Large-Scale Survey Interviewing Following the 2008 WenChuan Earthquake

Zhang Huafeng and Jon Pedersen

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Introduction

- **Two household and community surveys**
  - **Post Wenchuan Earthquake Rapid Needs Assessment Survey**
    - **July 2008**
    - **Interviewed 3652 households**
  - **Restoration and reconstruction survey in the Wenchuan earthquake area**
    - **July 2009**
    - **Interviewed 4014 households**

- **Both surveys were:**
  - **Large-scale computer-assisted personal interviewing (CAPI) surveys**
  - **To assist the Chinese government on the provincial and national level in early and mid-term recovery planning**

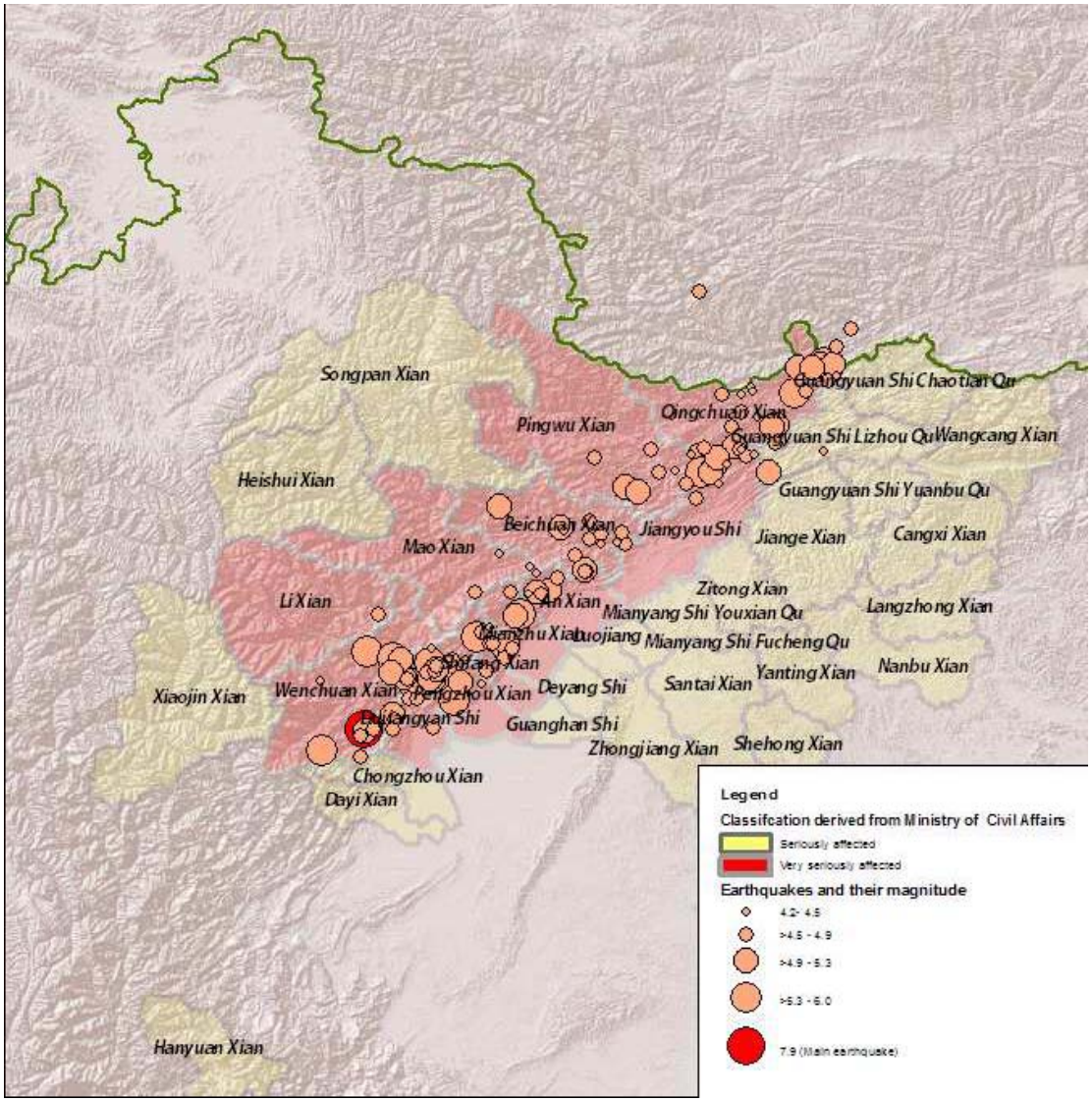
- **First survey operated on a very strict timeline to meet the government's schedule of developing General Plan**

