Chronicles from the Field: 20th Anniversary of The Thai Family Research Project and Townsend Thai Data

Robert M. Townsend

Elizabeth & James Killian Professor of Economics, MIT

Sombat Sakunthasathien

Thai Family Research Project

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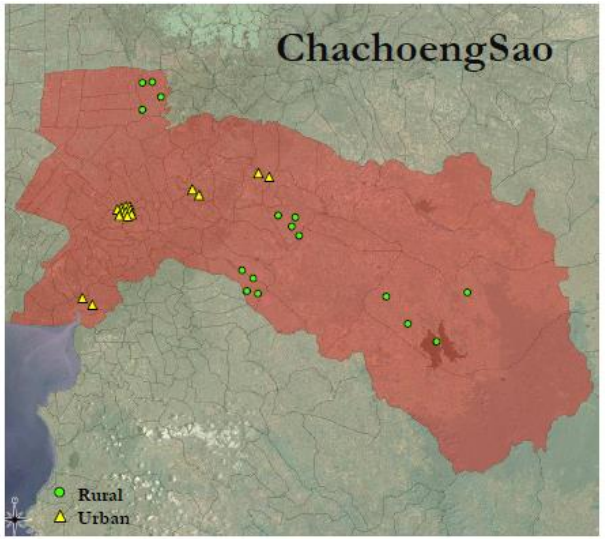
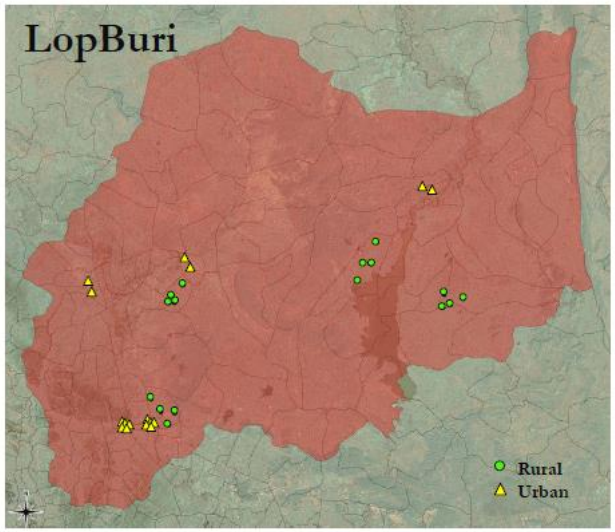
Townsend Thai Surveys: Data

- Annual
  - Started in rural areas in 1997 with 192 villages
    - Currently 20 years
    - Chachoengsao, Buriram, Lopburi, Sisaket
  - Resurvey in 64 villages every year since 1998
  - Expanded to North and South in 2003 and 2004
    - Phrae & Phetchabun (North)
    - Satun & Yala (South)
- Urban
  - Extended to Urban Areas in 2005
- Monthly Survey, rural
  - Started in 1998
    - 226 continuous months of data for 720 households
  - Survey Design
    - 16 villages
    - 45 households per village
- Monthly Urban,
  - Urban monthly survey started in 2013
- Current scale per year
  - Over 3,000 households in 200 villages and towns
- Longest running high-frequency panel in developing world





The Surveys in Depth

- To begin, we conducted an initial, baseline survey in 1997 that included villages from four provinces: two in the relatively poor agrarian Northeast and two in the developed Central region near Bangkok.
- The selection of provinces was based on a pre-existing socioeconomic income and expenditure survey by the Thai government, so that we could take advantage of existing government data.
- The idea, roughly, was to use the cross-sectional variation as a substitute for the passage of time; we had no idea then that the project would last for so long.
- Within each of these four provinces we chose 12 tambons (a small sub-county region) per province. The tambons were chosen at random but with an environmental stratification (as discussed in Binford, Lee, and Townsend 2004).
- The idea was to end up with a sample in which there would be idiosyncratic regional shocks, so that risk-sharing could be better tested. Landsat imagery classified the types of ground cover. The idea was to distinguish environmental variation from historical, institutional variation, by having a constant underlying environment for clusters of villages.
- Finally, four villages per tambon were selected randomly.
- Within each village, households were selected at random from rosters held by the headman.

