Empirical analyses of offshoring based on Japanese firm-level data: A survey

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Abstract

This paper surveys empirical analyses of offshoring (offshore sourcing) based on Japanese firm-level data. Before the literature review, the background of recent active research on this topic is briefly overviewed by referring to increasing availability of microdata and the development of firm heterogeneity trade theory. The research topics covered in this paper include the relation with firm’s productivity, inter-firm networking, boundaries of firms, and the impact on employment. The data source used by each study is explained with special emphasis on Japanese unique data. The directions for future research is also suggested.

JEL classifications: F14, F23, D22

Key words: Offshoring, Outsourcing, Firm-level data, Japanese firms

1. Introduction

While trade in goods has traditionally been the main topic, investigations of various cross-border corporate activities have gained importance in international economics. The increasing availability of micro-data combined with the development of the firm heterogeneity trade models (“New New Trade Theory”) enables us to analyze the firm’s globalization through such channels as exporting, foreign direct investment (FDI), and offshoring (offshore sourcing). Empirical evidence on the contrast between exporters versus non-exporters from U.S. plant-level data by Bernard and Jensen (1995) and the path-breaking theoretical model of Melitz (2003) critically determine the research trend in international trade during the first decade of 21st century. On the choice between exporting and horizontal FDI to serve a foreign market, Helpman et al. (2004) provide a simple framework to discuss productivity ordering. A series of work by Professor Paul Antrás of Harvard University, including Antrás and Helpman (2004), theoretically formalize the firm’s decision of offshore arm’s-length outsourcing versus intra-firm sourcing with vertical FDI. As many early papers including Kojima (1975) have theoretically shown, these modes of globalization are inter-related, not captured by a simple substitution or complement. For example, FDI by Japanese firms in South East Asia often results in declined exports of final products from Japan but increased exports of
intermediates as well as expanded opportunities for offshore sourcing. It is impossible, however, to discuss in a single article theoretical and empirical studies of all these topics. Consequently, this survey article concentrates on empirical studies of offshoring based on Japanese firm-level data. The term “offshoring” sometimes means FDI or business activities shifted to offshore locations, but this paper defines it by offshore sourcing, or sourcing of intermediates (goods and services alike) from offshore locations. The narrow definition concentrates on arm’s-length outsourcing to independent suppliers, but the broad definition includes intra-firm sourcing from own offshore subsidiaries. See Table 1 for the taxonomy of sourcing.

The focus on offshoring by Japanese firms in this survey is particularly motivated by the unique data on Japanese offshoring. While firm-level data studies are active in many countries around the world, most of them discuss exporting and/or FDI, not offshoring. Detailed data, even disaggregated to individual transactions recorded at the custom clearance, have recently been used for research of exporting in various countries including U.S., France and China. No such transaction-level export data are available for research purpose in Japan. Although some unique data are collected, Japanese FDI surveys are constrained by the limited coverage compared with legally mandatory data collection in other countries such as U.S. or Sweden. A clear advantage in Japanese firm-level data lies in offshoring, where comparable data are not collected in many countries. The characteristics of Japanese offshoring data will be explained later in this article. The uniqueness of Japanese firm-level data has had a profound impact on international trade research in Japan.

As many papers have been accumulated on this topic, it is practically impossible to cover all papers within this single article. The coverage of this survey is therefore intended to be selective rather than exhaustive. We concentrate on academic papers published in international referred journals in the field of economics, implying that research results circulated in the form of working papers or discussion papers are omitted from my survey in spite of their potential importance. While rich research results on this topic, especially sourcing in general without distinguishing domestic and offshore sourcing, have been accumulated in the management literature, these papers are beyond the scope of this survey article due not only to the main discipline of The Japan Society for International Economics but also to the limitation of the author’s expertise.

The rest of this article is organized as follows. Section 2 surveys papers on the relation between the firm’s offshoring decision and productivity. Section 3 reviews how offshoring is related with inter-firm networking or with boundaries of firms. Section 4 reviews studies of relationships between offshoring and labor market. In each section, we overview data sources, analytical methods, theoretical hypotheses, and the implications of empirical findings.1) The last section adds concluding comments.

| Table 1: Taxonomy of sourcing |
|------------------------------|
| Boundary of firm | Location | Domestic | Offshore |
| In | Domestic intra-firm sourcing | Offshore intra-firm sourcing |
| Out | Domestic outsourcing | Offshore outsourcing |

1) This article is partly based on Section 4 of Tomiura et al. (2013b), but is updated and substantially trans-
2. Offshoring decision and productivity

This section reviews empirical studies of firms’ offshore sourcing decisions (whether or not to source from offshore suppliers) in its relationship with productivity. As only a limited fraction of firms are sourcing from foreign suppliers, this issue is important before discussing other related topics, such as impacts of offshoring.

