

How does Local Mining Impact on Rural Immigration: Case of Mongolia

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ABSTRACT

After 70 years of communist regime, Mongolia chose a radical transition for democracy and a market economy in 1990. Since the 2000s, the Mongolian government has been promoting the mining industry to increase its foreign exchanges. The mining sector may offer local job opportunities and revenues, but might also cause loss and degradation of pasture land the local people depend on. An empirical study is conducted to investigate whether the immigration of rural people from a mining area is different from that of a non-mining area using a probit model based on a 2013 workforce survey of Mongolia. The result shows that mining *soums* receive fewer outsiders than the non-mining *soums*, suggesting local mining activities exert limited economic linkage in local community for a case of Mongolia.

Keywords: probit model, rural immigration, mining activities, economic linkage, rural community

INTRODUCTION

Mongolia was a communist country from 1921 through 1991, with a population of 2.7 million. In 1990, Mongolia chose a radical transition for democracy and a market economy. Supported by international donors, Mongolia managed numerous crises, yet pressures differ between rural and urban areas. Since the 2000s, the Mongolian government has been promoting mining industry to achieve various missions. In the strategic paper of Government of Mongolia, government stated that it will promote mining sector led growth. One of the missions is that mining sector-led growth will lead industrialization which will promote to establish local small and medium enterprises SMEs. The mining sector became a main policy tool to achieve economic growth and development. On the other hand, the Ministry of Tourism, Environment and Green Development, claims that due to mining activity there are 551 rivers, 483 lakes and 1587 springs that disappeared (dried up) as of 2011. Therefore the impacts of a mining sector-led growth strategy in Mongolia are mixed

and debatable. Does a mining sector offer extensive job opportunities and boost local demand?

There is an extensive literature analyzing the economic, political, and environmental effects of resource-led growth. Following Heinrich (2011) we will classify it into four strands:

1) *Economic performance*. It claims that natural resource dependence represses growth of other non-resource sectors, mainly manufactured goods, undermining long-term competitiveness and the appreciation of domestic currency which is called as "Dutch Disease" (Gordon and Neary, 1982). Primary commodity exporters would be disadvantaged in trading with industrialized economies due to worsened terms of trade of primary commodities in long run (Singer, 1950; Prebisch, 1950) and eventually, crowds out manufacturing sector (Frankel, 2010). Also it stresses on limited economic linkages from primary export commodity, namely, less generation of local employment and economic opportunity (Davis, 2005) because mainly it imports supplies and skilled workers from abroad. This strand also argues that the resource revenue exerts price/revenue volatility (Medina, 2010).

2) *Economic Policy*. It focuses on behavior of those who manage country. It points out poor resource management cases, such as when the resource generates huge income on state budget, it fuels incentive for corruption (Humphreys et al., 2007). Huge inflows from export revenues to mainly state budget favor decision-makers to maintain authority through allocating resources which contributes to corruption and rent-seeking behavior.

3) *Political conflict*. As Isham et al. (2005) have explained, property rights and economic freedoms are more depressed in resource-extraction societies because resource income flows only into the elite part of a society. To strengthen their political position, elites discourage mass democracy and economic freedom (Ross, 2001), resulting in social unrest, civil war or elite power struggles.

4) *Socio-economic development*. It focuses on the impact of resource-led growth on social welfare and most of the cases show that dependence on resource exports exerts negative impact on social welfare of the country (Carmignani et al., 2010).

This study attempts to clarify linkage effect of local mining activities in order to test how resource-led growth generates local economic opportunities using local migration data for Mongolia. We used 2013 workforce survey data at the *soum* level of Mongolia which was held at the national level.

EMPIRICAL MODEL

The people always migrate to more favorable places if they are allowed to make a choice. Immigration to mining areas should differ from that to non-mining areas if mining increases local economic opportunities. The hypothesis is that if local people receive more economic opportunity from local mining activity, then there would be more incentive to stay or migrate to the mining areas from non-mining areas. In contrast, if local mining degrades pastoral territory and water sources, then there should be a tendency to leave the mining area.

There could be many factors that would explain rural immigration, such as environmental disaster, civil war, increased economic opportunity in other places, attaining better education in cities and etc. Generally, we could classify those factors into extreme factors (serious environmental disaster, internal conflict, etc.) that force residents to leave the place without any choices, and socio-economic factors that could be decided through behavioral changes based on information or the rational decision-making process of the residents.

