

PhD defense: Adrien Corneille

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Préférences hétérogènes des grands projets miniers : trois essais en évaluation non marchande

JURY

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ABSTRACT

The accurate assessment of mining impacts is a major challenge given the magnitude of the socio-economic and environmental changes involved and the controversies that the mining sector continues to generate. One aspect often missing from the economic evaluation of mining projects is the nature of the changes in population welfare, which often escape traditional market mechanisms. This thesis develops in three papers the potential effects of mining operations on changes in people's utility, manifested outside the market for mineral resources. The changes in utility are measured by the stated preference method, by simulating the discovery and exploitation of new deposits. In particular, the thesis investigates the mechanisms of population heterogeneity that cause large variations in preference structure.

Measuring welfare changes is a methodological challenge for several reasons, and this thesis helps to clarify them. First, it is necessary to identify the population affected by mining operations, and a local analysis of preferences may appear restrictive given the breadth of the socio-economic and environmental impacts. Second, following the announcement of a new mine, public involvement may be driven by the level of experience and knowledge of individuals in relation to mining operations. Third, although the

provision of relevant information is essential in assessing preferences, information can influence the perception of a new mine as a bargain. All sources of heterogeneity can imply relative variations in the structure of the population's preferences, which must be identified and considered in estimating average preference values.

To this end, Article 1 emphasizes the importance of the geographical context, marked by spatial inequalities in the socio-economic and environmental impacts generated by large mining projects. Consistent with previous results in the literature on the effects of distance, this paper empirically measures a negative relationship between the distance to the mine and the respondent's place of residence. The effects of distance on preferences are primarily manifested in the vicinity of the mine. While local preferences are the starting point for welfare effects, populations farther than 100 kilometers from the mine also appear to have strong preferences in the face of major changes due to a large mining project. Several factors highlighted in the paper may explain the dynamics of the relationship between distance and preferences, such as the type of resource extracted and the perception of the extent of mining issues.

Article 2 breaks down the population by levels of experience relevant to measuring the value of preferences. The interest of the study is to better understand the influence of long-term external factors that influence the mining dilemma at the individual level. A methodological approach helps capture relevant experience on a declarative basis by the respondent. The related literature emphasizes that individuals who are more experienced and familiar with the resource in question are less likely to make random trade-offs, which improves the robustness of the empirical evidence. This paper then introduces knowledge and experience into the measurement of preference values. In general, more familiar and experienced individuals have higher utility for major changes associated with a large mining project.

Article 3 empirically analyzes the potential effects of interactions between information and individuals' beliefs. The motivations for this paper are twofold: on the one hand, the literature finds mixed effects of new information on utility changes and on the other hand, a body of preference studies points to the presence of polarization of opinions reflected through preference heterogeneity. By linking these two bodies of literature, this paper shows that the same information can lead people to an increase in preference polarization, in a way that is uncontrolled by traditional preference analyses. This matters for preference analysis beyond the mining context, as the valuation of a resource can be affected by the information selected by the researcher and people's beliefs toward the resource being valued.

The thesis primarily questions the extent of population heterogeneity to conduct a robust preference analysis and covers in three separate papers the in-depth study of effects attributed to a source of heterogeneity. The underlying goal is to provide a set of answers to better predict individuals' behaviors and reactions to new mining projects and affected population. Without considering the heterogeneous structure of the population, it becomes difficult to generalize the estimated value of preferences. In an effort to improve the assessment of preferences for large mining projects, this thesis supports a body of empirical

evidence on the importance of considering remote populations in preference analysis, measuring differences in experience between individuals, and controlling for potential interactions between information and beliefs. The results of this thesis highlight potential limitations in assessing preferences for large mining projects, often leaving unobserved the significant heterogeneity of the population. Particular attention should be paid to the different sources of heterogeneity and their implication on the most accurate estimation of preferences.

KEYWORDS

social acceptability, heterogeneity, preference, mining projects.

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