The firm heterogeneity trade model, or New New Trade Theory, formalizes intra-industry variations across firms in the extent of global activities. As entry costs for global activities are normally higher than those for domestic operations, only productive firms are active in global activities. This implies an empirically testable pecking order of productivity over firms. Rich research results have been accumulated at the firm level on the productivity premium of exporters or FDI firms in many countries around the world. The high productivity of exporters and FDI firms relative to firms not involved in these cross-border activities has already become a stylized fact repeatedly confirmed since Bernard and Jensen (1995).

Although equally important, empirical studies of offshore sourcing have been limited mainly due to the data availability. In Japan, a government survey Basic Survey of Commercial and Manufacturing Structure and Activities (Shokogyo Jittai Kihon Chosa in Japanese) conducted at 1998 by Ministry of International Trade and Industry (MITI, currently reorganized as METI, Ministry of Economy, Trade and Industry) contains data on offshore sourcing explicitly separated from domestic sourcing over a sample covering all manufacturing industries without any firm-size threshold. Although the survey does not capture offshoring of non-manufacturing tasks or disaggregation by offshore locations, firm-level data of offshore sourcing are rare even among developed countries. By using the data of 118,300 manufacturing firms from this survey, Tomiura (2007a) is an early confirmation of the theoretical prediction; offshore outsourcing firms are more productive than domestic firms but less productive than FDI firms. He confirms this productivity ordering even after controlling for industry and firm size. Due to the data constraint as a survey conducted only once, his cross-section formed to be a survey of Japanese firm-level data analyses.

2) Tomiura (2007a) reports that only a single-digit percent of firms are outsourcing production abroad at 1998 in the sample without any firm-size threshold. Among medium- or large-sized manufacturing firms, Tomiura et al. (2013b) report that about one-fifth are engaged in offshoring in the first decade of 21st century.

3) Kimura and Kiyota (2006) is an early confirmation of the firm-level productivity premium of exporters and of FDI firms in the case of Japan. Wakasugi et al. (2014) compile regularities on the productivity premium of Japanese exporting and FDI firms in internationally comparable forms.

4) In Japan, another statistics captures offshore sourcing but only for large-sized firms. We will review studies of that statistics later. Similar offshoring data are collected in a limited number of developed countries including France and Spain.

5) While commercial sectors are also covered by this survey, he concentrates on firms in manufacturing sectors as the data of outsourcing in this survey is about production outsourcing.

6) He confirms the robustness of productivity ordering by alternative measures of productivity: labor productivity (per-worker sales, per-worker value-added), Approximate Total Factor Productivity (ATFP), firm size (sales) and domestic market share. Within his cross-section dataset, it is impossible to estimate production function and TFP for each firm. As no price data are available at the firm level, it is either not possible to calculate quantity-based productivity, which is free from mark-up changes but appropriate almost only for homogeneous commodities.

7) The same type of survey continues though only small-sized firms are randomly sampled.
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analysis cannot identify the direction of causality (firms offshoring because of their prior superior productivity or firms becoming productive as a result of offshoring). In spite of this data limitation, the regularities documented by Tomiura (2007a) are clearly consistent with the main theoretical prediction of the firm heterogeneity trade model. The firm-level research accomplishments on offshore outsourcing and FDI is surveyed in Coase Lecture by Helpman (2014) with broad perspectives and deep interpretations. Antràs and Yeaple (2015), a chapter on FDI in influential Handbook of International Economics, is also closely related with this survey.

While Tomiura (2007a) focuses on offshore sourcing (the choice between offshore outsourcing versus intra-firm FDI sourcing), firms purchase inputs also from domestic suppliers. Japanese manufacturers, especially final assemblers in the automobile manufacturing as the prime example, tend to be active in sourcing inputs from domestic suppliers without ownership relationship through long-term contracts. As expected from the comparison of entry costs for domestic and offshore sourcing, domestic sourcing is far more common than offshore sourcing in almost all industries. In other words, few firms are outsourcing overseas without outsourcing to domestic suppliers. Tomiura (2005) compares firms engaged in offshore outsourcing with those in domestic outsourcing based on the same firm-level data set as Tomiura (2007a). He confirms that offshore outsourcing firms tend to be significantly more productive than domestic sourcing firms.

