SAGE Research Methods Cases Politics & International Relations Submission for Consideration

Case Title

Using an Original Firm-Level Survey to Assess Firms' Policy Attitudes

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Abstract

This case study discusses the process of working with original firm-survey data, focusing on the tasks of designing the survey, demonstrating the respondent sample's representativeness, and analyzing the data. This research case focuses particularly on an application to trade-policy stances taken by Japanese manufacturers, and presents several points toward the improvement of the original survey. Readers are also encouraged to consider further approaches to causal inference in the firm-survey scenario.

Learning Outcomes

By the end of this case, students should be able to:

- Design an original firm-level survey
- Evaluate the quality of a survey's representativeness
- Identify the features of survey data that require particular attention when conducting empirical (econometric) analysis

Case Study

Project Overview and Context

In this research-methods case, I describe the process of running a firm-level survey, assessing the data quality and other pre-analysis concerns, and analyzing the responses. Our survey was conducted in Japan by Teikoku Data Bank, the country's largest business intelligence provider, which sent the questionnaire to all its subscribing firms. Responses were encouraged through a prize draw for a free year's subscription to Teikoku's services, which contributed to our exceptionally high response rate of over 50 percent.

The overarching aim of the survey itself was to gain insight into the relationship between business, government, and policy. With this goal in mind, my colleagues and I addressed a slate of questions relating to firm-based attitudes toward a range of policy issues, their interactions with the government through lobbying, and the influence of various policies on their business activities.

Ultimately, this presented me and my collaborators with a uniquely rich dataset from which we could draw. This case focuses on one of the studies that has emerged from our analyses, in which I assess the influence of firm-specific characteristics and market behaviors on their trade-policy stances (Plouffe 2017).

Designing the Survey

Two key considerations dominated the design of the survey. The first had to do with ensuring that the responding sample would be representative of the population. The second revolved around the topics that would be addressed in the questions themselves.

The success of any survey-based study fundamentally depends on the extent to which the sample of responses represents the underlying population. The first step here entailed checking that Teikoku's list of subscribing firms – which, in turn, would receive the survey – was an accurate representation of the population of Japanese producers. At this stage, this involved looking at the distribution of firms across industries and comparing these proportions to the most recent figures from the Japanese economic census. We also checked for the expected size distribution of firms to be included in the survey to avoid potential over-representation by large firms, which are both more likely than small or medium enterprises (SMEs) to have the resources to easily afford Teikoku's services and take the time to respond to our survey. Upon receipt of the survey responses, we then worked to ensure that the resulting sample was also representative; I discuss these steps in the following section.

The survey questionnaire itself consisted of a wide range of questions relating to both firms' characteristics and market behaviors, as well as a panel of queries surrounding different aspects of the political environment, from policy stances to political participation. Research into the political activities and interests of firms is relatively undeveloped when compared to their market behaviors; because we were primarily concerned with firms as political actors, we began to design the survey questionnaire with these topics in mind. This allowed us to capture a wide range of political issues, including:

- The influence of a range of foreign economic policies on the firm's business activities (examined in Plouffe 2018);
- The political activities and influence of the relevant industry association;
- The firm's direct political participation across a range of issues.

However, responses to these political questions are not particularly useful without a rich bank of information on the respondents' market activities and financial characteristics. These came from two sources: Teikoku Data Bank provided information on firm size, location, and sector from their own records; and we

collected a wider range of data through our own questions. These were drafted in a similar manner to those used on the World Bank's Enterprise Surveys (enterprisesurveys.org). Because Enterprise Survey questionnaires are publicly available, I used questions from the manufacturing questionnaire as a basis for the range of questions we asked in our own survey. These topics included self-reported size and growth, ownership structure, and a range of aspects relating to market participation.

We specifically designed for overlap on some of our self-reported questions with information provided by Teikoku. This enabled us to check the responses for potential reporting concerns; for example, a firm that exhibited solid positive sales growth over previous years should report the same, not that sales growth has been non-existent or negative. The locational component enabled the inclusion of a pseudo-natural experiment, exploited by Naoi and Kuno (2015), due to variations in political campaigning at the provincial level.

Establishing the Sample's Representativeness

While we had established the fact that the sample from which we drew accurately represented the population of Japanese firms, the question remained of whether the group of respondents also did. The first thing we did was to compare the proportions of respondents across industries to the original Teikoku sample; this revealed strong similarities between both sets of firms. The next step was to do the same comparison between the respondent sample and economic census data; these figures were presented in the paper itself.

