

# Good mine, bad mine: Natural resource heterogeneity and Dutch disease in Indonesia

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# Take-away message

## Why mixed evidence for the Dutch Disease?

**Heterogeneity in extraction technologies** can determine whether the resource sector competes for labour with other sectors

- ▶ Labour-intensive extraction: increases demand for labour and wages, creating a problem for firms in tradable sectors.
- ▶ Capital-intensive extraction: weaker competition for labour, other benefits may accrue to other sectors through an increase in demand.

# The Model

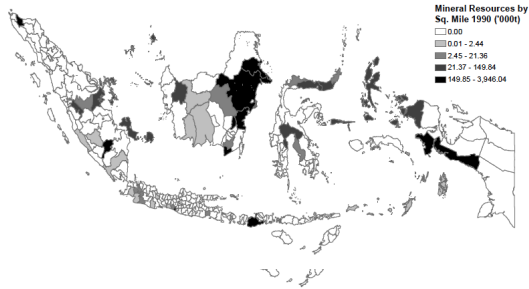
- ▶ Some key elements:
  1. A parameter that captures labour intensity in the resource production
  2. Exogenous prices in tradable and resource sectors (endogenous prices for the other sector, non-tradables)
  3. Profits are distributed locally (increasing local income regardless of wages)
  4. A tension between increased local expenditure and labour costs.

## An increase in the price of natural resources

- ▶  $\uparrow p_R \Rightarrow \uparrow L_R^d \Rightarrow \uparrow \text{income (wages and dividends)} \Rightarrow \uparrow NT^d \Rightarrow \uparrow p_{NT}$ . While wage costs increase for NT, increased spending dominates.
- ▶ As  $p_t$  is exogenous:  $\uparrow p_R \Rightarrow \uparrow L_R^d \Rightarrow \uparrow w \Rightarrow \downarrow L_T^d \downarrow T^s$ . Only a cost effect at play for T firms.
- ▶ Effects amplified with resource sector's labour-intensity.

# Comments: Overlap between mining and manufacturing

Endogenous location? Restrict to relevant districts?



# Labour markets and mining

- ▶ How to define labour-intensity of the sector? Maybe better to use a relative measure (e.g. to production) rather than just looking at the number of workers? (Table 3)
- ▶ The key mechanism in the model is an increase in labour demand by mines: an increase in population in districts with underground mining only is suggestive but need more to show that shocks trigger a heterogeneous Dutch disease. (Table 4)
- ▶ Say something about skills in underground v open pit mining: Are these workers substitute for manufacturing workers (in tradable v non-tradable sectors) in this context?

## Firm outcomes

- ▶ The coefficient of  $MR \times \ln(\text{Prices})$  is interpreted as "capital-intensive booms": only mechanism would be through an increase in dividends or other non-wage income. Any evidence?
- ▶ Changes to physical outcomes (employment, units sold) are small, while monetary values tend to be substantially bigger (revenues, wages, unit price): is there a process of local inflation in these areas?
- ▶ This could be compatible with the mechanisms in mind, but not available in the data: demand for non-tradables such as local food, services, housing may have gone up and their supply may be less elastic.