While it reveals many regularities, the firm-level data set described above is not the only statistics on offshore sourcing in Japan. Related statistics are summarized in Table 2. METI’s Basic Survey of Japanese Business Structure and Activities (BSJBSA, Kigyo Katsudo Kihon Chosa in Japanese) also captures offshore sourcing as well as domestic sourcing. This survey, however, covers only large- or medium-sized firms: firms with fifty or more employees and capital of 30 million yen or more, and hence is not suitable for discussing the whole population of firms including small-sized firms. As small-sized firms occupy a dominant share among Japanese firms, their omission should have non-negligible effects on our investigation of offshoring.8) We also note that small-sized firms are often not directly involved in global activities, especially FDI. The advantage of BSJBSA, on the other hand, is the tracking of firms over years, thus enabling us to construct data in longitudinal format.

Based on the BSJBSA firm-level data during 1994 and 2000, Hijzen et al. (2010) confirm the positive effect of intra-firm offshoring on the firm’s productivity, but find that the impact of offshoring varies across firms.9) According to their estimates, the effect of arm’s-length offshore outsourcing on productivity is negative for domestic firms without FDI or exporting. They interpret this result as an indication of non-negligible costs of searching foreign suppliers.

A series of studies by Professors Fukunari Kimura and Mitsuyo Ando of Keio University document the characteristics of firms investing in East Asia based on firm-level data from BSJBSA, and, by combining the regression results with disaggregated trade data, argue that

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8) As a useful comparison with large-sized firms, Todo (2013) analyzes offshoring by 3,512 small- and medium sized firms based on a survey at 2009 by Japan’s Small and Medium Enterprise Agency.

9) Though their panel data analysis is informative, their intra-firm offshoring includes imports of raw materials, which is broader than usual and is not directly comparable with their total offshoring (purchases of products, parts and components only).
Japanese multinational firms extend production–trade networks across national borders in East Asia. Their results suggest that FDI by Japanese firms has accelerated intra–region international trade. Based on the BSJBSA data, Kimura and Ando (2005) report that firms directly investing abroad, especially in East Asia, tend to be also active in outsourcing. Again based on the BSJBSA firm–level data but for a different research purpose, Okubo (2014) finds that a firm is more likely to outsource production overseas if the firm is sensitive to environmental concerns or active in environmental protection activities. He interprets this result as a support for the pollution haven hypothesis: firms outsource the dirtier stages of production to offshore sites for reducing domestic pollution abatement costs. While BSJBSA data have already resulted in rich findings as reviewed above, the data on offshoring have been expanded by the recent change in that statistics. Only recently from 2010, BSJBSA started to capture offshore outsourcing of non–manufacturing tasks. Before this change, the survey collected data only on subcontracting of production tasks during 1994–1999. As a result of these changes in questionnaires, during the first decade of 21st century, no data on offshoring were unfortunately collected. As more and more firms in manufacturing industries perform non–manufacturing activities, such data collection should be important to analyze cross–border activities of firms in our era. We look forward to the accumulation of offshoring data from the renewed BSJBSA.

While it is generally not easy to collect firm–level data on offshoring directly from government statistics as explained above, some related information can be found from private commercial data sources. The most comprehensive commercial database of foreign affiliates by Japanese firms (Overseas Japanese Companies Database, Kaigai Shinshutsu Kigyo Soran in
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Japanese) is provided by Toyo Keizai Inc. While it contains few quantitative firm-level variables, this database includes a wide range of foreign affiliates based on various information sources including press coverages. By combining corporate accounting data with Toyo Keizai data at 1991, Head and Ries (2002) find that the outsourcing (measured by the share of expenses on purchased goods) relative to variable costs increases with the firm’s sales or with the firm’s share of employment in low-wage countries, but decreases with the firm’s assets relative to sales. While the first result on firm size is consistent with other findings summarized above, the latter two results suggest that outsourcing complements with vertical FDI but substitutes for capital investment at home. Although offshore outsourcing and domestic outsourcing are not distinguished, their study proves the usefulness of commercial database, especially if combined with other data sources.

