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The Osmosis Model for Studying Offshore Business Process Outsourcing

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ABSTRACT

Although offshore BPO has been a focus of considerable attention in popular press, there is a serious dearth of academic research on this area. This paper first establishes that offshore BPO functions in the same manner as osmosis. We then draw upon constructs and concepts in osmosis to develop theoretical understanding of the factors that drive the offshore BPO. Managerial and policy implications are discussed and directions for further research have been suggested.

Keywords

Osmosis, BPO, socio-cultural distance, globalization

INTRODUCTION

Business process outsourcing (BPO) is touted as "globalization's next wave" (Business Week, February 3, 2003). The global BPO market increased from US$ 60 billion in 1998 (Irvine 1998) to $300 billion by 2001 and is estimated to reach $1 trillion by 2007 (UNCTAD 2002). An estimate of Gartner suggests that the offshore BPO increased by 38% in 2003 and amounted US$1.8 billion globally. Another study of Forrester Research indicated that 3.3 million U.S. business-processing jobs will move offshore by 2015.

We define BPO as a *long-term contract* of a company's non-core business processes to an outside service provider. BPO and IT outsourcing differ in terms of factors driving them and impact of a given factor. For instance, in Goo et al.'s (2000) taxonomy, *technical consideration* is more important for IT outsourcing, *core competencies* are more important in BPO.

Because of a lack of a systematic framework, offshore BPO decisions related to the optimum quantity, activities and destinations are accomplished only through the use of common sense, accumulated experience and rough judgment. Advancement of the art and science of offshore outsourcing will also help policy makers in outsourcing destinations to devise appropriate strategy to attract potential outsourcers.

To fill these research gaps, this research in progress attempts to develop theoretical understanding of the factors driving offshore BPO. We first establish that offshore BPO functions in the same way as osmosis. Then we draw upon constructs and concepts in osmosis to develop theoretical understanding of offshore BPO. We can find similar examples of approaches that apply concepts from basic science in business disciplines. For instance, the gravitational model proposed by Tinbergen (1962) has been successfully applied to explain the patterns of international trade.

The remainder of the paper: a) draws an analogy between offshore BPO and osmosis; (b) develops and discusses a model on the determinants of offshore outsourcing flows; and (c) provides some conclusion and discusses implications.

OFFSHORE OUTSOURCING AND OSMOSIS

Osmosis occurs when there are different concentrations of a *solute* on either side of a *semipermeable membrane*. Osmosis tends to equalize the *concentrations* of the solute on either side. At a certain point, the pressure of the solution against the membrane prevents further flow from the side with the pure solvent. The pressure at this point--osmotic pressure (π)$=MRT$, M is the molarity of the solute, R is the gas constant, and T is the temperature.

The molarity of a solution (M) is the number of moles of solute per kg of solvent. Higher temperature is associated with higher kinetic energy of the system and greater velocity of molecules or a higher rate of osmosis. The gas constant (R) is a physical constant that appears in an equation defining the behavior of a gas under ideal conditions. Also of interest to this

