Is Offshore Sourcing Decision a Strategic Response to Declining Firm Performance?

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IS OFFSHORE SOURCING DECISION A STRATEGIC RESPONSE TO DECLINING FIRM PERFORMANCE?

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Abstract

Strategic actions by firms are often triggered by emerging contingencies. In this research, using contingency theory and strategic change literature, we conceptualize offshore sourcing decision as a strategic response to declining firm performance. Further, using secondary data, we empirically test the proposed model. Overall, the findings suggest that a firm’s degree of offshoring is not associated with its performance downturn. On the contrary, degree of offshoring is positively related to an increase in firm level parameters like employee productivity and international experience. The paper concludes with a discussion of the implications of the results, for research and practice.

Keywords: Offshoring, Strategic change, Contingency theory, Performance downturn

Introduction

Sourcing decisions are some of the most critical decisions that a firm has to make. The last decade has seen researchers analyzing the modalities and characteristics of outsourcing, especially information systems (IS) outsourcing (Loh and Venkatraman 1992; Teng et al. 1995). Many of these outsourcing decisions were made as a strategic response to declining firm performance (Dibbern et al. 2004). Outsourcing has often been viewed as an efficient market hierarchy mechanism which help firms focus on the jobs they can do most efficiently, thus improving their performance by outsourcing their non-core jobs (Slaughter and Ang 1996; Smith et al. 1998).

In recent years, due to rapid advancement of the Internet and allied information and communication technologies (ICTs), an increasing number of business processes are being offshored from developed countries like US and UK to relatively cheaper destinations like India, China, Russia and the Philippines. According to Gartner research, 5% of information technology (IT) jobs in the US have gone overseas, and 25% will be “offshored” by 2010 (Gugliemo 2004). Forrester Research estimates that by 2015, about 3.3 million jobs will be offshored. Another estimate by Goldman Sachs puts this figure at 6 million by 2010 (Hirschheim et al. 2005). Recent news reports confirm that this trend is continuing at an accelerated pace (Ribeiro 2006).

Some researchers view IT enabled offshoring as an extension of IS outsourcing (Aron et al. 2005; Pfannenstein and Tsai 2004) while others view IT enabled offshoring as completely different phenomenon with its own unique contexts (Stack and Downing 2005). Clearly, offshoring in the present context is not a simple routine decision for the firm. Similar to the outsourcing decision, offshoring is a highly complex decision involving commitment of large amounts of resources (Teng et
Offshore sourcing may result not only in dramatic savings and may also enable firms to tap unexplored talents in distant countries. The promise of cost savings and access to skilled knowledge workers is viewed by many firms as a source of competitive advantage, which may be used as a strategy to reverse its declining performance (Rost 2006). Conceptualizing offshoring as a strategic decision in response to declining performance, we posit that in an event of declining performance, firms may be motivated to offshore more in order to reduce cost and/or gain efficiency. In such a scenario, our research aims to understand the factors associated with the degree of offshoring. Specifically, the research question that we seek to address in this study is – What are the factors from the strategic response perspective that are associated with the degree of offshoring?

Literature review and research proposition

Offshoring as a Strategic Response

The external environmental conditions as well as internal organizational conditions for a firm are continuously changing. But a radical change in environmental and internal conditions may lead to a performance downturn, which may motivate a firm to rethink its strategic decisions (Rajagopalan and Spreitzer 1997). Our argument has its roots in the contingency theory, which states that there is no one best way to achieve a fit between organizational factors and outcomes (Lawrence and Lorsch 1967; Kast and Rosenzweig 1973). A firm’s strategic actions may be contingent on a sudden decline in its performance. Contingency theory has been successfully used in research on information systems (e.g. Teo and King 1997), organizations (e.g. Yasai-Ardekani and Nystrom 1996), and strategy (e.g. Lee and Miller 1996).

