Research Statement

Laura Zimmermann
Department of Economics
University of Michigan

My research interests lie in development and labor economics. I am particularly interested in the working of government programs and in how economic conditions interact with cultural traditions and preferences at the household level. My dissertation examines the labor market and political economy impacts of the largest public-works program in the world, India's employment guarantee scheme. Other current research projects focus on the effects of weather shocks on rural households and on the causes and consequences of intra-household resource allocation. My earlier work also deals with the ethnic self-identification of migrants in Germany.

1. India's Employment Guarantee Scheme

The Indian government started implementing the world's largest public-works program, the National Rural Employment Guarantee Scheme (NREGS), in 2006. With annual expenditures of one percent of Indian GDP and a legal guarantee of 100 days of public employment per year for all rural households, NREGS is the flagship example of the resurgence of interest in public-works programs in developing countries by both policymakers and researchers in the last couple of years. Such a large interest in public-works programs may be surprising given the available evidence of the often mixed success of such schemes in developed countries and of implementation problems like rationing and corruption in the developing-country context. My dissertation therefore seeks to understand what kind of benefits NREGS created that may have made its introduction optimal from a government's viewpoint despite the known drawbacks.

1.1 Labor Market Impacts

My job market paper focuses on the labor-market impacts of NREGS: One often advanced argument for why public-works programs might be more effective in developing countries is the idea that such schemes primarily function as a safety net in settings with incomplete insurance markets, while developed country programs often suffer from too ambitious human capital accumulation goals or problems with the crowding out of private-sector employment. There is still little evidence on the labor-market impacts of public-works programs in developing countries, however, and the existing literature relies on propensity-score matching estimators and difference-in-difference approaches that require strong assumptions about the comparability of treatment and control groups.

My paper extends and improves this literature in two ways: First, I analyze the labor market impacts of India's NREGS using a regression-discontinuity design, which relies on weaker assumptions to estimate a causal relationship than the alternative empirical strategies used in the literature. To carry out this analysis, I uncover and reconstruct the government algorithm that assigned districts to implementation phases.

Second, I argue that we need a more comprehensive model of household behavior than typically assumed in the policy debate and in the existing literature to fully understand the labor market impacts of public-works programs. I set up a household time-allocation model that allows households to divide their time between private-sector employment and the more risky self-employment where income depends on the realization of an economic shock like a rainfall shock. After the introduction of NREGS, the program can be taken up both as a safety net after a bad shock and as a buffer stock device. Among other predictions, the model shows that the availability of NREGS as a safety net affects a household's optimal time allocation

even when no shock occurs by making self-employment less risky than before and thereby inducing households to spend less time in the relatively safer private sector.

My empirical results suggest that the overall direct labor market impacts of NREGS are small, with no increases in public employment or the casual private-sector wage. This implies that the program does not successfully function as a buffer stock device. The safety net feature of the program is important, however: Program take-up is higher after a negative rainfall shock, and higher in districts with a larger variance of rainfall which should make the availability of a safety net more attractive. Consistent with the model, workers spend less time in private employment even in the absence of a negative shock. Overall, NREGS may therefore indirectly incentivize alternative employment opportunities like self-employment for rural households.

1.2 Impacts on Internal Security

My job market paper suggests that the provision of a safety net for at least some segments of the Indian population can be seen as one benefit of the employment guarantee. A second potential advantage of such a large government program is the improvement of internal security, since there is a growing awareness in developing countries that government anti-poverty programs may play an important role in the fight against internal security threats. In joint work with Gaurav Khanna, I analyze whether the introduction of NREGS has affected the intensity of violence in the Maoist conflict, which India's prime minister referred to as the biggest security challenge the Indian state has ever faced. We exploit the availability of detailed data on incidents of insurgency-related violence and use the regression discontinuity approach.

The results show that violence increases in the short run but that it trends downwards over time. While we discuss and test the implications of a number of potential explanations, we find that the empirical patterns as well as anecdotal evidence on the conflict are most consistent with the citizen-support channel: A program like NREGS promises economic benefits to the poor and may therefore improve the relationship between the government and its citizens in conflict areas, since the local population feels neglected by the state and instead sympathizes with the insurgents who claim to be fighting for the poor. The introduction of NREGS may therefore make civilians more willing to share information on insurgents with the police, which in turn improves the police's effectiveness in tracking down rebels, leading to an increase in overall violence in the short run, but a reduction in violence over time as the insurgents lose ground.

Additionally, we show in a forthcoming article aimed primarily at policymakers and practitioners that the main results are also confirmed when using a difference-in-difference approach and find that two other implications of the citizen-support channel explaining the impacts of NREGS hold empirically.

1.3 Impacts on Government's Election Performance

Lastly, the Indian government may have derived electoral benefits from the introduction of NREGS. Anecdotal evidence suggests that NREGS strengthened the central government coalition's pro-poor image and helped it get re-elected. Given the fact the program is predominantly funded by the central government but implemented locally, however, an under-researched question in political economy is whether voters in federal countries attribute the responsibility for the program to the national or the local level. Exploiting the fact that while all rural districts were treated at the time of the national election, but that the length of exposure differed discontinuously by implementation phase, my empirical results using the regression-discontinuity design suggest that both the government parties and incumbents of any party benefitted from the employment guarantee. The empirical patterns I find are consistent with the results from my other papers that the actual economic

benefits from NREGS are limited but that the promise of development nevertheless increases the population's support for the government: The electoral benefits tend to be highest in the districts with the shortest exposure to NREGS, where the anticipation effect is likely to be strongest. Support for the government parties in districts with the longest exposure is concentrated in areas where the implementation quality of the scheme is high, however. These impacts suggest that the promise of development may generate short-term electoral benefits, but that these impacts only persist if the government programs are implemented well.