3. Offshoring, inter-firm networking and firm boundaries

The choice of offshoring is tightly connected with the firm’s own productivity, as surveyed in the previous section. However, offshoring is also related with organization or boundaries of firms, which is the core issue in the economics of firms or in contract theory. Antràs and Rossi-Hansberg (2009) surveys this important but relatively unexplored topic. Antràs (2014), on the 25th anniversary of the seminal Grossman–Hart model, overviews how widely the model has inspired research of wide-ranging topics in economics, including incomplete contract models of offshoring and FDI. The theory predicts that firms sourcing from their FDI affiliates should be more capital intensive than outsourcing firms since the problem of incomplete contracting is more serious in labor compared with physical capital.

To directly test this theoretical prediction at the firm level, Tomiura et al. (2011) compare capital–labor ratios of Japanese firms based on a survey (Survey of Corporate Offshore Activities, Kigyo Kaigai Katsudo Chosa, in Japanese) over five thousand firms conducted by Japan’s Research Institute of Economy, Trade and Industry (RIETI) at 2007. In this survey, the “outsourcing” is defined as contracting-out (gaichu or itaku, in Japanese) based on explicit contracts specifying specs or other dimensions of the outsourced tasks. The main advantages of this RIETI survey are the disaggregation of offshoring destination (China, ASEAN, other Asian countries, developed countries and the rest of the world) and the disaggregation of types of suppliers in offshoring (own majority-owned offshore subsidiaries, subsidiaries with majority ownership by other Japanese multinationals, and other foreign firms), while only large- or medium-sized firms in manufacturing industries are covered. This RIETI survey also captures not only offshoring of production tasks as in previous government statistics but also of various non-production tasks, such as R&D, computer programming and call center operations. They find that firms sourcing from their own offshore subsidiaries are more capital intensive than firms outsourcing to offshore independent suppliers, as consistent with the theoretical prediction. This capital intensity differential is detected not only in terms of average but also in pro-

10) Although the survey was conducted only once, the survey collects information at two points in time by using retrospective questions about the firm’s offshoring experience five years ago. As the survey was conducted in January to March 2007, “the current year” in the survey is 2006. As a result, “five years ago” in the survey means the year 2001.
ductivity distribution in the sense of stochastic dominance.\textsuperscript{11) They also confirm this finding irrespective of the offshoring destinations.}

Ito et al. (2011) compare productivities of firms in the same RIETI sample as Tomiura et al. (2011) and find that the productivity of firms engaged in intra-firm offshoring is higher than that of firms engaged in offshore outsourcing. They additionally report that the productivity gap between these two types of offshoring firms appears to diverge over time, suggesting dynamic productivity-improving effect of offshoring especially when conducted within multinationals.\textsuperscript{12) While the productivity premium of offshoring firms has been established, this result indicates a non-negligible difference within offshoring firms depending on the ownership relations with suppliers (own subsidiaries versus independent legal entities).

While it does not directly capture offshore sourcing itself, valuable data on offshore activities are collected by another government statistics: Survey on Overseas Business Activities (SOBA, Kaigai Jigyo Katsudo Chosa in Japanese) by METI.\textsuperscript{13) This survey collects data from foreign affiliates on their sales and purchases, though the response is not mandatory and, as a result, the coverage of this survey is not comprehensive. The sales and purchases are disaggregated depending on the transaction partners (to/from the parent firm, within the country where the affiliate is located, within the region, or the third country). While intra-firm trade between offshore affiliates and parent multinational corporations are captured by the U.S. official statistics, the data on sales and purchase with other firms across firm boundaries are rare and valuable particularly for understanding the current state of offshoring.

The data collected by SOBA have been used for the analysis of local procurement by foreign affiliates, which is tightly connected with FDI as well as offshore sourcing and also relevant for the policy debate on local content requirement on FDI imposed by host countries. Based on data of Japanese electronics manufacturing multinational firms derived from SOBA at 1992, Belderbos et al. (2001) find that the local content ratio tends to be high in experienced, acquired, or jointly owned affiliates in developing countries, or affiliates of less R&D-intensive parent firms. They also report that Japanese firms belonging to keiretsu groups (Japanese traditional enterprise groups especially characterized by long-term transactions) tend to source more from Japanese suppliers.\textsuperscript{14) All these findings convincingly indicate that informational frictions are among the critical factors in offshore sourcing, though intra-firm sourcing was not separated from outsourcing in their data set.