Based on contingency theory and strategic change literature, we posit that the degree of offshoring decision by a firm may be contingent on the change in prior performance of the firm. A decline in performance may lead to certain strategic decisions by the firm, which may include offshoring. Zajac et al. (2000) model strategic change as something that is required for establishing a strategic fit. They suggest that organizations might have strategic change because of internal contingency factors (e.g. lack of organizational resources, or competency). In such a scenario, organizations dynamically change their strategies to align them with external as well as internal conditions. However, when already strategic fit exists, and there are no internal or external changes, there is no need for a strategic change. Another condition for not having strategic change is when the internal factors are so strong that they compensate for changes in external factors. Zajac et al. (2000) validated their hypothesis by considering the savings and loans industry. They found that changes in organizational factors like cost of funds, borrowings, return on mortgage portfolio, reliance on fixed-rate mortgage, and declining net worth, affect strategic change.

Kraatz and Zajac (2001) argued that a resource rich organization can sustain itself in spite of external changes and thus has less incentive for strategic change. They found evidence that that the tendency for strategic change decreases with organizational resources. Thus, it seems that organizations which are flush with assets and resources are averse to a change in strategic sourcing decision like offshoring. However a drastic change in performance may motivate firms to rethink their sourcing strategies in order to reduce costs and/or increase efficiency, to recover from the performance downturn. They may resort to innovative sourcing models like offshoring. Past studies on outsourcing suggest that “firms outsource in reaction to weak financial performance at the firm level” (Dibbern et al. 2004, p 27).

Viewed from a contingency perspective, offshoring may be a strategic response to performance downturn. Offshoring strategy may be seen as a panacea for arresting the declining firm performance. Firms which have a greater performance downturn should have a higher degree of offshoring. Therefore we propose:

Proposition: The change in performance of a firm is related to the degree of its offshore activities.

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1 Degree of offshoring is the amount of production or service that has been transferred by the company from its parent country to a foreign destination.
Research model and hypotheses

We present a research model (Figure 1) based on the research proposition. The dependent variable in our model is the degree of offshoring, which in the current research is operationalized by two “degree” attributes: the number of jobs offshored and the number of functions offshored by each firm.

![Figure 1. Research model: Strategic response and degree of offshoring](image)

Our proposition based on the prior literature suggests that firms having performance downturn may implement innovative sourcing options like outsourcing or offshoring (Dibbern et al. 2004). Loh and Venkatraman (1992) found that the major motivation for IS outsourcing was to improve business financial performance. Smith et al. (1998) also concluded mixed performance motivations of firms to outsource. Teng et al. (1995) stated “when performance of the delivered resource begins to slip in the current environment of rising expectation and technological complexity, outsourcing may become a strategic response of necessity” (p75).

Extending these arguments to offshoring, we hypothesize that a decrease in firm performance will be associated with the degree of offshoring. In our research, we consider four firm performance variables based on the financial metrics. They are: overall profitability, productivity, market efficiency and debt management efficiency. Hence hypothesizing offshoring as a strategic response to performance downturn for the four identified firm performance variables, we have:

- **H1a**: The greater the decrease in firm profitability, the higher will be the number of jobs offshored.
- **H1b**: The greater the decrease in firm productivity, the higher will be the number of jobs offshored.
- **H1c**: The greater the decrease in firm’s market efficiency, the higher will be the number of jobs offshored.
- **H1d**: The greater the decrease in firm’s debt management efficiency, the higher will be the number of jobs offshored.

Firms experiencing a performance downturn will offshore to increase their overall efficiency. For doing this, they will identify all the activities that can be offshored so as to derive maximum increase in their efficiency. Thus, firms will be motivated to outsource most of their non-core activities so as to maximize their cost savings and derive business advantage (Dibbern et al. 2004). Hence, firms which are motivated to offshore jobs because of a performance downturn will offshore the maximum number of functions they can possibly offshore. Therefore we put forth the following hypotheses:

- **H2a**: The greater the decrease in firm profitability, the higher will be the number of functions offshored.
- **H2b**: The greater the decrease in firm productivity, the higher will be the number of functions offshored.
- **H2c**: The greater the decrease in firm’s market efficiency, the higher will be the number of functions offshored.
- **H2d**: The greater the decrease in firm’s debt management efficiency, the higher will be the number of functions offshored.

