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Overview of CATI Data Collection Research Focussed on Developing Operational Strategies for Process Improvement

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Outline



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Data Collection Research Objectives



- ❑ Better understand data collection process
- ❑ Identify potential operational efficiencies
- ❑ Evaluate new initiatives: time slices, cap on calls
- ❑ Maintain and improve data quality
- ❑ Improve the way surveys are conducted and managed
- *Data collection is a key element of the survey process because it has a direct impact on the quality and the cost of many statistical programs*

Data Collection Expenditures

- Data collection represents a large proportion of the total survey expenditures

Survey / Program	Type	Percent of Data Collection Expenditures
Labour Force Survey	CAPI/CATI	74.8%
Health Surveys	CAPI/CATI	47.7%
Survey of Labour and Income Dynamics	CATI	49.0%
General Social Survey	CATI	72.5%
Canadian Tobacco Use Monitoring Survey	CATI	69.4%
Survey of Household Spending	CAPI	63.7%

Statistics Canada's Paradata Warehouse



Paradata Warehouse includes:

- Call and contact information for both telephone (CATI) and personal (CAPI) interview surveys
- Administrative and payroll information

- Historical information since 2003
- Updated on daily basis

Paradata Warehouse Advantages

- ❑ Statcan is responsible for data collection
 - ◆ Other organizations sub-contract
- ❑ All surveys represented
 - ◆ Availability of historical data
 - ◆ Comparison across survey cycles
 - ◆ Can compare different types of surveys to validate findings
- ❑ Paradata collection - no burden for interviewers
- ❑ Access to detailed and timely cost information
 - ◆ Permits survey cost analysis

Initial Research



□ Objectives and scope

- ◆ Better understand data collection process and practices and identify opportunities for improvement
- ◆ Focus on CATI surveys: RDD, cross-sectional, longitudinal social and agricultural surveys (using call and contact information)

□ Examples of analysis

- ◆ Effort spent: attempts and system time
- ◆ Reaching respondents: contact rate, sequence of calls
- ◆ Relationship between production and cost
- Same type of analysis across different types of surveys
 - Validate findings

Strategic Opportunities for Improvement



- ❑ Better use of pre-collection information
- ❑ Use information gathered during collection
- ❑ Need more emphasis on post-first contact research
- ❑ Assess the interaction between concurrent surveys
- ❑ Develop a responsive design framework
 - ◆ Active management and adaptive data collection strategy
 - Same strategy does not work effectively throughout collection period
- ❑ Continue to investigate the relationship between production and cost
 - ◆ Indicators to link effort and results during collection period
- ❑ Better predict collection resource requirements during collection period based on observed progress
 - ◆ Staffing impacts both survey productivity and cost

Overview of Ongoing Research Linked to Strategic Opportunities – Production versus Cost Data Analysis

Production and cost concepts

□ Production (system time)