CAPI with Blaise

- **CAPI was the only choice due to the strict timeline for the first survey**
  - Only 10 days for field work, data work, and report writing
  - 80 Asus Eee-pc sub-notebook computers running Windows XP and using Blaise 4.8 as data entry tool
  - Saved time needed for data entry and allowed for continuous tabulation and quality control

- **Blaise was chosen because**
  - Blaise was reported by other researchers to be a useful and powerful environment for CAPI data entry application
  - Previous experiences with Blaise by the survey team
  - Standard blaise could be used with sub-notebook computer running Window XP
  - Detail data entry formatting is not needed

Surveys:



- Two stage cluster sample
- 144 clusters
- Stratified by type of area
- Reported by
  - Very seriously affected
  - Seriously affected
  - Camps

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Allocation of the sample

Stratum	Population size	Number of PSUs	Selected PSUs	Reporting domain
Very seriously affected area	3,666,220	3,038	110	Very seriously affected
Seriously affected area	7,976,816	5,365	40	Seriously affected
Margin of seriously affected area	1,437,349	1660	10	Seriously affected
Deyang city camps	142,943	166	5	Camps
Mianyang camps	182,390	18	5	Camps
Guangyuan camps	42,244	19	5	Camps
Chengdu camps	103,905	15	5	Camps

The questionnaire

- **Household**
  - Housing, infrastructure and amenities
  - Mortality in the earthquake and characteristics of the deceased
  - Basic demographic information including age, gender, ethnicity, marital status
  - Education, current enrollment and attendance
  - Health situation including injuries due to the earthquake
  - Work and relation to the labour market before and after the earthquake
  - Household economy, economic activities and agriculture
  - Economic support in the aftermath of the earthquake
  - Migration and plans to move
  - Social network

- **Randomly Selected Individual**
  - A 12 item psychological distress scale, CHQ-12 (Yang, Huang, & Wu, 2003)
  - Participation in rescue activities
  - Trust in persons and institutions
  - Attitudes to various forms of assistance to earthquake victims
  - Satisfaction with services/assistance

Advantages

Advantages compared to PDAs

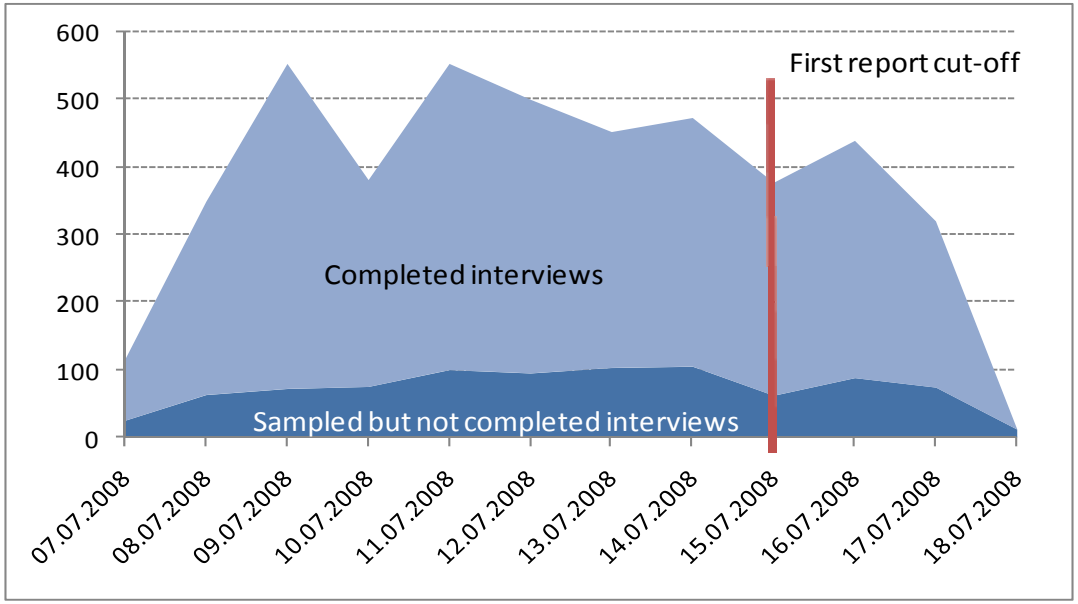
- **PDAs have successfully been employed in many surveys, but available software for PDAs are:**
  - **EITHER difficult to use (Handbase)**
  - **OR expensive (CSPRO-X)**
  - **OR too simple to handle a complex questionnaire (Pendragon Forms)**

