenues: it provides a source of rents for the politicians, and voters can't or decide not to punish (Brollo et al., 2013; Martínez, 2015)
- If voters are unaware of the existence or can't monitor additional public funds, they can't hold politicians accountable, which allows the incumbent to dispose of the extra revenue
- Is this the only negative consequence of natural resource booms? Probably not, because natural resource booms and the expansion of informal industries produce a lot of revenue that does not go through the state

The Deleterious Effects of Extraction of Natural Resources

- The informal and illicit exploitation of resources is common in contexts of weak institutions

The Deleterious Effects of Extraction of Natural Resources

- The informal and illicit exploitation of resources is common in contexts of weak institutions
- It can also generate a lot of rents if politicians can collude with groups to raise output illegally, especially by diverting law enforcement away from illegal and informal activities

The Deleterious Effects of Extraction of Natural Resources

- The informal and illicit exploitation of resources is common in contexts of weak institutions
- It can also generate a lot of rents if politicians can collude with groups to raise output illegally, especially by diverting law enforcement away from illegal and informal activities
- Following Persson and Tabellini (2000), we have a very simple model in which politicians maximize return to illegal activity, constrained by the probability that they get caught
 - ▶ Pre-elections shocks: Increase criminal politicians who want to gain office (adverse selection)
 - ▶ After election shocks: induce worse behavior of already elected politicians (moral hazard)

The Deleterious Effects of Extraction of Natural Resources

TWO PROBLEMS:

- 1 Formal exploitation of extractive industries often geographically overlaps with informal and illicit exploitation
- 2 Informal and illicit exploitation might be endogenous to the existence of weak institutions

The Deleterious Effects of Extraction of Natural Resources

TWO PROBLEMS:

- ① Formal exploitation of extractive industries often geographically overlaps with informal and illicit exploitation
- ② Informal and illicit exploitation might be endogenous to the existence of weak institutions
- Informal gold mining in Peru offers a great opportunity to analyze whether there is direct effect of availability of informal or illegal rents on candidates

The Deleterious Effects of Extraction of Natural Resources

TWO PROBLEMS:

- 1 Formal exploitation of extractive industries often geographically overlaps with informal and illicit exploitation
 - 2 Informal and illicit exploitation might be endogenous to the existence of weak institutions
- Informal gold mining in Peru offers a great opportunity to analyze whether there is direct effect of availability of informal or illegal rents on candidates
 - ▶ It isolates the fiscal channel (formal mines don't overlap with deposits that are mined informally)

The Deleterious Effects of Extraction of Natural Resources

TWO PROBLEMS:

- 1 Formal exploitation of extractive industries often geographically overlaps with informal and illicit exploitation
 - 2 Informal and illicit exploitation might be endogenous to the existence of weak institutions
- Informal gold mining in Peru offers a great opportunity to analyze whether there is direct effect of availability of informal or illegal rents on candidates
 - ▶ It isolates the fiscal channel (formal mines don't overlap with deposits that are mined informally)
 - ▶ There was a big expansion of informal and illegal gold mining produced by international prices of gold (exogenous to the quality of local governments in Peru)

Background: Informal Gold Mining in Peru

Background: Informal Gold Mining in Peru

- Soaring gold prices and War on Drugs reduced the returns from drug trafficking during the 2000s

Background: Informal Gold Mining in Peru

- Soaring gold prices and War on Drugs reduced the returns from drug trafficking during the 2000s
- Incentives for criminal groups to move into gold mining

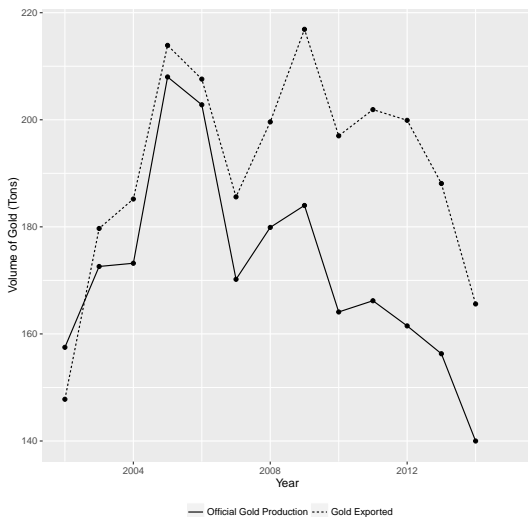
Background: Informal Gold Mining in Peru

- Soaring gold prices and War on Drugs reduced the returns from drug trafficking during the 2000s
- Incentives for criminal groups to move into gold mining
 - ▶ Fragmented nature of artisanal gold mining
 - ▶ Gold is easy to move across borders
- Economically disadvantaged individual were also attracted to informal gold mining

Background: Informal Gold Mining in Peru

- Soaring gold prices and War on Drugs reduced the returns from drug trafficking during the 2000s
- Incentives for criminal groups to move into gold mining
 - ▶ Fragmented nature of artisanal gold mining
 - ▶ Gold is easy to move across borders
- Economically disadvantaged individual were also attracted to informal gold mining
- In Peru alone, the value of the gold produced informally amounted to 15,700 million USD during 2003-2014 and represented over a fourth of total gold production

Illegal Gold Mining in Peru



This Project

This Project

- Informal gold mining has many bad consequences, but they are very observable for enforcers and policy-makers.
- This means that informal resource extraction necessitates of the protection of local level law enforcement and politicians, which generates an opportunity to collude with law enforcers to increase output