Ito and Fukao (2010), also based on firm level data of SOBA during 1989 to 2002, find that the local procurement ratio is positively related with the profitability of a Japanese affiliate

\textsuperscript{11) Tomiura et al. (2011) also report that the capital intensity substantially varies across firms even within the same industry. The mean capital intensity ranking of industries matches with our prior, but relatively capital-intensive firms in labor-intensive industries are often more capital-intensive than relatively labor-intensive firms in capital-intensive industries, showing the critical importance of intra-industry firm heterogeneity in capital-labor ratio.}

\textsuperscript{12) They group firms according to the offshoring status at an early year in the sample period and then trace their productivity paths afterward.}

\textsuperscript{13) This survey has been renamed as Basic Survey since 2001. Before the change, detailed surveys with longer list of questionnaires had been conducted once in three years.}

\textsuperscript{14) The vertical aspect of keiretsu groups (transactions of intermediates between suppliers and assemblers without ownership linkages) is the focus here, but the horizontal aspect (financial relationship with the group’s main bank) is discussed by Amiti and Weinstein (2011) reviewed later in this article.}
in China especially for large-sized multinationals. Their result suggests that sourcing from local suppliers in offshore locations (typically low-wage countries) contributes to profitable operations of Japanese multinationals headquartered in high-cost Japan.

Also from SOBA but from a different period of 1994 to 2000, Kiyota et al. (2008) report that substantial heterogeneities across affiliates are explained by affiliate-specific fixed effects. This indicates that the sourcing decision of multinational firms is influenced by such numerous players or factors as controlling parent firms, operating affiliates, traded intermediates, production locations, and trade costs.

It is generally hard to collect transaction data at individual firm level. In Japan, a commercial database company Tokyo Shoko Research (TSR) assembles a unique database on inter-firm transactions. This database records up to 24 buyers and up to 24 suppliers for each firm. While not all transaction partners are listed if a firm trades with 25 or more partners, the list of major trading firms is not normally available in usual statistics. By combining this unique TSR network dataset with corporate database, Todo et al. (2015) assemble the transaction network data of 902 firms, and examine the impact of Great East Japan Earthquake of 2011. They find that firms tend to quickly recover from the damage if they have networks with firms outside of the damaged area. While they concentrate on networking within Japan, their research result suggests that cross-border networking might help recovery from damages of natural disasters in a country. As Japan seems to be in a historical active phase of earthquakes at least after 2011, the research on this issue should have critical policy implications.

Although the exporting decision, not offshoring decision, is the target of the paper, Tomiura (2007b) finds that R&D intensity is significantly related with the firm’s globalization but this relationship with own internal technological capability is dominated by the firm’s networking with other firms among small-sized firms.\footnote{Inter-firm networking is measured by the membership of industrial associations in Tomiura (2007b).} This result indicates that information spillovers from other firms is critical for small firms, most of which conduct no in-house R&D at all, to actively engage in global activities.

As a related finding, Tomiura (2009) directly investigates the choice between offshore versus domestic outsourcing and reports that R&D-intensive firms tend to prefer domestic over offshore outsourcing. As we know at the aggregate industry level that offshore outsourcing is active in textiles and apparels rather than in R&D-intensive machinery industries, this finding can be evaluated as a confirmation at the firm level. The gap in R&D intensity suggests that coordination with suppliers in remote foreign countries in different contracting environments appears to be a serious obstacle for outsourcing of technologically complex tasks.\footnote{Tomiura (2008) compares R&D intensity across firms and reports that outsourcing firms are less R&D intensive than exporting firms. This ordering can be consistent with the product cycle theory, as R&D intensive products are supposed to be manufactured in and exported from developed countries and as outsourcing by Japanese firms are mostly to Asian developing countries.}

On Japanese inter-firm networking, Amiti and Weinstein (2011) examine the relationships between manufacturers and financial institutions in Japan. They find that the financial health of their main bank affects the exporting decisions of manufacturing firms during the Japanese banking crisis in 1998 by combining corporate database with financial data. Although the main bank relations have recently become less clear even in Japan, their research indicates that the historical Japanese main bank system provides us a rare opportunity to test financial
impacts on real international trade. As the financial constraint should be among the important factors behind firm heterogeneity in exporting, offshoring and FDI, the firm-level research along this line should be further explored.

4. Offshoring and employment

Among various topics related with offshoring, the impact on labor market is obviously one of the most hotly debated policy issues in many developed countries. The vague but long-discussed notion of hollowing-out often regards employment abroad by offshore affiliates as a simple substitution of employment in the home country. Empirical analysis based on statistical data with rigorous econometric techniques is required to discuss this important topic.

