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WORKING PAPER NO. 136

OUTSOURCING AND JOB LOSS: A PROTECTIONIST FALLACY

Rajeev Ahuja

June, 2004

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JUNE, 2004

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Foreword

Outsourcing of manufacturing activity has been going on for half a century while offshoring of manufacturing has occurred over the past quarter of a century. Outsourcing of services is a relatively recent phenomenon, picking up steam over the last few decades. Offshoring of non-traditional services is even more recent starting with IT outsourcing to Ireland and Israel and spreading to India. Given its short history the record available on this issue is also quite limited.

ICRIER has been involved in the study of service issues particularly those connected with WTO for over half a decade. We have recently expanded our research effort in the area of services. The current paper focuses on the micro aspects of outsourcing.

The outsourcing of jobs from the developed countries has been in the eye of the political storm. This paper clarifies some of the issues in the debate on outsourcing and its impact on employment. While economists believe that outsourcing will in the long-run lead to greater specialisation and create more jobs in developing and developed countries alike, in the short-run outsourcing may lead to increase or decrease of jobs at firm or even at industry/sectoral level. This paper derives conditions under which the effect of outsourcing on jobs at a firm or an industry level is positive.

Arvind Virmani
Director & Chief Executive
ICRIER

June 2004

Outsourcing and Job Loss: A protectionist fallacy[1]

Rajeev Ahuja[*]

I. Introduction

Trade in many services hitherto considered non-tradable, is made possible by the developments in communication technology that are fast blurring the boundary between goods and services. As a result, there has been an increasing trend towards trade in services. Outsourcing that refers to out-migration of a business activity or a process, is a part of a broader trend towards the global delivery and sourcing of services from best suppliers, wherever they are located. Outsourcing of raw materials and standardised intermediate goods observed in the manufacturing sector in the 80s and 90s is now being witnessed in the services sector too.[2]

Business process outsourcing (BPO) refers to out-migration of non-manufacturing (services) activities. The key driver of BPO is, of course, cost reduction due to cheaper communication and lower wages in the developing countries. Cheaper communication is prompting companies to move their labour intensive service jobs, popularly called back office operations, such as data entry, call centres and payroll processing to poorer, low labour cost countries. [3] Generally, these processes are critical, though non-core for the organisations.[4] Besides cost reduction, there are other benefits too such as access to

[1] The paper was presented at Plymouth Business School (UK) and also at Sam Houston State University (Texas, USA). The author is grateful to the seminar participants for their comments/suggestions. The author is also grateful to Rashmi Banga, B. N. Goldar, C. Veeramani, and Arvind Virmani for their comments.
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[2] Outsourcing takes place when an organization transfers the control of a business process to a supplier, unlike (sub)-contracting where the buyer still controls the process.
[3] India's National Association of Software and Services Companies, NASSCOM, reckons that an IT professional with three to five years' programming experience in India costs between one-third and one-fourth of what it costs in the US or Britain. At the other end of the scale, low-grade call centre jobs that in Britain earn a salary of $20,000 earn less than one-tenth of that in India.
[4] Process management takes a disproportionate amount of the management time and these processes are maintenance in nature and are not value-added.

critical technical skills, and focus on core activities. These other benefits are being viewed as essential for organic growth of firms (NASSCOM 2003).

The trend towards BPO is already quite significant. World-wide spending on ITES-BPO (IT enabled Business Process Outsourcing), which involves outsourcing of such processes that can be enabled with information technology, totalled approximately $ 712 billion in 2001. By 2006, the potential ITES-BPO market may increase to $1.2 trillion, with a compound annual growth of 11 per cent (NASSCOM 2003). The Americas is the largest region for ITES-BPO spending[5], with the US accounting for about 59 percent of the total world wide spending; Europe spends 22 percent, and the Asia/Pacific region 15 percent. Countries that are receiving offshore outsourcing business are those having advantages such as human capital, telecommunications infrastructure, government support, industry association support, and regional IT clusters. On all these scores India remains the most attractive destination, followed by China. Other countries such as Malaysia, Singapore, Philippines, Brazil, Chile and Russia are emerging as good contenders (AT Kearney).

Outsourcing of services could be within a country, from one state to another (inshore outsourcing), as also between countries (offshore outsourcing). It is in the early 1990s when multinationals companies set up their own captive outsourcing operations abroad that the BPO offshoring began. Gartner has estimated the global BPO offshoring to be $1.8 billion in 2003, and this is projected to grow by 30 to 40 percent annually over next five years.