Method and variables

For testing the hypotheses, we depend on secondary sources of data. We use hierarchical negative binomial regressions on number of jobs and number of functions offshored, respectively. In the first step we enter the control variables and subsequently in each step we keep on adding the change in performance variables to the regression equation. Before presenting the results of the study, we elaborate on the variables used.
Dependent Variable(s)

The dependent variable is the ‘degree of offshoring’. We segregate the degree of offshoring into two components: the number of jobs offshored and the number of functions offshored. The dependent variable data has been collected from TechsUnite\(^2\) website database (TechsUnite 2006). TechsUnite is a union for high-tech workers whose objective is to safeguard the interests of technical workers. The TechsUnite website (TechsUnite 2006) provides firm level offshore information for US firms aggregated from media reports.

For testing the validity of the data collected from this website, we followed a two fold analysis. First, we corroborated and checked the names of the firms listed in the website, whether they really offshore or not. This we checked by comparing with the list of offshoring firms available at CNN website on “Exporting America”\(^3\). Second, we explored the various newspaper reports referenced as the source of offshoring information on the TechsUnite website for 10% of firms in the dataset and found the information to be correct and updated. We also checked these newspaper reports for the date of the offshoring announcements and matched it with the TechsUnite database. This two-step process gave us confidence about the validity of our dependent variables defining the degree of offshoring. Moreover this dataset has been used in some recent studies on offshoring e.g. Srivastava et al. (2007). However, we acknowledge the limitations of using secondary data.

Independent Variables

The data for independent variables are based on firm level financial data available in Compustat. For our analysis, we used data from the years 1995 to 2004. Compustat had data for only 306 firms (out of the 645 firms identified from TechsUnite database). Hence, our sample size was reduced to 306 offshoring firms.

For calculating the independent variables, we used the concept of ‘research window’ (Smith et al. 1998). For each incident firm, we identified the year of offshoring event given in the TechsUnite Website. This was the implementation year and was designated Year 0 for each incident firm. Assuming a lag of one year for the offshore event, we tabulated values for four years for each firm from Year 0 to Year -3. Further, we computed an additional column for the change in performance metric given by the difference in values of Year -1 and Year -3. We define the change in performance as:

\[
\Delta \text{Perf} = (\text{Value})_i - (\text{Value})_j, \text{ where } i = \text{Year } -1 \text{ and } j = \text{Year } -3
\]

Similar approaches for computing change in performance have been used in previous studies (e.g. Smith et al. 1998). For operationalizing the change in performance, we measure the change in four firm performance figures viz. profitability, productivity, market efficiency, and debt management efficiency. Profitability measures the return which owners receive from their investments (Smith et al. 1998). In our study, we use two of the profitability metrics namely, return on assets (ROA), and return on equity (ROE). Productivity metrics represent the ratio of outputs and inputs. We use sales of the company as output and two inputs that we consider are the number of employees and total assets (employee productivity and asset productivity). For market efficiency, we use dividend yield which is the dividend paid per share expressed as a percentage of the share price. Debt management performance is operationalized through long term debt as a percentage of sales and financial leverage.

A brief description of independent variable measures used in this study and their sources are given in Table 1.

Insert Table 1 about here

\(^2\) Techsunite.org (http://www.TechsUnite.org) is the nationally-oriented web site of WashTech/CWA, the nation's leading union for high-tech workers. TechsUnite is a project of the Communications Workers of America, AFL-CIO, in collaboration with the following site partners, supporters and stakeholders: Alliance@IBM, Carol-Trevelyan Strategy Group (CTSG), Center on Wisconsin Strategy, CWA National Education and Training Trust, Washington Alliance of Technology Workers, and Working Today.

\(^3\) http://www.cnn.com/CNN/Programs/lou.dobbs.tonight/popups/exporting.america/content.html
Control Variables

In our research, we controlled for industry fixed effects, firm size, and degree of internationalization. To control for industry sector, we divided firms into five sectors based on the North American Industry Classification System (NAICS) and created a dummy for each sector: manufacturing and industrial, wholesale and retail trade, services, finance and real estate, and information (e.g. Brynjolfsson et al. 1994; Whitaker et al. 2005). To control for size, we used total assets for each firm from Compustat. Size as measured by total assets has been used as a variable in past outsourcing studies like Ang and Cummings (1997), Ang and Straub (1998), Loh and Venkatraman (1992), etc. We also controlled for degree of internationalization in the offshore context. Firms having a greater foreign experience should logically offshore more. To control for foreign presence, we used the variable of foreign sales as a percentage of total sales adapted from previous studies (e.g. Stopford and Dunning 1983, Sullivan, 1994; Whitaker et al. 2005).