Surveys, in More Detail

- The 1997 household survey thus totaled 2,880 households (15 households for each of 192 villages).
- There are also survey instruments for the 192 headmen,
- As well as for 161 pre-existing village-level institutions (such as production credit groups or rice banks)
- And 262 joint liability groups (that is, they underwrite the risk of each other's loans) for customers of the Bank for Agriculture and Agricultural Cooperatives (BAAC).
- There are as well 1,920 sets of soil samples with measurements of organic matter and cation exchange capacity (which is the soil's ability to hold on to nutrients) from 10 of every 15 households per village.
- The first collection of these data was in April/May of 1997, constituting the baseline survey for rural areas.

Surveys, in More Detail…

- Also in 1998, an additional tambon per province was selected for fielding an intensive monthly survey, starting in August of that year, to get the details on labor supply, use of cash, and many other features that are only possible to obtain accurately with frequent recall, high frequency data.
- The subsample was chosen to be consistent with the aforementioned environmental specification—that is, with similar environments across villages—but with variation in a priori formal and informal institutions (as they appeared in the 1997 baseline instrument).
- The detail of the monthly crop production data is a revealing example, used in Felkner, Tazhibayeva, and Townsend (2009) to assess the impact of climate change.
- We have measurements of short-term inputs (seed/seedling, fertilizer, pesticides, herbicides, hired labor and exchange labor, and rented capital equipment), and outputs (harvests). We distinguish production by stages (planting, maintenance, harvesting) and have obtained, as noted earlier, measurements of the soil as in the annual data and also weather shocks (measured with village-level rainfall gauges, temperature, and soil moisture readings).
- For the monthly environmental and socioeconomic data, gathered continuously throughout the year, we use local enumerators who are in permanent residence in the area and who use the above-mentioned anthropological-type methods when doing interviews.

Scientific Contributions

- This synopsis emphasizes the breadth and depth of the Thai project data.
- However, the importance of the theoretical base for collecting and organizing the data should not be lost.
- Collecting these data has been key to the types of analyses that can be performed.
- Indeed, we have been able to model the entire Thai national economy and its internal labor migration and flow of funds based on the selected samples.

Risk Sharing

- Chiappori, Pierre-Andre, Krislert Samphantharak, Sam Schulhofer-Wohl, and Robert M. Townsend. 2014. "Heterogeneity and Risk Sharing in Village Economies." *Quantitative Economics* 5 (1):1-27.
  - Seeks to test this benchmark allocation of efficiency, taking advantage of the unusual length of the panel.
  - Household specific consumption. Idiosyncratic risk is quite well pooled, essentially smoothed away to zero.
  - The findings also offer a policy punchline: We conducted a hypothetical intervention, looking through the lens of theory
- Chiappori, Pierre-Andre, Krislert Samphantharak, Sam Schulhofer-Wohl, and Robert Townsend. 2013. "Portfolio choices and risk preferences in village economies." Federal Reserve Bank of Minneapolis Working Papers No. 706.
  - Also estimates risk preferences with a less demanding portfolio choice model.
  - Assets with uncertain returns are chosen by each household to satisfy intertemporal optimization in consumption and returns, and we do not have to take a stand on cross-household risk sharing.
  - Nevertheless, the findings are similar—that is, the measures of heterogeneous risk preferences across the two studies are well-correlated.

Risk Sharing (cont.)