Of the several economic effects associated with offshore outsourcing, the effect on jobs or employment has probably generated maximum debate in the developed countries due to its (perceived) adverse effects. This is perhaps because of the sudden effect of large retrenchment associated with a firm's decision to outsource or perhaps because BPO overwhelmingly affects white-collar middle class jobs and occupations, unlike manufacturing that primarily impacted blue-collar workers.

[5] Americas include the US, Canada and Latin America.

According to McKinsey's report, as of July 2003, around 400,000 business processing jobs in the US have already moved abroad. As this phenomenon gains momentum, it is feared a large number of jobs would get transferred from the developed to developing countries, generating massive unemployment in the developed countries. An IT research firm Forrester predicts that by 2015, roughly 3.3 million US jobs (500,000 in IT) will have moved abroad. For UK, the largest private sector union Amicus predicts job loss due to offshoring to be around 200,000 by 2008.

Stories of retrenchments and lay-offs by some corporations that hit the business headlines and created a spectre of large-scale unemployment in the services dominated developed economies are generating intense debate on the need to regulate outsourcing. With policy makers under pressure to do something about it, there has been some backlash already in the US. For example, the granting of visas that allow foreign workers to enter America for training and temporary employment have been tightened as it is believed that such jobs transfer knowledge and skills back home, and in the process take away jobs and innovations with them.[6] A US state, Indiana, withdrew from a $15 million contract with the American subsidiary of a leading Indian IT outsourcing firm.[7] Several states in the US have introduced bills that require US companies to hire only US citizens and resident aliens for performing state service contracts. Not long ago, the US Senate approved an Omnibus spending bill that bans US companies which are in charge of executing federal projects in certain departments from subcontracting the work to overseas companies.[8] The law-makers in the US are called upon to address perceived abuses of certain types of visas.

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[6] To prevent foreigners from taking Americans' jobs, the annual quota for so-called H-1B visas used by itinerant Indian software programmers fell in October 2003 to 65,000 from 1,95,000 a year ago.

[7] The reason given by the state governor was that it didn't fit with Indiana's vision of providing better opportunities to local companies and workers.

[8] Although the effect of this ban is perceived to be minimal as it does not apply to all government contracts, but is limited to contracts given by the US transportation and treasury departments and by independent US government agencies, and moreover, the bill is only valid till 2004, the ban could have wider ramifications in future.

From the WTO perspective, although the move per se does not violate the multilateral trading rules[9], it is untimely as it sends wrong signal across the world at a time when the governments of important trading nations are making efforts to break the impasse of Cancun (Hoda 2004). Recently, the ban is also sought to be linked to the opening up of markets in developing countries.

In the UK, however, the government has so far resisted pressure from the labour unions. The progressive view taken by the UK government indicates that the government has no intention of curbing BPO.[10]

For trade economists, the phenomenon of labour arbitrage in services is no different from what has been observed in manufacturing in the past decades. Labour arbitrage leads to lowering of production costs that benefit consumers everywhere. Besides direct cost reduction, BPO also benefits developed countries through other channels such as through repatriation of earnings by national offshore providers located in developing countries, purchase of goods and service by the native offshore providers, and also indirectly, by investing capital thus saved to create new, higher value jobs in which surplus labour can be absorbed.[11] In this context, it is interesting to note that the Bureau of Labour estimates that from 2000 to 2010, there will be net creation of about 22 million new jobs in the US economy, mostly in business services, health care, social services, transportation, and communication.

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[9] Government purchase of services is completely excluded from the scope of commitments under the GATS. A separate agreement called Government Procurement Agreement (GPA) applies to procurement of good and services by governments of member countries. In 1981, the beginning for liberalising government procurement in goods was made through the GPA. Later, in 1996, government services were also brought into it. The liberalisation agreed under this agreement is restricted to the listed government agencies at federal and sub-federal levels and is subject to a threshold of value. Only a handful of WTO members have signed this agreement.

[10] Britain's minister of trade and industry rejected fears of wide spread job losses as "myth". The British foreign minister, Jack Straw, during his meeting with the Indian Commerce minister gave an assurance that UK has no plan of curbing outsourcing to India (The Hindu, February 6, 2004). More recently, the British Prime Minister has expressed similar views.

[11] The McKinsey's report estimates that for every dollar of US spending that goes abroad because of offshoring, US benefits between $ 1.12 and $ 1.14.

