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Does “Dutch disease” only afflict labour-intensive resource extraction? A study of Indonesian mining

Named for historic effects of the Netherlands striking gas, “Dutch disease” theory tries to explain the so-called resource curse. Booming resource prices, the theory goes, can paradoxically sap a country’s growth overall as extractive industries like mining bid up wages and pull workers out of other sectors. Forced to match inflating wages, local manufacturers of tradeables – goods that get exported and imported – cannot just pass on higher costs, since imports now undercut them, so they shed jobs.

The evidence is mixed, though, especially for developing countries. Shining new light comes elegant research** on Indonesia which distinguishes resources by how much labour or capital (typically machinery) they take to extract. It also captures the fact that manufactures are not all equally tradeable.

Indonesia makes an ideal testing ground. Besides oil and gas, the world’s fourth-most populous nation is a major producer of coal and bauxite, second-largest globally for tin and third for nickel. It also exports many manufactured goods. Applying sophisticated econometrics to rich data from multiple sources, the researchers broke down resource extraction into labour-intensive methods like underground mining, where nimble workers can fit into tunnels more easily than bulky machines, and capital-intensive methods like open pit. They then analysed effects of mining booms in 40 districts on local employment and wage inflation in more, and less, traded manufactures. Among many factors, the study controlled for the 2001 “big bang” decentralisation familiar to Indonesia watchers, when government started sharing royalties more between districts.

Sure enough, when international resource prices rose a certain amount, local manufacturing wages jumped 13.3% and manufacturing employment fell 2.6% – but only in districts where mining was labour-intensive and only in more traded goods: makers of less traded items could pass

on wage costs unthreatened by imports and fully cash in on extra local spending power from the boom. This was consistent with, say, underground mining needing many more workers to expand.

Yet districts’ manufacturing employment in both more and less traded goods actually grew 1.2% for the same-sized boom in capital-intensive extraction; as, say, open-pit mines added more equipment but fewer extra workers. From manufacturers’ perspective, then, some mining booms were good; others, bad.

Oil and gas booms left manufacturing unaffected. This makes sense. Both are capital-intensive (picture deep-sea drills) and, requiring specialist skills, cannot simply poach Indonesian manufacturing hands in a boom.

To tie things together, the researchers looked at a main driver of overall growth, key to Dutch disease: total factor productivity of labour, capital and other inputs. This showed no significant change except where resource extraction was labour-intensive. Overall, then, the affliction could not be diagnosed.

The novel findings about labour- versus capital-intensive extraction help explain uneven evidence for Dutch disease. Studies might have looked in the wrong place: capital-intensive methods – and less traded manufactures. Lessons follow, especially for similarly resource-rich, so-called developing economies, where often-unspecialised workers move relatively easily between manufacturing and mining, but less easily between districts.

**The full study results are available in an article authored by Paul Pelzl and Steven Poelhekke: “Good mine, bad mine: Natural resource heterogeneity and Dutch disease in Indonesia”. *Journal of International Economics*, 131, 103457, July 2021.