- Samphantharak, Krislert, and Robert Townsend. 2017. "Risk and Return in Village Economies." Forthcoming *in American Economic Journal: Microeconomics*.
  - The higher the covariance of the household's return with the aggregate return, the higher the risk, and so the higher must be the expected (average) return, to compensate for that risk.
  - Likewise, according to the theory, idiosyncratic risk can be shared in principle within the village, and can be pooled away
  - The benchmark model and our risk decomposition guide us to a salient policy conclusion
    - Namely, adjusting for idiosyncratic and aggregate risk separately—as dictated by our theoretical framework and the data—makes a large difference to inferences about underlying rates of return.
- Kinnan, Cynthia, and Robert Townsend. 2012. "Kinship and Financial Networks, Formal Financial Access, and Risk Reduction." *American Economic Review* 102 (3):289-293.
  - Within the village, or within the larger tambon, family and financial networks seem to be the informal institutional mechanism underlying many of these insurance results
- Sripakdeevong, Parit, and Robert M Townsend. 2016. "Bridge Loans and Risk Sharing in the Village Money Market." Work in Progress.
  - One particularly striking institutional mechanism works like a refinancing credit chain.

Identifying Obstacles to Household Interactions

- Ahlin, Christian, and Robert M. Townsend. 2007. "Using Repayment Data to Test across Models of Joint Liability Lending." *Economic Journal* 117 (517):F11-51.
  - Work on joint liability loans given by the Bank for Agriculture and Agricultural Cooperatives (BAAC)
- Paulson, Anna L., Robert M. Townsend, and Alexander Karaivanov. 2006. "Distinguishing Limited Liability from Moral Hazard in a Model of Entrepreneurship." *Journal of Political Economy* 114 (1):100-144.
  - Looks at the entry decisions of households into business. They also modify the full information full risk-sharing benchmark to accommodate a variety of potential obstacles to trade, with moral hazard in effort or the ability to default/walk away.
- Karaivanov, Alexander, and Robert M. Townsend. 2014. "Dynamic Financial Constraints: Distinguishing Mechanism Design from Exogenously Incomplete Regimes." *Econometrica* 82 (3):887-959.
  - Extends this work, focusing on households running businesses over time, rather than the entry decision, and also expanding the variables to include consumption, income, capital and investment. Using the rural monthly panel, they apply dynamic programming, linear programming, and maximum likelihood methods to find that a relatively simple borrowing-lending regime fits the overall data best.
  - However, when they compare the rural to the urban data, a moral hazard model fits the capital stock transitions best.

Microfinance: A Natural Experiment Example

- Kaboski, Joseph P., and Robert M. Townsend. 2011. "A Structural Evaluation of Large-Scale Quasi-experimental Microfinance Initiative." *Econometrica* 79 (5):1357-1406; and Kaboski, Joseph P., and Robert M. Townsend. 2012. "The Impact of Credit on Village Economies." *American Economic Journal: Applied Economics* 4 (2):98-133.
  - Investigates the effects of this experiment with reduced form nonstructural statistical models, as a preliminary fact finder, and with a structural model.
  - These studies and others are also picking up the importance of heterogeneity.
- Banerjee, Abhijit, Emily Breza, and Robert M Townsend. 2016. "Productive Households, Access to Credit, and Business Growth: Evidence from Thai Villages." Work in Progress
  - New work and other studies find that households that experience the greatest impact from micro credit interventions on the production side are those already in business and that have higher total factor productivity
- Vera-Cossio, Diego. 2016. "Credit markets, village organizations, social connections and investments in social capital." University of California, San Diego.
  - Yet the allocations of loans by the village fund committee arguably appears random if not inefficient