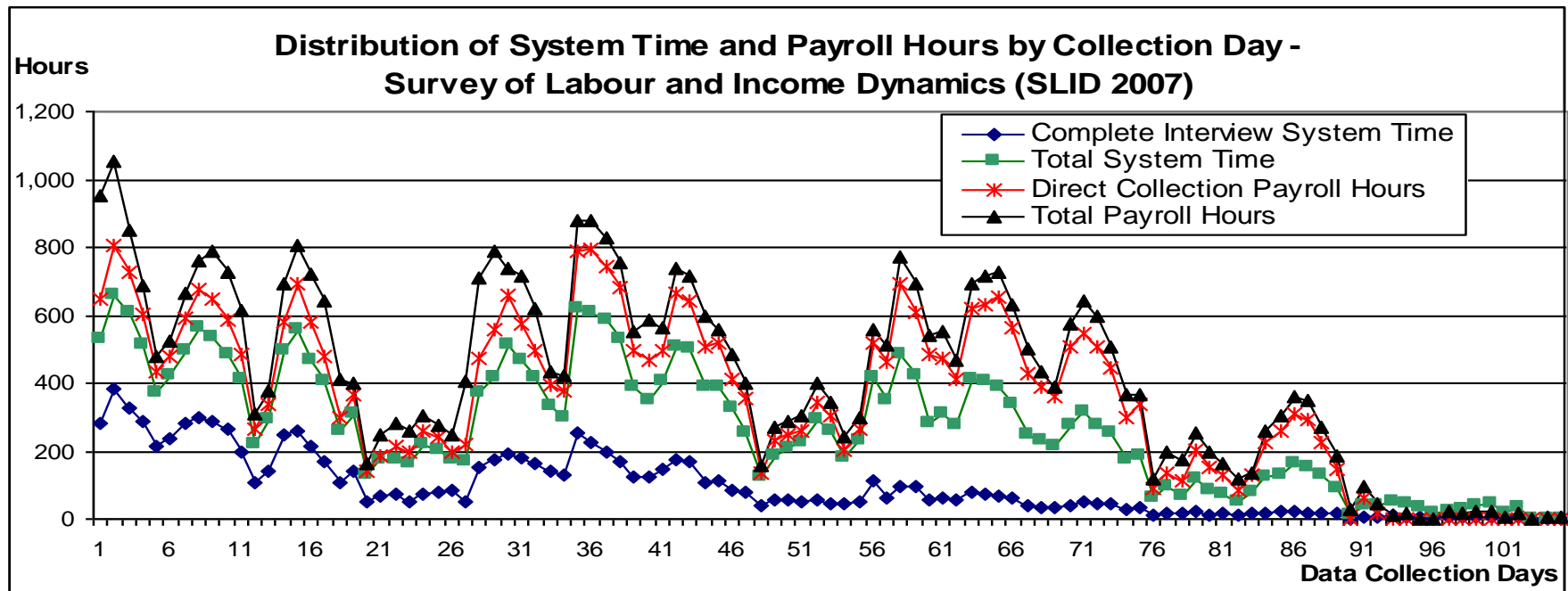
- ◆ Complete Interview System Time: system time to complete interview
- ◆ Total System Time: total system time includes all calls (e.g. appointments, tracing, answering machine, interview, etc...)

□ Cost (payroll hours)

- ◆ Direct Collection Payroll Hours: time charged (payroll hours) to conduct direct collection activities
- ◆ Total Payroll Hours : total time charged

Relationship between Production and Cost throughout Survey Cycle

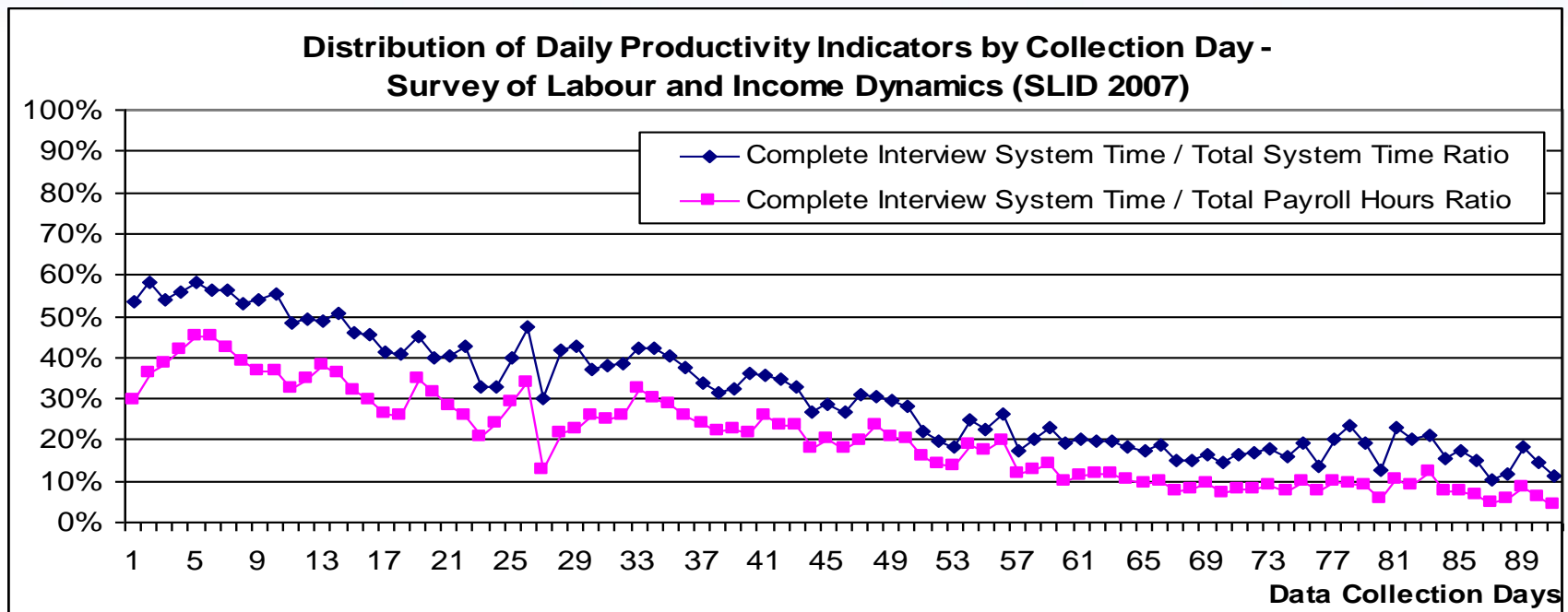
- Strong relationship between system time and payroll hours
 - ◆ System time is a good predictor for payroll hours charged
- These findings generated more focussed research projects
 - ◆ Survey productivity indicators
 - ◆ Survey cost analysis: Impact of cap on calls on survey costs