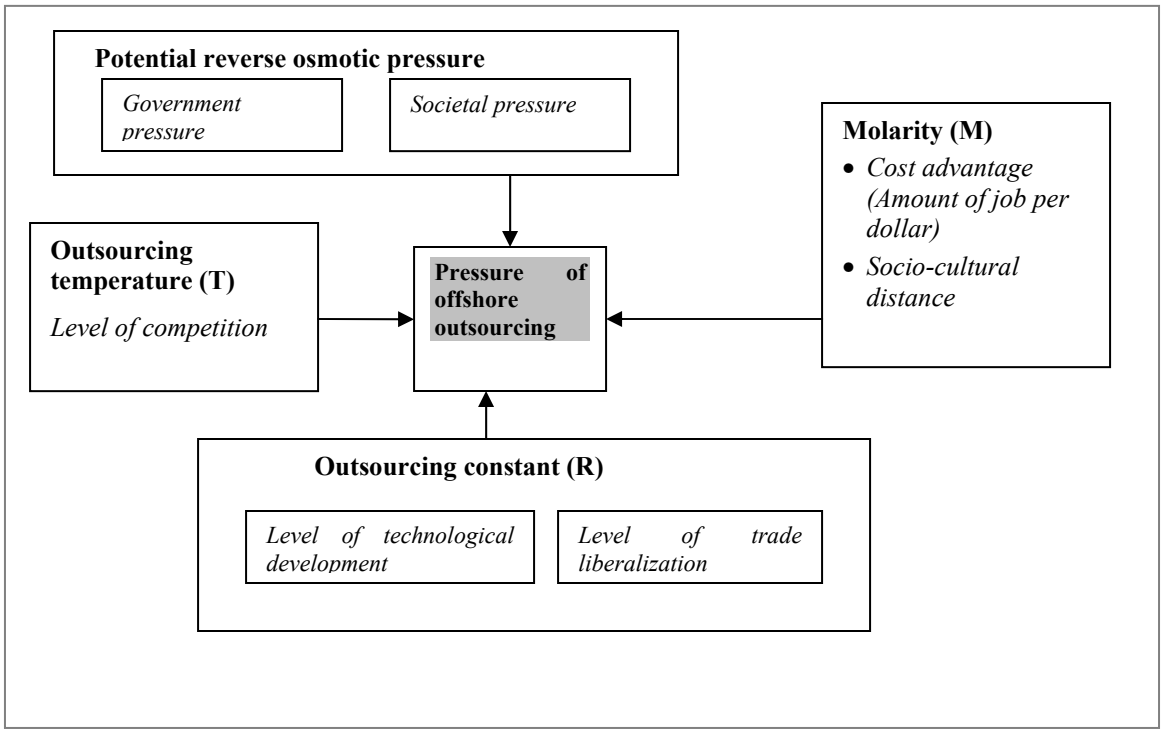
paper is the *reverse osmosis process* which occurs when applied operating pressure (from outside sources) compensates the osmotic pressure of the system.

We draw an analogy between *Offshore BPO* and *Osmosis*. National boundaries are becoming more permeable to economic activities (Dunning 1992; Kotabe and Swan 1994). Nevertheless, boundaries between developing and developed countries are largely "impermeable" for the movement of people. The "membranes" separating outsourcing originations and destinations are thus semipermeable because they allow the movements of services from outsourcing destinations to origination (or payment from origination to destination) but not of people. Moreover, just like the osmosis can be stopped or reversed by applying outside pressure, offshore BPO also has such characteristics.

DETERMINANTS OF OFFSHORE BPO

Industries differ in terms of their attractiveness to BPO. For instance, a higher proportion of firms in the banking and financial sectors and IT vendors tend to outsource their business processes offshore more than firms in the health-care and medical sector (Foley 2003). For a given job, all functions do not have the same outsourcing potential. In medical transcription, for instance, activities differ in terms of elasticity of substitution of labor with respect to capital—raw transcription having the highest elasticity and editing the lowest.

Figure 1: Offshore BPO as the Osmosis



Viewing from the angle of osmosis, three categories of factors influence the "osmotic pressure" or the attractiveness of offshore outsourcing for a job of given outsourcing potential (Figure 1 and Table 1): molarity (M) related, temperature (T) related, and gas constant (R) related factors. In addition, *potential reverse osmotic pressure* from society, trade unions and government influence offshore BPO.

Molarity (M) related factors

Cost advantage

The equivalent construct of Molarity could be the amount *of BPO job a given amount of money can buy (the amount of BPO job "dissolved" in a given amount of money).* Drives to control costs and improve efficiency are fueling outsourcing in general (Goo et al. 2000) and BPO in particular (McDermott 2002). Offshore BPO tends to have higher cost saving potential. For instance, cost savings by outsourcing business processes to India can amount up to 75% (Gupta 2002). For instance, the amount of job that can be bought with $1 in India is about five times that in Canada. In the language of osmosis, the *molarity* for systems programming services in India is five times that is in Canada. Consequently, for systems programming, the

"osmotic pressure" on the *semipermeable membrane* separating U.S. and India is five times as high as that between the U.S. and Canada.