In our case there were no such extreme conditions for Mongolia, therefore we assumed that social factors such as age, sex, education, marital status, household size, and employment status are key factors on immigration influence. There is no argument that weather condition and pasture availability can be key factors on immigration decision of rural herding community in Mongolia. In fact, when there is shortage of pasture for certain areas, the local herders temporarily (most of the case for a season) move for survival but

when the situation gets better they move back. In this study, we did not consider that regular and temporary leave as immigration. However, if there is continuous environmental disaster due to mining activity then local herders would decide to switch local *soums* where there is less environmental impact. We take into consideration if the mining *soums* differ than the other non-mining *soums* in order to test whether the local mining *soums* has a different immigration tendency compared to that of the non-mining *soums*. According to our assumption, if local mining *soums* are attractive in terms of economic and employment opportunities, then there would be more immigrants in that *soum* who resided in different places in last 5 years at a time of the survey (i.e, the immigrants in our model). If we find more immigrants in non-mining *soums*, then it may suggest that mining *soums* are not an attractive place for rural residents.

To test whether people in a mining area has a higher tendency to migrate to another area, the following empirical model is used:

$$IM_i = \beta_1 + \beta_2 AGE_i + \beta_3 EDU_i + \beta_4 MAEE_i + \beta_5 MINE_i + \beta_6 HHS_i + \beta_7 SEX_i + \beta_8 EMP_i + u_i$$

Where, $IM_i=1$ if respondent answered s/he lived in a different place from the current place for more than 6 months in the last 5 years, otherwise 0; AGE_i is the age of the respondent; $EDU_i=1$ if the education level is more than secondary, otherwise 0; $MARR_i=1$ if the respondent lives with a spouse, otherwise 0; $MINE_i=1$ if the respondent currently lives in a *soum* where mining takes place, otherwise 0; HHS_i is the number of the respondent's household members; $SEX_i=1$ if the respondent is male otherwise 0; $EMP_i=1$ if the respondent is economically active for at least for less than 1 month, otherwise 0.

We introduced these factors into the model. Economic factors such as income opportunity have been introduced as the employment variable. After controlling these factors, we tried to estimate whether there is a difference in *soum* immigration between mining and non-mining *soums*.

DATA

We used 2013 workforce survey data at the *soum* level of Mongolia which was held at the national level. The survey covered 11613 respondents of 21 *aimags* and 311 *soums*. The socio-economic status data such as age, employment, marital status, education and household size are extracted from National Statistical Office of Mongolia. It represents working aged (male respondents are from 18 to 60 years old and female respondents are from 18 years old to 55 years old) rural residents (*soum* center and rural area) of Mongolia. The rural residents includes both herders and non-herders residents who registered as *soum* residents.

The data summary is presented in Table 1. Employment variable suggest that 78% of the sample is at least economically active for 1 month during the interview. Moreover, the sample shows that 73.6% of them are employed at least 1 year. Since our sample consists of working age residents, 72.3% of them live with spouse. Education variable indicates that 31.1% of them attained post-secondary education. Whereas, mining *soums* are identified from Mineral Resource Authority where extraction license of certain territory of the *soums* have been already issued from the authority. The data suggest about 3% of the households moved from other places. Our dependent variable is outsiders who had lived at least 6 months in a different place in last 5 years during the interview.

Table 1. Data Summary

Variables	Obs	Mean	Std. Dev
Outsiders	11613	.030	.172
HHSize	11613	3.99	1.45
Sex	11613	1.48	.499
Age	11613	36.3	10.705
Marriage	11613	.732	.442
Education	11613	.311	.463
Employment	11613	.741	.437
Mine <i>soum</i>	11613	.613	.486

RESULTS AND DISCUSSION

This empirical model tried to incorporate several socio-economic factors that might explain why local people immigrate. The results were obtained using a probit model and presented in Table 2. The results show that age shows negative effect on local immigration by 0.034 % meaning that the more aged the residents tend to immigrate less to a different place. Also employment exerts negative impact on it by 0.192% meaning that the respondent with employment less likely to immigrate. While education level impact is positive on local immigration by 0.249%, suggesting that local people with diploma or degree level education more likely to migrate.

Our findings also suggest that the respondents from mining *soums* were less likely (0.133%) to live in different areas other than their current *soum*, suggesting that the mining *soums* do not receive many outsiders from other places of Mongolia- at least for a case in Mongolia in 2013. It may suggest that local mining activities exert limited economic linkages in local areas as the previous researchers argue.

We found that gender and marital status are not important factors to explain the rural immigration of Mongolia. However, this study should be compared for other years in order to find out the dynamics of the rural immigration.

Table 2. Probit model results on immigration analysis

Variables:	Model Results Values
Constant	-0.647 (0.144)*
Age	-0.034 (0.003)*
Sex	0.016 (0.049)
Household size	0.015 (0.017)
Marital status	-0.059 (0.059)
Education level	0.249 (0.051)*
Employment	-0.192 (0.055)*
Mining <i>soum</i>	-0.133 (0.049)*

Standard errors are shown in the parenthesis showed; *-significant at 5% level

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