Results and discussion

Table 2 provides the means, standard deviations, and correlations for the variables used in the study. We observe that all the correlations among the independent and control variables are below 0.80; hence there are no serious problems of multicollinearity (Gujarati 2003).

The results of hierarchical negative binomial regression for the two dependent variables of number of jobs offshored and number of functions offshored are presented in Tables 3.

In the first step we enter the control variables of industry dummies, difference in assets and difference in foreign sales between the years -1 and -3. The relationships of change in foreign sales with number of jobs offshored ($\beta = 0.271$, $p<0.05$) as well as with the number of functions offshored ($\beta = 0.104$, $p<0.05$) are significant (Table 3, Models 1a and 1b). Thus, an increase in foreign sales is consistently positively associated with the degree of offshoring.

In the subsequent steps, we enter the various strategic response variables. From Table 3, Model 2a we observe that the relationships of both the profitability performance variables, ROA ($\beta = -0.120$, ns) and ROE ($\beta = 0.308$, ns) are not significant with the number of jobs offshored. Further, from Table 3, Model 2b, we observe that the relationships of both, change in ROA ($\beta = 0.087$, ns) and change in ROE ($\beta = 0.187$, ns) with the number of functions offshored are also not significant. Thus, we conclude that a change in profitability performance is not related to the degree of offshoring, providing lack of support to hypotheses 1a and 2a. The result is consistent with past studies on outsourcing like Smith et al. (1998) and Loh and Venkatraman (1992) indicating that the degree of offshoring is dependent more on factors other than profitability performance. Profitability performance of a firm (ROA and ROE) may be dependent on multiple factors and from the results it appears that firms currently do not see a linkage between offshoring and overall firm profitability.

From the results in Table 3, Model 3a we observe that change in employee productivity is significantly associated with the number of jobs offshored but in the direction opposite to that hypothesized ($\beta = 0.647$, $p<0.01$). Change in asset productivity is not associated with offshore intensity ($\beta = -1.056$, ns). Further, from the results in Table 3, Model 3b, we observe that a change, neither in the employee productivity ($\beta = 0.087$, ns) nor in the asset productivity ($\beta = 0.187$, ns) over the three year period is associated with the number of functions offshored. Thus, both the hypotheses 1b and 2b are not supported but the positive association of employee productivity with the number of jobs offshored was interesting. Our result shows that firms which have an increasing trend for employee productivity are the ones that offshore more jobs. One plausible explanation for such a trend may be the fact that the increase in employee productivity may be due to decrease in the number of employees, thereby propelling offshore activity. Other possible reason could be the fact that, in a scenario of increasing employee productivity, firms may be focusing more on the high value adding work, leading to an increase in the number of routine jobs to be offshored. A third explanation is that better employee productivity may be the result of better management. A better management team is clearly more capable of executing and sourcing through offshore contracts. A fourth explanation could be the fact that employees might be having information about the possibility of offshoring, and their productivity might have increased because of the apprehension of losing jobs.
From the results in Table 3 (Models 4a and 4b) we observe that change in dividend yield performance is not significantly associated with neither the number of jobs offshored ($\beta = -0.014$, ns) nor with the number of functions offshored ($\beta = -0.021$, ns). Both hypotheses 1c and 2c are not supported. Thus, market efficiency performance, measured by change in dividend yield, is not associated with the degree of offshoring. Past studies comparing outsourcing to non outsourcing firms found a significant difference in the market performance of the two kinds of firms (Smith et al., 1998). But the same study found no significant trends for changes in dividend yields prior to the outsourcing event. Hence, the results are mixed when compared to that of IS outsourcing.

In Models 5a and 5b, Table 3 we tested for the relationships of debt management performance variables (long-term debt/sale and debt/equity) with the degree of offshoring. We did not find support for hypotheses 1d and 2d. The results indicate that a change in debt management performance is not significantly related to the degree of offshoring. This result is different from past studies where significant trends were found for similar figures (Smith et al. 1998). But past studies did not consider an explicit change in debt management performance as has been considered in this study and moreover the dependent variables in previous studies did not capture the degree of outsourcing. Hence we do not have a benchmark to compare the results directly.

