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Ph.D. dissertation summary

Nnatural resources, and most specifically extractives industries, have long played an important role in the development of many emerging countries. For example in 2008, gold mining rents represented 33% of the government's revenue in Mali, 27.4% in Peru or 16.3% in Tanzania. My dissertation analyzes various effects of the mining industry on local communities, starting with gender-specific employment impacts of large-scale mining in Sub-Sahara Africa in the first chapter.

To do so, I leveraged spatial and temporal variation in minerals production using Demographic and Health Surveys and mines location from Berman et al. (2017)[1] for 29 Sub-Saharan countries. Chapter one's results show that following a mine opening, women's employment significantly decreases while men's increases. I later find strong evidence that extractive industries have heterogeneous impacts depending on workers' gender and skills. Potential long-term effects on women's bargaining power highlighted in this chapter motivate an expansion of the scope of national policies tackling workers training and community-absorption capacity.

The second chapter estimates the change in household welfare and agricultural land prices following a mine opening in Ghana. More specifically, it provides and calibrates a spatial general equilibrium model to study migration and trade flows generated by mine openings. First, I use Ghana's large gold mining sector and improvement in road network between 1960 and 2013 to establish if the cost of travel distance on gross migration flows between districts is smaller for active mining districts. I then estimate two migration and trade gravity equations with a Poisson Pseudo-Maximum Likelihood method to assess if mining destination districts have lower migration costs. Finally, I use the spatial general equilibrium model to compute the change in welfare and agricultural land prices following a mine opening (represented by a shock in mining districts' productivity and production function's parameters).

Finally in chapter three, I am studying the impacts of Ghana's gold mining sector on river and agricultural land plots pollution and the effects on livestock mortality. The strategy consists in separating mining communities into upstream and downstream locations and assessing the variation in water quality. Quantifying the pollution generated by gold mines into loss in agricultural productivity and sales revenue (due to potentially higher livestock mortality) could be crucial to incentivizing policy-makers to tighten national regulatory frameworks.

[1] Berman, N., M. Couttenier, D. Rohner, and M. Thoenig, (2017), "This Mine is Mine! How Minerals Fuel Conflicts in Africa", American Economic Review, vol. 107, no. 6, pp. 1564-1610.