- **Note-book running Windows-XP and Blaise are much better supported in the internet user community than PDAs**

Dramatically reduced the time needed for the survey

- **To reduce the survey time is critical in early stages of a humanitarian emergency**
  - No time needed for paper transportation, data entry or cleaning
  - Reduce the interview time
  - Higher technical requirement of field operation
  - Simplify survey management (questionnaire management, transportation and field editing)

- **Field work process for the first survey**
  - 400-500 interviews daily, 5.2 interviews per interviewer per day

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Technical benefits and advantages

- **Facilitate the interviewers to navigate the lengthy questionnaire**
- **Automatic t rack of the questions to be asked, and avoid skipping and missing errors**
- **Internal range and consistency checks, saved training, field editing and data cleaning time**
- **Improve random selection of respondents within the household**
  - **Question: Turned out to be a challenge for the programmer, due to the reevaluation of the calculated variables upon every change**

Quality assurance during field work

- **Possible to evaluate the performance and quality of the field work on the daily bases**

- **Possible to record the information about the interview process, such as interview time, recording sound and etc.**
  - **However, storing data entry time in variables in Blaise is subject to similar problems as the random number generation – namely reevaluation upon change**

- **Possible to incorporate the notes and interviewer manual into the blaise data entry program**

Disadvantages

Hardware limitation and challenges in the field

- **Battery life**
  - Problem with the areas without electricity supply right after the earthquake
  - Possible to solve with the improvement of technology
- **Data loss due to the hardware failures or human errors**
  - Extra work with data management and equipment maintenance
  - Data automatic saved every minute with Blaise
  - Data backup during transfer
  - One technician available all times by phone
  - Immediate replacement of crashed computer
  - A few paper questionnaires carried by each interviewer
- **Screen readability**
  - Under bright sunlight
  - Small screen
    - Blaise is flexible in adjusting the font size
    - Large font is problematic for the question with many answers

Programming challenges

- **Parallel development of the Blaise data entry program and the questionnaire**
- **Demand good organization and cooperation between the programmer and questionnaire designer**
- **Solve the bugs shown up during field work**
  - **Teams were sent to the same area and spent nights in the same place in the first two days, so that updating program was possible**
  - **The strict rules Blaise enforces for updating data entry application during the field work are quite beneficial here**