We observe that none of strategic response hypotheses relating performance downturn to the degree of offshoring is supported. The only variable to which degree of offshoring (number of jobs offshored and number of functions offshored) appears as a strategic response consistently is change in the amount of foreign sales (which we have taken as a control variable). The more a firm has foreign experience and is internationalized, the more it offshores. The results are consistent with other international studies relating to entry decisions such as Stopford and Dunning (1983) and Sullivan (1994). Another interesting result is the significant positive relationship of employee productivity with the number of jobs offshored. Overall, from the results we conclude that offshoring does not appear to be a decision taken by firms in response to a crisis in performance.

**Implications and conclusion**

Our research has several important implications for research as well as practice. To our knowledge, this is the first study that utilizes a strategy-theoretic perspective for analyzing the firm level offshore sourcing decision. Using contingency theory and strategic change literature, we conceptualize the strategic response perspective guiding offshoring decisions. Future research can test and refine our proposed model in contexts other than offshoring. Our research clearly demonstrates that the degree of offshoring is not related to a declining performance for any of the variables examined. This result is different from that for IS outsourcing decision (Smith et al., 1998). The results have implications for researchers to study offshoring as a phenomenon different from IS outsourcing with its associated contexts and modalities.

Another interesting result that should intrigue academicians is that companies with higher levels of employee productivity decide to offshore more jobs. Even though, there are plausible explanations (which we explained before), future researchers could further explore this important finding. Our results clearly show that offshoring is not a strategic response to performance downturn. In contrast to our basic thesis, offshoring as a strategic option is currently not extensively exercised by low-performers. Further research can explore under what conditions ‘low-performers’ can use offshoring for a turnaround.

The paper makes methodological contributions as well. In contrast to previous studies, we define the degree of offshoring as consisting of dual dimensions: number of jobs offshored and number of functions offshored. Both these dependent variables capture different attributes of the offshoring decision. This unique operationalization can assist researchers in future studies on the degree of offshoring.

This study assists decision makers to better understand what really motivates offshoring decisions in practice. First, the study shows that unlike IS outsourcing, offshoring is not exercised by low performing firms for bringing about a change in their performance. Firms having a high degree of offshoring are the ones which have relatively better performance than other firms in their industry and are not the low performers as had been observed in previous studies on outsourcing (Dibbern et al. 2004). Thus, it is a ‘proactive strategic decision’ by firms which are continuously trying to improve and not a ‘reactionary strategic decision’ to declining firm performance. Managers should note this proactive decision. Offshoring vendors should note that their prospective clientele might be from good performing firms, as compared to low performers. By better understanding the strategic drivers to offshoring, vendors can better market and also align their services the needs of their clients and forge a win-win partnership for both parties.
References


Table 1. Independent variables and their description

<table>
<thead>
<tr>
<th>Offshoring as a Strategic Response</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Profitability Performance</strong></td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>ROA</td>
</tr>
<tr>
<td>ROE</td>
<td>ROE</td>
</tr>
<tr>
<td><strong>Productivity Performance</strong></td>
<td></td>
</tr>
<tr>
<td>Emp. productivity</td>
<td>S/NE</td>
</tr>
<tr>
<td>Asset productivity</td>
<td>S/A</td>
</tr>
<tr>
<td><strong>Market Performance</strong></td>
<td></td>
</tr>
<tr>
<td>Dividend yield</td>
<td>(DPS/PPS)*100</td>
</tr>
<tr>
<td><strong>Debt Management Performance</strong></td>
<td></td>
</tr>
<tr>
<td>Long-term debt</td>
<td>Long-term debt/S</td>
</tr>
<tr>
<td>Financial leverage</td>
<td>Total debt/ equity</td>
</tr>
</tbody>
</table>

**Key:** S = Sales, y = year, NE = number of employees, A = assets, ROA = return on assets, ROE = return on equity, DPS = dividend per share, PPS = price per share, val = value
Table 2. Descriptives and correlations