While offshore BPO may eventually bring all these benefits in an economy, there is no denying of the distribution problem, resulting from job loss at a firm or at an industry level in the short run. This distribution needs to be addressed through retraining and relocating of the displaced workers.

For business leaders, outsourcing is a win-win situation as it reduces costs and helps increase demand. For others in the business, outsourcing is necessary for survival when the rival firms resort to outsourcing.

Since the discussion on BPO in the developed countries revolves around its effect on job loss, the focus of this paper is on employment effect of outsourcing. Besides providing a perspective on the issue, we show that the effect of outsourcing on jobs at firm or industry/sectoral level could go either way. In particular we derive the condition under which outsourcing at firm or industry level may lead to increase in jobs in the long run.

II. Effect of Outsourcing and Employment:

In order to put the issue in perspective, it is useful to distinguish short run effect of outsourcing from its long run effect. Similarly, it is useful to distinguish the micro level effect of outsourcing from its macro effect. Based on these dimensions of time and scale, we distinguish four different types of effects that outsourcing has on jobs/employment. These effects are shown in table below. (Each of the four cells in the table is identified by the term appearing in brackets.) While most trade economists argue that the marco level effect of outsourcing in the long run (c22) would be to increase jobs and competitiveness in the developed countries and, therefore, is in the interest of developed nations, the micro level effect of outsourcing in short run is invariably job cuts and lay-offs (c11).

Table: Effect of Business Process Outsourcing on Jobs/Employment

	Short term	**Long term**
Micro	Job loss (c11)	Job Loss or Gain (c12)
Macro	Job Loss or Gain (c21)	Job Gain (c22)

The recent discussion on outsourcing has started to take cognizance of the fact that, besides outsourcing, there are other forces at work such as the cyclical effect of the economy, technological innovations and so forth impacting the current levels of employment. Effect of these other forces need to be eliminated in order to understand the effect due to outsourcing alone. In the absence of this elimination, the short run effect of outsourcing on jobs at macro level is not quite clear (c21).

The discussion on the long-term effect at a firm or industry level (c12) has largely been ignored in the literature. We explore this issue here. While the immediate or impact effect of outsourcing at firm or industry/sectoral level is loss of jobs, the long term effect on the firm or industry/sector is far from clear. In this paper we demonstrate that under certain condition, lowering of costs can actually increase jobs instead of reducing it at a firm/industry level. On the contrary, a firm that does not seize the opportunity to lower costs through BPO may end up experiencing job loss. Below we formally demonstrate these claims.

Claim 1: Cost reduction due to outsourcing may actually create, and not kill, jobs in a country from where outsourcing originates.

The intuition goes like this. Supposing a firm, in order to reduce its costs, off-shores part of its operations that are amenable to outsourcing. The immediate effect of this will, no doubt, be reduced number of jobs in the domestic territory. However, the lowering of costs will lead to lowering of prices of final product, and this in turn will increase demand for the product or the service, thereby increasing total number of jobs, both within domestic territory and outside. The number of jobs created in domestic territory due to initial outsourcing may be higher than the jobs that were outsourced. But it may take a while for this effect to fully work itself out. We derive a formal condition under which this happens below.

Proof:
Supposing there are two firms (labelled 1 and 2), having Cournot competition between them. Market demand function is $p = a - b\ q$, where $q = q_1+q_2$. The two firms have

identical costs denoted by $c_{H,}$ where we use the subscript H to denote high costs to distinguish it from low costs that we consider later.

$\Pi_i = (p-c_H)\, q_{i,}$ where i= 1,2

the first order conditions yield,

$q_{iH}^* = (a-c_H)/3b$, where i=1,2 …….(1)

$\Pi_{iH}^* = (a-c_H)^2/9b$, where i=1,2 ……(2)

Supposing that production of one unit of output requires two types of jobs/inputs: one that can be outsourced and the other that cannot be outsourced. For producing one unit of output let the non-outsourceable input and outsourceable input be required in the proportion (1- α) and α respectively. Furthermore, assume that β is the unit price of non-outsourceable input and γ be the price of outsourceable input. Per unit cost of output is given as:

$c_H = (1-\alpha)\,\beta + \alpha\,\gamma$, where $\beta<\gamma$

Substituting the value of c_H in (1) yields

$q_{iH}^* = (a - (1 - \alpha)\,\beta - \alpha\,\gamma)/3b$, where i=1,2

Supposing that both the firms outsource the outsourceable inputs to get cost benefit due to lower wages. The outsourcing lowers the unit price of the input to δ. The reduced unit cost is thus:

$c_L = (1-\alpha)\,\beta + \alpha\,\delta$, where $\delta<\beta$

Substituting this in (1) yields,

$q_{iL}^* = (a - (1 - \alpha)\,\beta - \alpha\,\delta)/3b$, where i=1,2

$Q_L^* = q_{1L}^* + q_{2L}^* = 2(a - (1 - \alpha)\,\beta - \alpha\,\delta)/3b$, where Q_L^*= industry output.