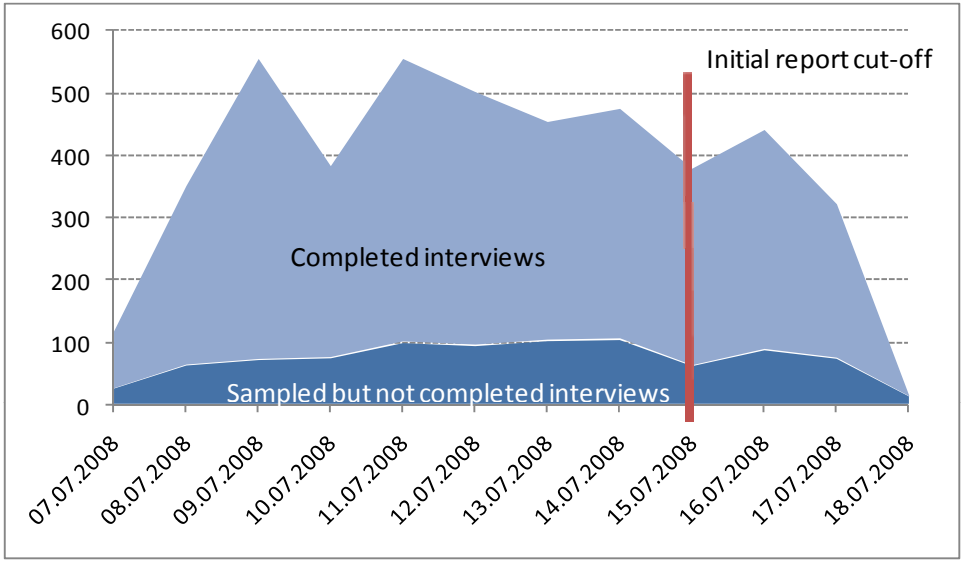
Mis-keying errors

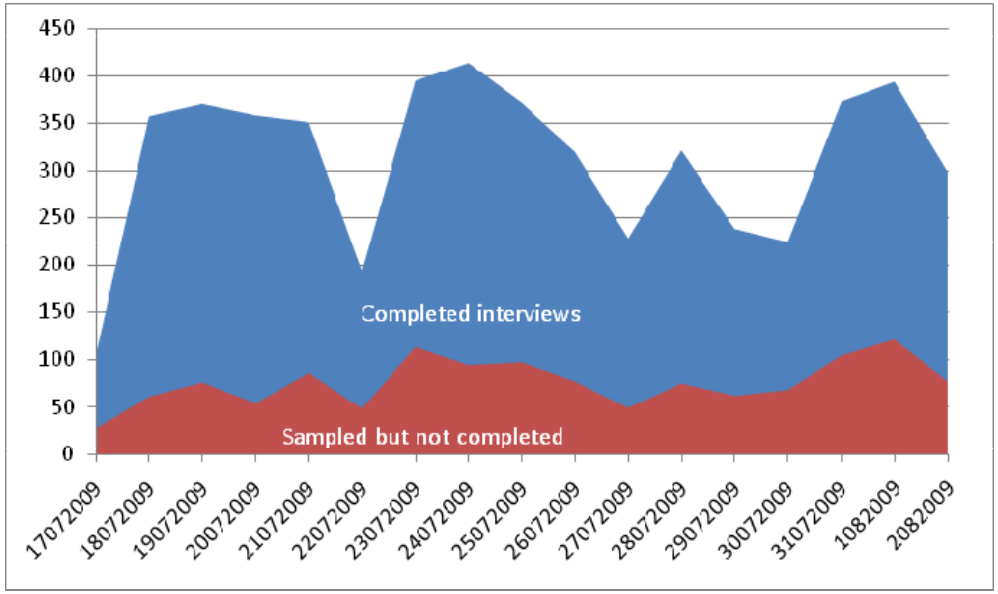
- **While double entry could minimize mis-keying errors in PAPI surveys, CAPI surveys are prone to introduce more undetectable mis-keying errors**

- **Panel surveys made it possible to detect the mis-keying errors**
  - **Interviewers committed more mis-keying errors when under pressure**
    - **365 interviews per day (304 in the second stage) in the first survey, 1.4% mis-typed gender, 1.3% mis-typed residency status**
    - **243 interviews per day in the second survey, 0.5% mis-typed gender, 0.4% mis-typed residency status**

- **Strategies for minimizing undetectable mis-keying errors**
  - **Assign values bit farther away from each other**
  - **Increase font size and add extra space between the answers**
  - **Avoid using auto-skip in Blaise**

Mis-keying errors





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Mis-keying of large numbers

- **Large value mis-keyings detected during training**
  - **Large values such as income, fees and cost**
  - **Downward bias for large numbers and upward bias for small numbers**
  - **Large value mis-keys occur more frequently and affect data quality more seriously**
- **Strategies for minimizing large value mis-keyings**
  - **Warning box with values translated into Chinese characters**

	Percentage of trainees who answered correctly	Correct answer (Yuan)	Mean of all the answers (Yuan)
Family business income	62.3 %	120,000	86,589
Living assistance from government	81.8 %	2,700	8,400
Personal income in the past one year	79.5 %	14,400	20,209
Annual salary in the past one year	77.6 %	120,000	99,342
Current monthly salary	96.1 %	10,000	9,776
School fee in the past one year	61.0 %	5,000	5,319

Conclusion

- **Netbook computer served as an excellent platform for survey**
  - **Lighter**
  - **Easier to use**
  - **More versatile than PDAs**

- **Blaise proved to be an effective tool for developing data entry application rapidly for CAPI surveys in emergency settings**
  - **Flexibility of Blaise programming language**
  - **Automatic handling of scree layout**
  - **Concurrent questionnaire development and programming possible**
  - **Type control on the data structure facilitate rapid development**

•Thank you!

- zhu@fafo.no & jpe@fafo.no