However, simply demonstrating the distribution of firms across industries matches that of the entire economy does not guarantee the sample's representativeness. Large firms have more resources than SMEs and are more likely to engage in a range of activities that SMEs are unable to afford; this includes responding to surveys such as ours. We relied further on government figures on the distribution of firm sizes across the economy. These were reported for all firms, as well as separately for single- and multi-establishment firms. Overlaying the distribution of respondent firm sizes atop the census figures revealed a close match. Unfortunately, we did not think to include a question on establishments on the survey, meaning we could not similarly breakdown the distribution of respondent firms into those with single or multiple establishments.

We also needed to establish the representativeness of our respondent sample in terms of the firms' market activities. If, for example, exporters were over-represented, then the results would likely be biased toward pro-trade attitudes. To ensure that the sample accurately reflected the internationalizing activities across the Japanese economy, I turned to previous studies that relied upon larger samples and economic-census data. Rates of engagement in exporting, importing, offshore-

outsourcing, and foreign direct investment (FDI) were comparable to those in our sample.

The final concern with any single-country case is that its economy is comparable to others around the world, whether this is true of a set of countries distinguished by income levels, geography, or some other comparable feature. Here, the existing literature examining firm-level market activities in Japan provided a valuable point for comparison with highly influential studies of other countries, particularly those focusing on the United States.

Identifying Unreliable Respondents

One defining characteristic of survey research is that respondents will do many unexpected things. This meant that we had to spend some time cleaning the data. For example, while respondents were asked to indicate the industry within which their firm operated, we also asked whether or not they produced any products (distinguishing producers from retailers, who are categorized separately) and whether they manufacture products. Weaving similar questions throughout the length of the survey allowed us to check the consistency of responses. A firm that is listed as a chemical producer but indicates that it does not actually manufacture anything may be better classified as a retailer of chemicals. Alternatively, a respondent could provide multiple contradictory indications of the industry into which they fall. Inconsistent respondents were then indicated and excluded from analysis.

Capturing Firm-level Heterogeneity

A core aim of this study was to identify whether firm-specific characteristics had any influence on policy stances, even when controlling for the firm's activities. For example, it would be unsurprising to expect an exporter to favor increased access to foreign markets, but what about a non-exporting firm? Here, underlying resources play a central role in identifying the firm's interests in foreign markets. An unproductive firm would be unable to take advantage of reduced tariffs in another country, but for a highly productive firm, this may make that foreign market an increasingly attractive opportunity. The key challenge, then, is to identify productivity.

In essence, productivity is an indicator of how efficiently a producer combines its inputs. Labor and capital productivity each provide a useful point of comparison across producers to indicate the effectiveness with which each of these factors of production is employed. However, each measure of productivity fails to provide information about how the producer combines all of its inputs; this include both physical capital and labor, as well as raw materials, and intermediate inputs. These components are included in the concept of total factor productivity (TFP), which captures the efficiency with which a producer combines all of its inputs.

Accurately estimating TFP is an econometrically complicated and highly data-intensive process. The preferred estimation techniques require panel data; with our survey, we only had a cross-section of Japanese manufacturers, so these methods were impossible to apply. Early drafts of this project relied on a linear estimator referred to as 'approximate total factor productivity' (ATFP). The ATFP estimator was adopted from an earlier study (Head and Ries 2003) and could be applied to the cross section of firms. However, the resulting index did not appear to accurately capture TFP. We know from a range of studies that TFP is highly correlated with firm size and market share, to the extent that both of these are used as proxies for TFP in theoretical and empirical specifications. ATFP was only partially correlated with firm size, and thus was not suitable for the task. As a result, log-transformed sales were used instead.

Identifying Trade-Policy Attitudes

The survey had two questions addressing trade-policy stances. One focused on export-market (foreign-market) liberalization, and the other concerned import-market liberalization. I created an index that combined the directional policy stances expressed in response to both questions. In addition to this, I used the export-liberalization responses as a robustness check. The underlying theory suggests that firms are focused on gaining access to foreign markets and that this goal is what drives participation in the political process surrounding trade policy. Finally, I examine the larger range of responses, including those indicating 'no impact' of trade liberalization.