Constructing Regional and National Economies

- Paweenawat, Archawa, and Robert M. Townsend. 2012. "Village Economic Accounts: Real and Financial Intertwined." American Economic Review 102 (3):441-446; and Paweenawat, Archawa, and Robert M. Townsend. 2014. "Villages as Small Open Economies: Disentangling Real and Financial Factors." Working Paper.
  - Following the steps outlined from the US Bureau of Economic Analysis, uses these accounts, aggregate up, and create village-level national income and product accounts—including savings/investment accounts, balance of payments accounts and flow of funds accounts.
  - These models allow the assessment of repressive policies that promote regional isolationism. Paweenawat and Townsend (2014) fit a small open economy model with collateral constraints to the rural data
- Srivisal, Narapong. 2014. "Essays in financial economics." Ph.D. Dissertation, University of Chicago.
  - Uses the flow of funds accounts data at the village level and analyzes the impact of monetary policy, generated at the national, aggregate level but impacting the villages differentially.
- Moll, Benjamin, Robert M. Townsend, and Victor Zhorin. 2017. "Economic Development, Flow of Funds, and the Equilibrium Interaction of Financial Frictions". Forthcoming in *Proceedings of the National Academy of Sciences*.
  - Given that obstacles to trade seem to vary systematically by region or by rural/urban stratifications (as discussed earlier), Moll, Townsend, and Zhorin (2016) construct and compute steady-state solutions to a model of the national economy with two sectors, limited commitment in the rural sector and moral hazard in the urban sector, as in the micro data and those earlier studies.
  - Substantial flows of capital from rural to urban areas: 23 percent of capital utilized in urban areas is imported and rural areas lose 39 percent relative to capital utilized. At the same time, there are huge flows of labor in the same direction: 75 percent of labor in the urban sector comes from this migration and rural areas lose 86 percent.

Longitudinal Studies

- Pawasutipaisit, Anan, and Robert M. Townsend. 2011. "Wealth Accumulation and Factors Accounting for Success." *Journal of Econometrics* 161 (1):56-81.
  - Establishes some of the underlying mechanics within the Thai context. Low-wealth households have higher overall rates of return, including risk premia, and those coupled with higher own-savings rates, investing profits back into their own business, boosts their income over time on average and lowers inequality. This autarky-like mechanism takes many years to play out.
  - The long-term trends revealed in 18 years of monthly data on Thai villages are dramatic. Inequality falls, for example, with the bottom 50 percent having an increasing share of the wealth. Rates of return on household enterprise converge, rising for the rich from 5 to 10 percent, and falling substantially for the poor, from 28 to 12 percent per year.

Future Longitudinal Studies

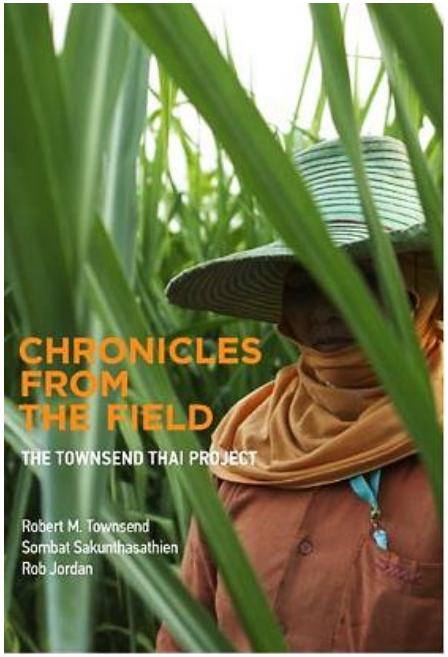
- As we continue to gather panel data, we become able to address life-cycle research topics.
- We can see children born, their schooling history, and soon a sufficient number of children who have grown up to have jobs and wages. This links to a theme of this conference on education policy
- We can see middle-aged households initially in their most productive years now quasi-retired, and others with disabling health shocks reduced to zero income at earlier ages. Request collaboration with TRF and the medical community to link together health and socio-economic data (with consent of the households).
- The longer we stay in the field and gather the data, the more the research possibilities grow.

Advantages of Long Term Studies and Measurements

- The longevity of the surveys and the repeat interviews build trust and thus reliability. Interviews are conducted in a conversational style and do not seem to be tedious for households.
- Enumerators have largely memorized the questionnaires, and of course take extensive notes during the interview, so that specific modules can be filled in afterward. This approach allows for eye contact and one-on-one back-and-forth during the interview, allowing sensitive topics to be revisited as conversations proceed.
- Our re-interview rates are quite high. For the monthly surveys, our resurvey rate has been over 99 percent per year: 602 out of the 710 original households starting in 1998 were still being resurveyed in 2015. There was zero dropout in 2015.
- For our annual survey, the average resurvey rate has been 98 percent during the last five years.