1.4 Future Research

I am planning to continue doing research on the working of government programs in developing countries. As my work on NREGS shows, it is important to analyze such programs in a more comprehensive framework and to better understand how the economic and political incentives that governments have interact. Furthermore, as I outline in a forthcoming overview article on public-works programs in developing countries, many questions about the external validity, the long-run impacts and the economic impacts of programs with different design features are still open.

2. Intra-household Resource Allocation

My second broad area of interest centers on understanding the causes and consequences of household resource allocation and how those decisions interact with economic shocks, preferences, and cultural expectations.

2.1 Gender-differential Resource Allocation among Children

In many developing countries, parents are believed to systematically allocate resources differently to girls than to boys in a number of areas, but documenting such gender biases consistently in empirical research has proven to be difficult: A relatively extensive literature analyzes whether household education expenditures respond differently to the addition of a boy to the household than to an additional girl by using an Engel curve or hurdle model approach, for example. Most of these papers only find evidence of gender-differential patterns for older children, when gender discrimination is generally believed to start much earlier, and the results are often weak. In a published paper, I use data on education expenditures in India to test whether data aggregation, data reliability and the statistical method help explain this pattern. The results confirm previous findings that gender discrimination seems to increase in age and suggest that data aggregation and statistical method are important factors in detecting gender bias, while data reliability does not seem to play a major role.

A second strand of the resource-allocation literature focuses on the impacts of exogenous shocks like unanticipated weather or price shocks, and often finds that gender differences are already present among young children. Taken together with the Engel curve literature, these empirical results suggest that intra-household discrimination may be an important factor in household decisions, but that we still lack a good understanding of the age structure of intra-household gender discrimination in key areas like education. In one of my papers, I therefore analyze the impact of rainfall shocks on school enrollment for Indian children. I find that girls are more vulnerable to rainfall shocks than boys with respect to school enrollment. The results are driven by 8-10 year olds, whereas there are no significant differences for older children. Higher than average rainfall leads to an increase in school enrollment for both boys and girls, but the effect is monotonically decreasing in age. I also set up a simple latent-variable model of school enrollment that demonstrates that the vulnerability of a child's enrollment status to shocks depends both on how close a child is to the cutoff at which the school enrollment status changes (selection effect), and on how parents reallocate resources after the shock has occurred (cost effect). One potential explanation of the empirical results is that the combination of selection and cost effects differs depending on the age of the

children, and that parents practice different forms of gender discrimination at different ages: Whereas younger girls suffer predominantly from the biased reallocation of resources after shocks have occurred, older girls could be much more affected by being far away from the enrollment status changing cutoff.

2.2 The Position of Women in the Household

A related observation about gender-differential intra-household resource allocation is its persistence over time despite substantial changes in economic conditions, education levels and government policies over the last couple of decades. In addition to other channels, one potential explanation is the idea that mothers derive non-monetary benefits from the birth of a son rather than a daughter in a number of developing countries and therefore reinforce son preference as adults. In India, for example, anecdotal evidence suggests that the position of the woman in the household improves after the birth of a boy. In one of my papers, I test the importance of this mechanism by looking at the impact of having a young son on female decision-making powers within in the household. The results suggest that there is relatively little evidence of substantial female benefits, and any positive impacts of having a son disappear after six months, which implies that the non-monetary benefits from having a son may be less important than usually assumed.

2.3 The Position of the Elderly in the Household

The allocation of household resources is not only relevant for children, however. In joint work with David Lam and Rebecca Thornton, we use a large number of IPUMS-International Census and DHS household survey datasets to document substantial differences in the living arrangements of the elderly in Sub-Saharan Africa. The characteristics of the elderly who care for grandchildren are consistent with them being positively selected, helping explain the fact that studies of the impact of caregiving often find little or no apparent negative impact on the elderly from caring for orphaned grandchildren.

2.4 Future Research

I plan to continue working on questions of intra-household resource allocation. We still need a deeper understanding of the way households make decisions about the amount of resources available to an individual household member and of how exactly these decisions are affected by exogenous shocks like weather shocks. Some of my work in progress aims to help fill these gaps. In the Indian context, I am currently expanding my research on the impact of rainfall shocks on children's education outcomes by focusing on the potential mechanisms that explain the empirical patterns. In joint work with Raj Arunachalam, I am also taking advantage of a rich household dataset in Indonesia to get more into the black box of exactly how rainfall shocks feed through to changes in outcomes at the household level and when these impacts are realized.

3. Other Directions for Future Work

In addition to continuing my work on government programs and intra-household resource allocation in developing countries I see myself broaden my research agenda in the coming years. Both topics interact in important ways, for example, since government programs substantially affect the resources available to households and the incentives households have for favoring particular family members, while government policies in turn are influenced by household preferences and cultural norms. I therefore see myself as contributing to the research at the intersection of development economics, labor economics, political economy and demography.