<table>
<thead>
<tr>
<th>Change</th>
<th>Mean</th>
<th>Std. Dev</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Jobs Off.</td>
<td>2172.46</td>
<td>3867.59</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Func. Off.</td>
<td>1.68</td>
<td>1.21</td>
<td>0.47**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Assets</td>
<td>12072.26</td>
<td>50537.30</td>
<td>0.10</td>
<td>0.21**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Foreign Sales</td>
<td>3.84</td>
<td>10.62</td>
<td>0.18</td>
<td>-0.04</td>
<td>-0.04</td>
<td>-0.01</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. ROA</td>
<td>8.25</td>
<td>45.90</td>
<td>-0.09</td>
<td>-0.04</td>
<td>-0.01</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. ROE</td>
<td>7.79</td>
<td>86.34</td>
<td>-0.02</td>
<td>-0.02</td>
<td>-0.02</td>
<td>0.63**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Emp. Pro.</td>
<td>21.98</td>
<td>111.92</td>
<td>0.11</td>
<td>0.05</td>
<td>0.01</td>
<td>0.17*</td>
<td>0.03</td>
<td>0.02</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Asset Pro.</td>
<td>-0.02</td>
<td>0.32</td>
<td>-0.08</td>
<td>-0.04</td>
<td>-0.01</td>
<td>-0.06</td>
<td>-0.06</td>
<td>0.31**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Div. Yield</td>
<td>-0.09</td>
<td>1.28</td>
<td>-0.07</td>
<td>-0.07</td>
<td>0.02</td>
<td>0.01</td>
<td>-0.02</td>
<td>-0.08</td>
<td>0.06</td>
<td>0.01</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Debt/Sales</td>
<td>0.07</td>
<td>0.38</td>
<td>0.01</td>
<td>0.03</td>
<td>0.17**</td>
<td>0.02</td>
<td>-0.03</td>
<td>-0.04</td>
<td>-0.15*</td>
<td>-0.07</td>
<td>0.02</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>11. Debt/Equity</td>
<td>-45.06</td>
<td>375.82</td>
<td>-0.01</td>
<td>-0.04</td>
<td>0.02</td>
<td>-0.01</td>
<td>0.04</td>
<td>0.06</td>
<td>-0.03</td>
<td>-0.06</td>
<td>0.06</td>
<td>0.08</td>
<td>1.00</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Note: In the analyses the dependent variables are number of jobs offshore and number of functions offshore. The independent variables in the strategic response perspective capture the change (difference) in the value of the variables from Year 1 to Year 3 [(Value Year -1) – (Value Year -3), where Year 0 is the offshore event year.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Number of Jobs Offshored</th>
<th>Number of Functions Offshored</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1a</td>
<td>Model 2a</td>
</tr>
<tr>
<td><strong>Step 1: Control</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size (Assets)</td>
<td>0.172(0.511)</td>
<td>0.135(0.525)</td>
</tr>
<tr>
<td>Foreign Sales</td>
<td>0.271(0.122)</td>
<td>0.283(0.131)</td>
</tr>
<tr>
<td><strong>Step 2: Profitability</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>-0.120(0.104)</td>
<td>-0.051(0.119)</td>
</tr>
<tr>
<td>ROE</td>
<td>0.308(0.416)</td>
<td>0.067(0.312)</td>
</tr>
<tr>
<td><strong>Step 3: Productivity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employee Productivity</td>
<td>0.647**(0.220)</td>
<td>0.564**(0.200)</td>
</tr>
<tr>
<td>Asset Productivity</td>
<td>-1.056(1.010)</td>
<td>-0.890(0.992)</td>
</tr>
<tr>
<td><strong>Step 4: Mkt. Efficiency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dividend Yield</td>
<td>-0.014(0.106)</td>
<td>-0.031(0.109)</td>
</tr>
<tr>
<td><strong>Step 5: Debt Mgmt.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debt/Sale</td>
<td>-0.609(0.982)</td>
<td></td>
</tr>
<tr>
<td>Debt/Equity</td>
<td>0.568(0.544)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>7.020**(0.434)</td>
<td>7.040**(0.444)</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.0189</td>
<td>0.0209</td>
</tr>
</tbody>
</table>

4 We also control for industry segment by creating five industry dummies as per NAICS classification

* p < 0.05, ** p < 0.01; N=306, Upper number in a cell is a parameter estimate; numbers in parentheses are standard errors