Analyzing the Data

When dealing with survey data, two concerns potentially complicate the analysis. First, responses to most questions are binary or categorical in nature, limiting the range of appropriate models. Second, the firms are nested in different industries, which will exhibit different effects on their trade-policy responses. These influences can range from structural features like market-share concentration, to trade costs, import penetration, and levels of (non)tariff barriers.

The first of these issues – the categorical nature of the dependent variables – is addressed through the application of several nonlinear modeling techniques, including logit, conditional logit, and multinomial logit approaches. In multinomial tests, anti-trade stances are selected as the baseline category: these are most clearly associated with small and low-productivity firms, making it easy to assess the influence of firm characteristics and behaviors on other policy stances. Skewed logit (scobit) and linear probability models were also employed, but produced comparable results and were omitted from the text and appendix.

The second concern relates to the effects of industry-based influences on firms' responses. The simplest modeling approach is to cluster the error terms of each coefficient at the industry level, although this does not explicitly account for

industry-specific effects. These can be dealt with through a conditional logit approach. Incorporating industry fixed effects is also a common solution to this sort of structure, but may be vulnerable to the incidental parameters problem (IPP) in maximum likelihood models with a limited dependent variable. The conditional logit model provides a way to incorporate the industry-based groups without being prone to IPP-related bias. This approach produced comparable results to those estimated with a standard logit, indicating the influence of firm-level characteristics on trade-policy attitudes was robust to industry-level influences.

To capture the wider range of trade-policy stances, I employed ordinal and multinomial logits. These specifications will typically not be robust to IPP-induced bias, so I avoided incorporating industry fixed effects, opting instead to cluster the error term by industry.

Lessons Learned and Opportunities Lost

While the study was ultimately successful, and I identified interesting patterns in the relationship between firm characteristics and trade-policy stances, the survey had several aspects I would have liked to improve. Unfortunately, when it comes to original surveys like this, any opportunity to collect more data ends when the survey questionnaire goes out to the potential respondents. It is practically impossible to think of every potential item of interest while drafting the survey questionnaire.

In this case, our import-liberalization question lacked important information for the respondents. Were we asking them about the liberalization of imports of the same sort of product they produce, or were we asking about liberalization of raw materials or intermediate components? The divergent effects of trade liberalization between these two reforms could lead to wildly different consequences for a firm's business activities. Similarly, we would have benefited from obtaining more information on the firms' motivations behind engaging in FDI. Were these activities primarily due to supply-chain concerns, or final-product sales?

Finally, as is often the case, it would have been able to capture more finely-grained information relating to the nature of firms' engagement with foreign markets. For example, a great deal could be learned from their trading patterns if we know the countries within which their trading partners are located. Similarly, obtaining information on the extensive margin of each respondent's participation in each of its various means of engaging foreign markets would have provided a more nuanced approach to understanding how these behaviors impact political activities. However, with the range of questions on the survey, asking for further information on these behaviors would have risked higher non-response rates. Future work with a greater focus on the effects of internationalization will be able to examine these issues in greater detail. While it is far too late to go back and

change the questions in this survey, future surveys provide opportunity to make the necessary adjustments to capture this information.

Conclusions

In this case, I have discussed concerns relating to collecting and analyzing original firm-level survey data. Our initial concerns, after securing funding and locating a survey partner, directly related to the representativeness of the sample. These concerns continued well beyond the receipt of the responses, as readers and reviewers each brought forward different questions about how the sample represented the population of Japanese firms. When analyzing the data, key issues included adequately and convincingly capturing TFP and selecting appropriate models for the data-generating process. While the survey has provided useful information for illuminating the relationships between firm-level characteristics, market behaviors, and attitudes toward policies, we also identified ways in which we can improve future firm-level surveys.

Exercises and Discussion Questions

1. What survey techniques enable a sample's representativeness of its larger population? What practical constraints might prevent you from implementing your preferred practice? How can you try to mitigate their effects?
2. When designing a survey, how might you try to predict which members of the sample are less likely to respond than others? How would you account for this in your research design?
3. How can you demonstrate that the survey's respondents accurately resemble a larger population? How would these steps change for different populations of interest or units of analysis?
4. How might you embed an experimental approach to understanding the determinants of firms' policy stances in a survey like this? How would you adjust your experiment to capture engagement in the policy-making process?

Further Readings

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Web Resources

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