Yamashita and Fukao (2010) examine this hypothesis by estimating the labor demand function at the firm level for the period from 1991 to 2002 by combining BSJBSA data of parent firms with SOBA data of affiliates, and find that offshore employment rather helps maintain the firm’s domestic employment. Although their analysis is not on offshoring itself but on the comparison between firms with and without offshore affiliates in FDI statistics, their result is a rejection of the exporting job hypothesis. We must note however that what this research examines is the impact on employment by offshoring firms, not necessarily the spillover effect of offshoring on other domestic firms. Even if they themselves are not involved in any offshore activities, many domestic firms, especially small-sized firms, are often affected by large-sized firms switching subcontract works to offshore suppliers.

While we have discussed the impact on labor demand of offshoring firms, offshoring also affects the exit decision of firms. By estimating the Cox proportional hazard model for a sample of firms with 100 or more workers, Kimura and Fujii (2003) find that the firm’s exit probability decreases with domestic outsourcing but rather increases with offshore outsourcing. Their finding indicates that, although outsourcing often widens the availability of inexpensive inputs, the management of outsourcing, especially across national borders, may risk the survival of the firms depending on the firms’ human capacity.

Offshoring is likely to affect not only the total level of employment but also the composition of employment. Tomiura et al. (2013a) examine how offshoring is related with the composition of workers within each firm. According to their estimations, the share of non-production workers tends to be high among offshoring firms, as consistent with established results on exporting or FDI. By disaggregating non-production workers into skilled versus unskilled non-production workers, they find that the share high among offshoring firms is skilled workers, not unskilled, among non-production workers, also in line with previous reports on globalization associated with skill-biased shift. They also report that the share of employees allocated to international corporate section tends to be high among offshoring firms. Those workers are supposed to have not only foreign language skills but possibly also knowledge of overseas markets or of foreign legal systems, and to perform critical functions indispensable for offshore operations. As such skills is useless for firms not at all involved in any offshore operations, the last finding suggests that the dichotomy of skilled versus unskilled workers is too simple to discuss the employment composition of firms.

While these results are confirmations of previous results from exporting or FDI for the
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5. Concluding remarks

Empirical studies reviewed here have shown that offshoring firms have distinctive characteristics such as high productivity, and that offshoring has significant impacts on international trade and employment. As more and more firms are forced to find low-cost suppliers across borders pressurized by intensified global competition, the understanding of offshoring firms and the exploration of the reasons behind the limited participation in offshoring are among the vital issues in our age. The availability of unique data on Japanese offshoring has made such research at least partly possible, while empirical studies on export and FDI have been accumulated in many countries around the world. The extensive use of unique Japanese firm-level data has transformed the standard research style of Japanese trade economists toward more emphasis on empirics. Tight integration between pure theory and empirical analyses, ignited by the firm-level studies of firm heterogeneity model, has now been possible and will be required to be further explored.

While this survey article overviews previous studies of Japanese firm-level data, there are still other untapped micro-data we need to explore for answering important unresolved research questions on offshoring. For example, employer-employee matched data have been actively used in some European countries for analyzing the impact of trade and FDI on wages and employment at worker level, and should be examined in Japan too in the future. In spite of the recent shift of research trend in the frontier of international economics toward structural estimations tightly linked with theory and general equilibrium analysis with numerical simulations, descriptive analyses of statistical regularities over detailed micro-data remain valuable and informative especially in the research of behaviors of heterogeneous individual economic agents. On such topics, empirical research of trade, FDI and offshoring will learn more from rapidly expanding scope of labor economics.

As another point to note before conclusion, while we have mainly reviewed how offshoring is related with the firm’s characteristics, most notably with the firm’s own productivity, offshoring of firms is naturally influenced by behaviors of other firms, especially firms trading each other or firms located approximately, as well as by policy interventions. While they focus
on plant locations within Japan, Okubo and Tomiura (2012) find that industrial relocation incentives significantly affect productivity distributions of plants as low-productivity firms are responsive to relocation incentives. Their finding has important implications for cross-border corporate decision in offshoring. As many developing countries have become active in attracting foreign firms as a development strategy, the policies by such countries may influence both locations and productivities of offshoring firms. These suggest that the linkage between offshoring and economic geography, or the determination of firm boundary in economic space with national borders, should be for international trade economists among the research topics with high future potential. By such new research, empirical analysis in the field of international economics will be enriched in collaborations with other recently booming branches in economics, such as the natural experiment approach in development economics or historical economics.

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