Survey Productivity Indicators

□ Daily Productivity Indicators – Example

- ◆ Provide a link between effort and results during collection
- ◆ Productivity ratios decrease during collection period
- ◆ These ratios are affected by interview length and response rate



Note: Other types of productivity indicators can be derived

Survey Cost Analysis – Impact of Cap on Calls on Survey Costs

- Initial objectives of cap on calls
 - ◆ Reduce respondent burden
 - ◆ Manage interviewing effort more efficiently
 - ◆ No cost savings were explicitly planned at that time
- Cost analysis takes advantage of the relationship between production and cost during collection
- Maximum potential cost savings vary from 3.1% to 4.2% under the current cap on calls of 40 for longitudinal surveys
- Research limitations
 - ◆ Based on 2005\2006 data (before the introduction of the cap on calls)
 - ◆ Since then, work practices in ROs have been continuously improved
 - ◆ Survey planning would also have been different with a cap on calls
 - ◆ In practice, time spent over the cap on calls is not saved automatically - provides an estimate of the maximum potential savings (in theory)
 - When a case is capped on a given day, interviewers continue to work on the other available cases (always cases left to be worked on)

Current and Future Research Plan



- Responsive Design for CATI surveys
 - ◆ Adaptive collection
 - ◆ Multi-mode / multi-site environment
- Assessing and monitoring survey productivity and costs in CATI household surveys
- Sequence of calls (with the objective to increase likelihood of contact and interview)
- Planning and predicting the number of staffing hours based on survey progress

Current and Future Research Plan



□ CAPI Surveys

- ◆ Assess paradata quality and limitations
- ◆ Develop productivity indicators
- ◆ Include geographical characteristics
- ◆ Evaluate and monitor CAPI sample coordination

Current and Future Research Plan



❑ Other Paradata Research Projects and Activities

- ◆ Dashboard of key survey progress and productivity indicators based on paradata
- ◆ Working groups:
 - RO CATI/CAPI research, cap on calls
- ◆ Business surveys analysis
- ◆ Audit trail projects: POINT and others
- ◆ Ad hoc research

❑ Other Data Collection Research Projects

- ◆ Mixed-mode collection
- ◆ Cell phone

Conclusion

- ❑ Paradata has been the cornerstone of data collection research at Statistics Canada and continues to be extensively used
- ❑ Research is based on objective and empirical measures automatically collected during collection
 - ◆ Almost no collection cost and no interviewer burden
 - ◆ Main cost is to create and maintain paradata database and to develop new analytical tools
- ❑ Benefits of Paradata analysis can be important since data collection represents a large proportion of the overall survey cost



For more information, please contact
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