Thai Family Research Project: Our Collaboration

- Townsend, Robert M., Sombat Sakunthasathien, and Rob Jordan. 2013. *Chronicles from the Field: The Townsend Thai Project*. Cambridge and London: MIT Press.
  - There is also a human story to the logistics of fielding the survey, the experience among enumerators, supervisors and staff from headquarters. These experiences are recounted in *Chronicles from the Field*, a book aimed at both a general interest audience and providing supplementary material for anyone teaching a course on survey design and implementation. Rules matter in doing a survey, but additional human and logistical aspects must also be taken into account.



- Another advantage to longevity is that enumerators remain in the field and in contact with the households, thus allowing researchers to follow-up both with individual households and to field systematic supplemental questions.
- For example, follow-up has been used when the numbers in the financial accounts appear as outliers.
- Supplemental questions have been asked concerning individual health insurance histories, behavior and attitudes toward discounting and commitment, and reconstruction of payment histories that distinguish deposits of cash from electronic deposits.

“Policy should come from Research”

Sombat Sakunthasathien

Thai Family Research Project

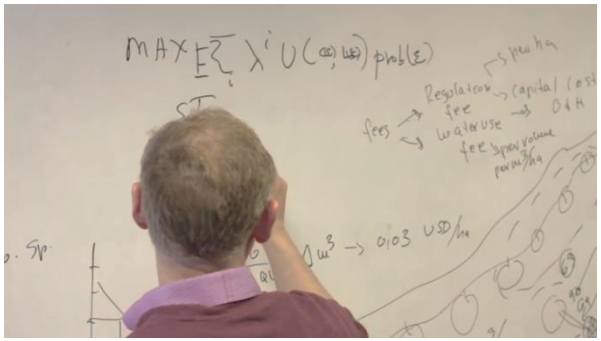
building “Trust”

- Within survey-team
- With households and local institutions
- With researchers
- With doner institutions

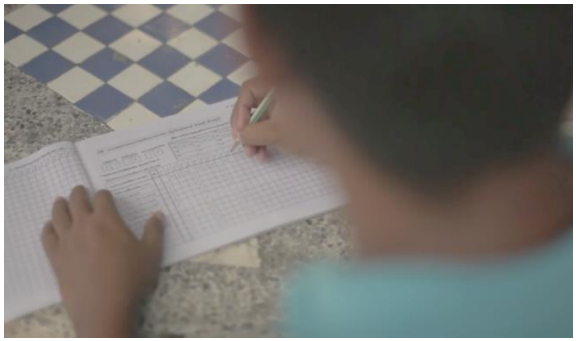
building
“Trust”

How to keep it (Trust) for a long time

- Limitation
  - Fund to support
  - Key staffs



How to keep it "Trust" for a long time




"20th Year of Data Collection"

Data Collection

Comparison with Projects Elsewhere: Influence

- The longevity of the Townsend Thai project may give the impression that projects of this scale are difficult to conduct, but here are a few somewhat comparable projects.
  - ICRISAT studies on villages in India were conducted in 1975-1984, 1989, 2001-2009, and 2009-present. But for perspective, the ICRISAT second-generation survey has 500 questions from 9 modules, but the Townsend Thai monthly has 3,500 questions from 24 modules. The annual resurveys with more villages and urban neighborhoods are less intensive, but add to these totals.
  - Other roughly comparable projects are the large-scale multi-year panel surveys in Ghana and Tamil Nadu, India, being carried out by Yale's Economic Growth Center (EGC). These nationwide panel surveys will ultimately span 15 years each, with resurveys occurring every three years, providing depth across years and spotlighting socio-economic mobility. They are not location-based per se, but rather track migrants who would otherwise be eliminated from the samples.
  - Another ambitious endeavor is the Kavli Human Project, which plans to survey approximately 10,000 residents in about 4,000 New York City households over the next several decades.

