

# Golden Promises and Divided Communities: Evidence from Kyrgyzstan Kumtor Mine

Pengshan Pan

PhD Candidate, University of Pittsburgh, GSPIA

October 2023

1 / 17

## Introduction

Research Question: Why does the economic growth of massive resource investment in developing countries generate local controversy?

- Case Study: Kumtor mine in Kyrgyzstan, dominant natural resource project.
- Data Sources: Geolocated data, 5-year household panel survey
- Key Findings: Kumtor mining operation leads to:
  - ↑ Higher wages, social benefits for mining workers.
  - ↑ Rising inequality, polarization within the community.
  - ↓ Decreased trust in local leaders (mining workers).
  - Other non mining sector families: No spillover effect.
  - Other mines: No such disparity, ownership doesn't matter.

2 / 17

## Extractive Industry in Kyrgyzstan



- Kumtor Mine: Largest company, Canadian-owned gold mine in Kyrgyzstan.
- Significant Impact:
  - 10% employment in the extractive sector.
  - 90% of the country's gold production.
  - 12.5% of Kyrgyzstan's GDP in 2020 (EITI report).
- Ownership Structure:
  - Centerra (Canadian) holds a 100% interest in the Kumtor Mine.
  - State-owned enterprise Kyrgyzaltyn holds a 32.75% share in Centerra.

3 / 17

## Frequent Protests



- 10 major uprisings in 15 years (2005 - 2020)
- Kumtor-related national uprisings (2 instances)

4 / 17

## Main Question

- Why the protests? Is it due to mistreatment? Not necessarily!
- **Main question:** If higher salaries are paid, why is there local resistance?
- **Key finding:** The **uneven** revenue distribution from mine leads to a division between the **mining sector benefited** and the **local community excluded**.
- Increased polarization: Beneficiaries- Mining industry and state elites  
Victims- Local residents and community

5 / 17

## Mechanism : Welfare

Mechanism Large revenues + Highly centralized fiscal system +  
Inadequate distributed to local

Higher welfare for Miners: Does Ownership Matter?

- Foreign ownership (no):
  - high labor demand, capital reserves and training investment (Harrison and Scorse, 2010; Aragón and Rud, 2013).
  - prioritizing worker welfare, less likely to give philanthropy to local (Luong and Weinthal, 2010; Blonigen and O'fallon, 2011).
- Firm-specific attributes matter: industry, revenues, size, parent country (Bellak, 2004).
- Institution matters, mining workers may get more rent from company (Alexeev and Zakharov, 2022)

6 / 17

## Mechanism : Trust in Local Leaders

### Lower Trust for Miners in Local Leaders:

- State-Mining Sector:
  - State elites and mining workers benefit directly from mineral wealth through state ownership and revenue.
  - Reduced trust in local leaders by miners.
- Local-Non Mining Sector:
  - Local communities benefit indirectly from mineral wealth only through partial taxes and local spending.
  - Increased trust in local leaders by non-mining sector workers.
  - Villagers mobilized against mines by local leaders (aksakals)

7 / 17

## Hypotheses

### Hypothesis 1: Welfare Effect

- Mining Workers: Higher income and social welfare at Kuntor (<100 miles).
- Non-mining Workers and Miners in Other Mines (>100 miles): No significant welfare difference.

### Hypothesis 2: Trust Effect

- Mining Workers: Lower trust in local leaders at Kuntor (<100 miles).
- Non-mining Workers and Miners in Other Mines (>100 miles): No significant/higher trust in local leaders.

8 / 17

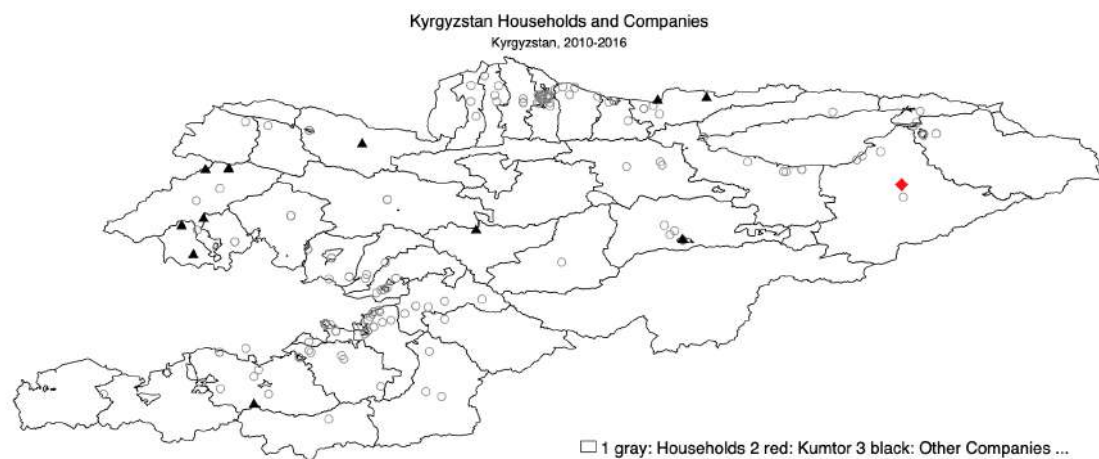
## Data

### Life in Kyrgyzstan

- Survey of 3,000 households and 8,000 individuals.
- Includes all seven Kyrgyz regions and the cities of Bishkek and Osh.
- Nationally and locally representative.
- Covers various socio-economic topics.
- Five survey waves conducted between 2010 and 2016.