Let there be one-to-one relationship between quantity and total employment i.e., $Q_L^* = L_L^*$.

It is possible that with the lowering of costs due to outsourcing the total employment in the domestic industry may actually increase. L_L^* is the total number of jobs created when both firms outsource, and (1- α) percent of total jobs actually remain the domestic industry outsourcing the jobs. (We assume that both the firms are located within domestic territory.) For the number of jobs in the domestic industry to be greater than before the outsourcing took place, the following condition must be satisfied.

$(1- \alpha) L_L^* > L_H^*$

Substituting the values of L_L^* and L_H^* yield:

$2(1- \alpha) (a - (1 - \alpha) \beta - \alpha \delta)/3b > 2(a - (1 - \alpha) \beta - \alpha \gamma)/3b$

$-a + (1 - \alpha) \beta - (1- \alpha) \delta + \gamma > 0$

$(1 - \alpha) (\beta - \delta) + \gamma > a$ ……(A)

In words, the greater the share of non-outsourceable jobs and the greater the cost difference due to outsourcing, the greater (lower) is the likelihood of job increase (decrease) in the domestic territory due to outsourcing. Under condition (A), outsourcing would actually increase jobs in domestic territory.

To consider a numerical example to show that the above condition can indeed hold, consider the following configuration of parameters:

$a = 5, \alpha = 0.2, \beta = 3, \gamma = 4, \delta = 1, b=0.2$

$Q_L^* = 2(a - (1 - \alpha) \beta - \alpha \delta)/3b = 2 (5 - 0.8 \text{ X } 3 - 0.2 \text{ X } 1)/0.6 = 2 (5 - 2.6)/0.6 = 4.8/0.6= 8$

It is easy to check that condition (A) is satisfied i.e.,
$0.8 (3-1) + 4 > 5$ or $5.6 > 5$

The condition (A) can be rewritten as: $(1- \alpha) (\beta- \delta) + (\gamma-a) > 0$. Note that if $\beta < \delta < \gamma$, then the condition will not hold. The crucial assumption is $\delta < \beta (= \gamma)$. Substituting $\beta = \gamma$ in the condition yields: $\beta + (1- \alpha) (\beta - \delta) > a$. This condition may hold for some parameter configuration. Note also that the condition (A) is not dependent on the number of firms in the industry. In this sense the condition is actually quite robust.

What if the configuration of parameters is such that the above condition is violated? Even then from welfare perspective it may still be worthwhile to allow firms to outsource.

Welfare Implications: Social welfare, as defined in textbooks, is a sum of producers' surplus and consumers' surplus (we have ignore fixed cost). In the present context we need to redefine social welfare. This is because it is the regional welfare about which the protectionists care for. If the consumers of the final product are scattered all around the globe then consumer surplus should not appear in the index of social welfare of the region. Instead, it is the employment aspect that needs to be introduced in an index that serves as a measure of regional welfare. When Indiana withdrew from a $15 million contract with the American subsidiary of a leading Indian IT outsourcing firm, the state Governor is believed to have said that "it didn't fit with Indiana's vision of providing better opportunities to local companies and workers". Provincial governments are more concerned about the effects of outsourcing on jobs in their provinces.

From employment perspective, we define regional welfare (RW) as consisting of producers' surplus and the level of employment. Since we use constant marginal cost, we use total output as a proxy for the level of employment.

Regional Welfare = Profits + Output.

Lowering of costs due to outsourcing leads to higher profits, which may more than compensate for the decline in welfare due to reduced employment. Firm's profits may be taxed to relocate retrenched workers through training etc.

Supposing condition (A) above is violated. Then it makes sense to still allow outsourcing if the following (welfare) condition is satisfied.

Change in Social Welfare = Change in Profits + Change in Domestic Employment

that is,

$2\alpha(\gamma - \delta)/9b + (1 - \alpha)(\beta - \delta) + \gamma > a$ ……..(B)

Comparing condition (B) with condition (A) suggests that condition (B) can hold even when condition (A) is violated since a positive term gets added to the LHS of condition (A).