Projects Underway/Collaborations in Other Countries

- Thai project influences rest of world
  - Mexico
    - Bansefi cooperatives
  - Chile
    - Household SME Survey
    - Central Bank and University of Chile
  - China
    - Help implement key add-ons to an ongoing survey modeled after University of Michigan's Panel Study of Income Dynamics
- IMF
  - Using models and data for policy in low income and emerging countries
  - Growth and financial deepening, inequality
- World Bank
- Kenya, India
    - Inter-agent market for e-money/cash, survey
    - Mobile banking
- Private Sector
  - Lending Club, Credit Sesame
- Collaboration with central banks
  - Brazil
    - e-Money, mobile banking reforms, wealth advisory services
    - Credit and labor supply/unemployment
      - Central bank
      - Internal credit data and RAIS
  - Spain
    - Family firms vs. banking
    - Geographic and sectoral expansion of financial institutions
      - Quantify/clarifying financial crisis
      - Internal credit data and firm registry
  - Sweden
    - Trade credit chains and formal banks
  - United States
    - Federal Reserve Bank of New York
      - Financial markets, regulation and ex ante optimal design
    - Federal Reserve Bank of Boston
      - Scott Schuh, consumer payments
    - Federal Reserve Bank of Chicago
      - Anna Paulson

Utilization of Data

- The Townsend Thai data have been continuously cleaned and uploaded to Dataverse (at https://dataverse.harvard.edu/dataverse/rtownsend). This data also contains the relevant secondary data sources. While application must be made for access to the subset of secondary data that is proprietary, the primary, cleaned, data are available to all.
- At last count there have been 90,000 downloads of the public data.
- In addition t collaborators and co-authors, numerous other researchers have found the Townsend Thai data to be a useful tool, with almost 50 papers citing the use of the data.
- At least 11 graduate students utilizing the data in their dissertations
  - Yale, Northwestern, MIT, Ohio State, UC San Diego, Chicago, U Penn, Michigan

Funding, Thank You's

- **Khun Sombat Sakunthasathien, Khun Pavisanat Pathomcharoensukchai and all the TFRP staff**
- Thailand Research Fund and Bank of Thailand
- University of the Thai Chamber of Commerce (UTCC)
  - Anonymous donor in Thailand
- U.S. and European funding over the years
  - Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)
  - National Science Foundation
  - Bill & Melinda Gates Foundation
  - John Templeton Foundation
  - Ford Foundation
  - The Private Enterprise Development in Low-Income Countries programme of the Centre for Economic Policy Research and the Department for International Development
  - The University of Chicago
- Help from collaborators in Thailand
  - National Economic and Social Development Board (NESDB)
    - Flow of funds
  - National Statistical Office of Thailand (NSO), with UTCC
  - Ministry of Finance
    - One of the surveys
  - Bank for Agriculture and Agricultural Cooperatives (BAAC)
    - Including logistics in South
  - JPMorgan Chase, Chulalongkorn University

Overview of This Conference

- Measuring Household and SME Finance
  - Application of the Townsend Thai Data: Case Studies: Narapong Srivisal
  - Measuring Household Finance in Thailand, Suparit Suwanik
  - Payment Diaries: Innovative Measurement of Household Behavior, Scott Schuh
- Harnessing Geographic Data for Finance and Policy
  - Geographic Data Visualization, Xiaowen Yang
  - Bank Branch Expansion vs. International Capital Flows:Integrating Local Spatial Markets with Macro Aggregates, Yan Ji
  - The Geography of Household Finance in Thailand: Access, Vulnerability and Policy Responses, Sommarat Chantarat
- Research-Based Policy Design
  - The Role of Parenting Beliefs, Flávio Cunha
  - From Perry Preschool to RIECE Thailand: A Research-Based Large-Scale Implementation, Weerachart Kilenthong
  - The Use of Data for Policy and Research at Central Banks: Perspectives from Financial Markets at the New York Fed, Antoine Martin
  - Financial System Design: Principles for Policy and Regulation Robert Townsend