This Project

- Informal gold mining has many bad consequences, but they are very observable for enforcers and policy-makers.
- This means that informal resource extraction necessitates of the protection of local level law enforcement and politicians, which generates an opportunity to collude with law enforcers to increase output
- If politicians maximize return to protection of this illegal activity,

This Project

- Informal gold mining has many bad consequences, but they are very observable for enforcers and policy-makers.
- This means that informal resource extraction necessitates of the protection of local level law enforcement and politicians, which generates an opportunity to collude with law enforcers to increase output
- If politicians maximize return to protection of this illegal activity,
- I expect that more criminal candidates will compete in elections in districts with informal mining, when the price of gold rises
- And more elected candidates will behave badly when the price of oil rises, in municipalities that have more informal mining

Informal Gold Mining in Peru: Empirical Strategy

- I follow a differences-in-differences strategy to exploit variation across provinces with gold deposits that are mined informally to examine the effect of the expansion of the gold industry on the criminality of candidates
- Due to geological characteristics, informal gold mining is restricted to certain type of deposits (alluvial, placer and disseminated type of gold deposits), so informal miners did not share territory with formal, large scale operations during the first phase of the mining boom (Echave, 2013)
- The expansion of the industry is captured by the changes in the international price of gold
- Formally,

$$y_{prt} = \alpha_p + \beta_t + \lambda(\text{GoldDeposits}_{pr} \times \text{GoldPrice}_t) + \mathbf{X}_{prt}\phi \quad (1)$$

Informal Gold Mining in Peru: Empirical Strategy

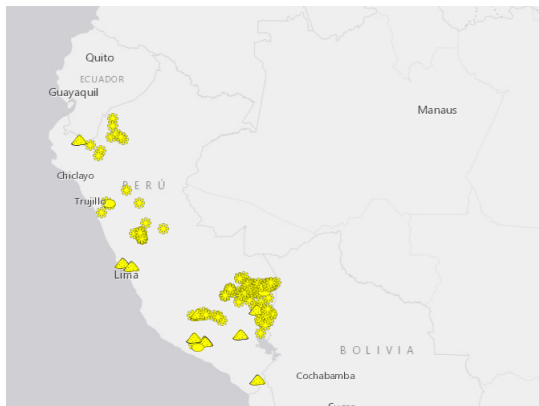
Outcome

- I scraped the CVs and criminal records of 1,058 candidates
 - ▶ Gender, occupation, education, year of indictment, type of crime
- 7 regions, 60 provinces, two electoral years (2002-2006)
- Indicators of criminality of elected candidate and number of criminal candidates

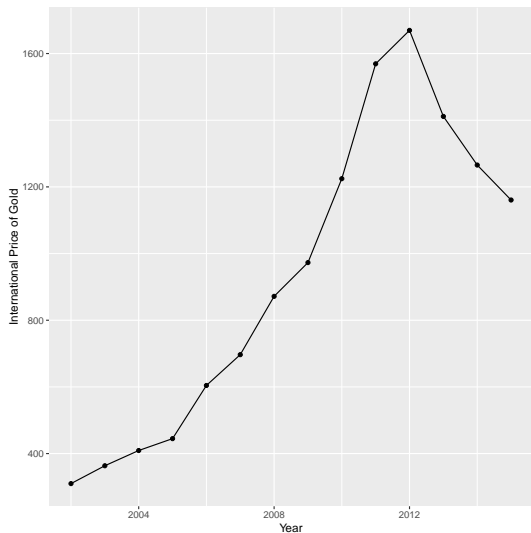
Cross-section variation

- I geolocated three types of gold deposits (out of over 30)
- Alluvial, Placer and Vein-disseminated types, which are more efficiently mined informally

Informally Mined Gold Deposits in Peru



The International Price of Gold



Informal Gold Mining in Peru: Results

Table: The effect of the price of gold on electoral outcomes

	(1)	(2)	(3)	(4)
	Number of Candidates	Margin of Victory	Number of Criminal Candidates	Elected Candidate is of Criminal Type
GoldDeposits \times GoldPrice	0.057*** (0.013)	0.001** (0.000)	0.046*** (0.011)	0.013** (0.005)
Observations	118	118	118	118

Robust standard errors in parentheses clustered at the province level

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Baseline specification presented in equation 1. Controls include the log of population and poverty.

Informal Gold Mining in Peru: Results

Table: The effect of the price of gold on the criminality of candidates before and after the elections

	(5) Number of candidates who committed crimes before the election	(6) Number of candidates who committed crimes after the election	(7) Elected candidate committed a crime before the election	(8) Elected candidate committed a crime after the election
GoldDeposits \times GoldPrice	0.017** (0.006)	0.025** (0.008)	-0.003* (0.001)	0.016** (0.006)
Observations	118	118	118	118

Robust standard errors in parentheses, clustered at the province level

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Baseline specification presented in equation 1. Controls include the log of population and poverty.

Conclusion

- There is a positive effect on the criminality of the candidates
- More criminal candidates are attracted to the competition
- And elected candidates commit more crimes once elected
- But, voters do not elect known criminals

Conclusion

- There is a positive effect on the criminality of the candidates
- More criminal candidates are attracted to the competition
- And elected candidates commit more crimes once elected
- But, voters do not elect known criminals

Moving forward

- Mechanisms that link increase in prices to worse quality politicians:
how do informal and illegal mining groups interact with politicians?