To sum up this result, the effect of outsourcing on jobs may be positive under certain condition which depends on the wage differential and the proportion of jobs outsourced. Even if the condition gets violated outsourcing from a narrow, regional perspective (that ignores consumer surplus) may still be desirable.

Now we consider a situation in which only one of the two firms enters into offshore outsourcing. In this situation, we get the following proposition.

Proposition 2: If one of the firms outsource, the firm that doesn't outsource will actually experience job loss.

Supposing one of the firms (firm 2) is able to lower its costs to c_L by outsourcing some of its back office operations abroad where wage rate is lower then what is prevailing in the domestic market. Because of this outsourcing it is able to lower its costs to c_L (i.e., $c_H > c_L$).

The profit functions now are:

$\Pi_1 = (p - c_H)\, q_1$
$\Pi_2 = (p - c_L)\, q_2$

the first order conditions now yield the following optimal values,

$q_1^* = (a + c_L - 2c_H)/3b$
$q_2^* = (a + c_H - 2c_L)/3b$

$\Pi_1^* = (a + c_L - 2c_H)^2/9b$
$\Pi_2^* = (a + c_H - 2c_L)^2/9b$

We compare these values with the values obtained when none of the firms outsource.

Firm 1:

$q_1^* - q_{1H}^* = (a+c_L-2c_H)/3b - (a-c_H)/3b = (c_L-c_H)/3b < 0$

$\Pi_1^* - \Pi_{1H}^* = (a+c_L-2c_H)^2/9b - (a-c_H)^2/9b = (c_L-c_H)(2a+c_L - 3c_H)/9b$

The difference in profits can be positive or negative.

Firm 2:

$q_2^* - q_{2H}^* = (a+c_H-2c_L)/3b - (a-c_H)/3b = 2(c_H - c_L)/3b > 0$

$\Pi_2^* - \Pi_{2H}^* = (a+c_H-2c_L)^2/9b - (a-c_H)^2/9b = 4(c_H-c_L)(a - c_L)/9b > 0$

So the firm (firm 1) that doesn't lower its costs experiences reduction in quantity, though profits can be lower or higher, which means that regional welfare can go either way.

Now if firm 1 also starts outsourcing its back office operations abroad it too can lower its costs to c_L. Below we analyse that if this happens how does quantity and profits get affected for both the firms.

Firm 1:

$q_{1L}^* - q_1^* = (a-c_L)/3b - (a+c_L-2c_H)/3b = 2(c_H - c_L)/3b > 0$

$\Pi_{1L}^* - \Pi_1^* = (a-c_L)^2/9b - (a+c_L-2c_H)^2/9b = 4(c_H-c_L)(a - c_H)/9b > 0$

The difference in the quantity and profits is always be positive.

Firm 2:

$q_{2L}^* - q_2^* = (a-c_L)/3b - (a+c_H-2c_L)/3b = (c_L - c_H)/3b < 0$

$\Pi_{2L}^* - \Pi_2^* = (a-c_L)^2/9b - (a+c_H-2c_L)^2/9b = (c_L-c_H)(2a - 3c_L + c_H)/9b$

The difference in quantity is negative while the difference in profits may be positive or negative.

So we find that the firm that doesn't outsource actually produces less and hence reduces the number of jobs.

III. Conclusions and Extensions:

Recently, outsourcing of services has come under sharp public focus in the developed countries, particularly in the US and the Europe. Although the economy-wide effects of outsourcing on jobs are perceived to be positive in the medium to long run, the immediate negative impact of outsourcing is felt by individuals who lose jobs due to outsourcing of work. In this paper we demonstrate that the long-term firm or industry level effect of outsourcing is far from clear. In particular, we demonstrate that under certain condition, outsourcing may actually lead to increase in the number of workers employed by a firm/industry.

A next logical step is to try testing for this result by doing some empirical estimation to see if the firms that have outsourced have experienced increase in overall employment level overtime. To estimate this at the industry level, employment measure needs to be regressed on outsourcing and other variables affecting employment.

Some other extensions could be to see how outsourcing affects employment as firms gradually move on the higher value chain. Moving on the higher value chain tends to reduce cost differentials. Other things being constant, this will tend to reduce outsourcing. But then the effect depends on the proportion of the higher end work that can be outsourced. Another extension is to compare the effect of outsourcing with some of the other competitive solutions that global companies look for, such as the effect of technological change (i.e., automation) that substitutes cheap capital for expensive labour on employment. The two effects (of automation and of outsourcing) can then be compared.

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