9 / 17

## Towns in Survey



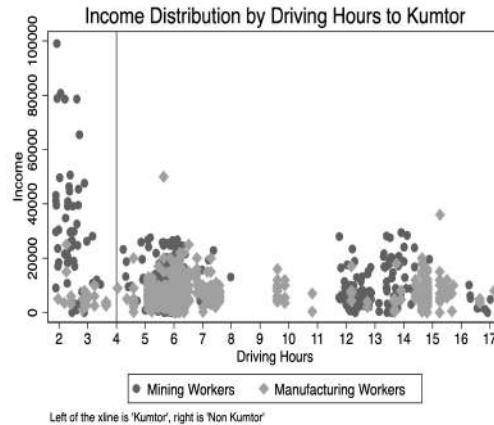
10 / 17

## Empirical Specification

X-axis: Driving time from Mining Deposit to Workers' Household (Google Map)

Y-axis: Income of Workers

Figure 1: Income of Mining Workers and Manufacturing Workers



11 / 17

## Kumtor's Impact: Welfare and Trust

$$Y_{idt} = \beta_0 + \beta_1(Kumtor \leq 100)_{idt} + \beta_2(Miner)_{idt} \\ + \beta_3(Kumtor \leq 100 \times Miner)_{idt} + \theta_d + \gamma_t + \epsilon_{idt}$$

- Dependent Variables: wage (monthly versus hourly), trust in local authority (1-4), i.written contract, i.job training, i.social security.
- Independent Variables: i.Proximity to Kumtor (100 miles), i.Mining employment status
- Controls: Year and District fixed effects, demographics
- Non-mining Family Workers: In manufacturing/agriculture with no mining family members. (appendix)

12 / 17

# Empirical Specification Results

- Welfare Effect (H1)  $\beta_3 > 0$  (Miners)
- Trust Effect (H2)  $\beta_3 < 0$  (Miners)

Table 1: Kumtor's Impact (100 Miles Distance Circle)

	(1) Kumtor Income Full Sample	(2) Non-Kumtor Income No Kumtor	(3) 100%Domestic Income No Kumtor	(4) Kumtor Trust(Local Leaders) Full Sample	(5) Non-Kumtor Trust(Local Leaders) No Kumtor	(6) 100%Domestic Trust(Local Leaders) No Kumtor
Dist ≤ 100	-0.001 (0.030)	0.037* (0.015)	0.009 (0.019)	-0.004 (0.010)	-0.006 (0.010)	-0.005 (0.010)
<b>Dist ≤ 100 x Miner</b>	<b>1.094***</b> (0.141)	<b>0.134</b> (0.109)	<b>0.105</b> (0.091)	<b>-0.381**</b> (0.130)	<b>0.436***</b> (0.130)	<b>0.099</b> (0.094)
Miner	<b>0.450***</b> (0.034)	<b>0.315**</b> (0.103)	<b>0.417***</b> (0.036)	<b>-0.152***</b> (0.044)	<b>-0.566***</b> (0.121)	<b>-0.186***</b> (0.053)
Income Control				Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	17958	16727	16727	17181	15963	15963

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

13 / 17

# Discussions

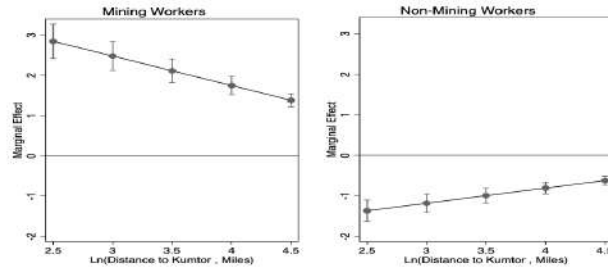
- Other Mines:
  - Foreign, domestic, mixed-ownership, and Chinese-owned (No disparity)
  - Kumtor is uniquely pronounced
  - Ownership doesn't matter
- Alternative Dependent Variables:
  - Monthly and Hourly Wage : ✓ Consistent
  - Kumtor ↑ monthly and hourly, other mines ↑ monthly (work longer)
  - Contract, training and social security : ✓ Consistent
- Selective Migration:
  - Propensity score matching : ✓ Consistent
  - Indigenous born sample : ✓ Consistent
  - Birth place control: ✓ Consistent
- Exogenous Shock:
  - Gold prices/production variation: ✓ Consistent
  - Lag effect of gold price (1, and 2 years): ✓ Consistent

14 / 17

# Marginal effect of Kumtor

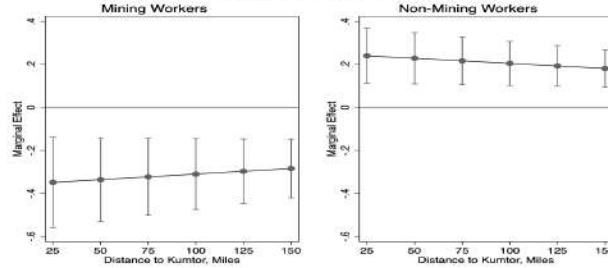
Kumtor effect : Local Born Livers Closer

Marginal Effects of Mining and Non-mining Workers on Ln\_income



Note: Calculated for distances less than 150 miles, every 25 miles

Marginal Effects of Workers on Trust to Local Authority



Note: Calculated for distances less than 150 miles, every 25 miles

15 / 17

# Conclusion and Questions

- Large natural resource endowments in weak states can form distinct interest groups.
- Mining workers, despite higher wages and better benefits, trust local leaders less.
- Non-mining workers show more trust in local leaders.
- Q and A:
  - Skill: same impact (high, low)
  - Migrants: 10% only
  - Ethnicity: mostly Kyrgyz
  - Protests: data limitation, separate project

16 / 17



Thank You!

Tables are in Appendix