Socio-Cultural Distance

The variation in wage rate is input based. It is important to note that whereas traditional IT contract is input-based (number of man-hours required), BPO focuses on outputs (such as how much it costs to deliver the services to the client) (McCue 2002). The degree of similarity between the cultures of origination and destination countries-- socio-cultural distance-influences the quality and capability to deliver the services to the client.

Moreover, for jobs dealing with customers (e.g., call center), customer trust is important, which is a function of socio-cultural distance. Language misstatement or cultural embarrassments result in decreased customer trust. For instance, following U.S. customers' complaints about difficulty in communicating with Indian technical-support personnel, Dell stopped its Indian call center.

Socio-cultural distance is also related to *understanding of business practices, ethnic linkages and language*. In the case of medical transcription, for instance, compared to India, the Philippines, seems to have lower socio-cultural distance with the U.S. Many Filipino doctors and nurses have studied or worked in the U.S. and are familiar with the U.S. healthcare system. *Ethnic linkages* between the managers of origin and destination countries shorten the socio-cultural distance. Such linkages help in the creation of alliance and strategic networks and smooth out negotiations and transactions.

Outsourcing temperature (T)

In osmosis, T is associated with kinetic energy or velocity of molecules. This suggests that the equivalent construct in offshore outsourcing should increase companies' willingness to outsource from offshore locations.

Competition level in the industry

"Ratcheting levels of competition" is arguably a powerful driver of BPO (McDermott 2002). Pressure to remain competitive has forced firms to reduce costs and emphasize on productivity by becoming lean and efficient and to focus on core businesses (Moore 1998). Fierce world competition has also forced firms to internationalize their outsourcing operations and has increased the necessity for strategic partnerships (Aquilon 1997).

Competition has also made outsourcing more complicated (Moore 1998). In the 1970s, companies outsourced the operation of their computer centers involving huge mainframes. In the 1980s, the outsourcing wave changed to manufacturing. The ability of large-scale discount stores such as Wal Mart to offer lower prices-- "retailing revolution"—was an outcome of an extensive system of outsourcing to low-wage countries enabled by new inventory methods and rapid development in communication (Feenstra 1998).

The competition and hence the pressure to enhance productivity, however, varies across industries. For instance, firms in agriculture sector are not under the same pressure to outsource as those in financial sector. The level of competition in an industry thus can be considered as the equivalent construct with the same attributes as temperature in osmosis.

Outsourcing Constant (R)

The proportion of a company's jobs that can be outsourced is a function of *the levels of technological advancement* and the amount of *trade barriers*.

Technology

BPO is a function of technological development such as cost of data communication and the extent to which product quality and design can be monitored. Technology available in the 1970s allowed companies to outsource the operation of their computer centers involving huge mainframes (Gomes 1999). In the 1980s, new inventory methods and development in communication technologies brought "retailing revolution" (Feenstra 1998) which was not possible in the 1960s. The evolution of client-server technology made it uneconomical to outsource on mainframe technology in the 1980s (Lacity and Willcocks 1998).

The technologies enabling BPO are different from those that enabled the "retailing revolution". Availability of such technologies has also enabled firms to make outsourcing decisions based on outputs (McCue 2002) rather than on inputs. New management techniques, software, and communications systems have enabled better coordination (Quinn 2000).

Whereas core activities stay in-house and non-core activities are outsourced (e.g., Prahalad and Hamel 1990; Bettis et al. 1992; Lacity et al 1995; Quinn and Hilmer 1994; Kelley, 1995; Mullin, 1996), technological development is likely to change the structure of core and non-core activities of companies. Some types of core competencies become outmoded with over time (Quinn 2000).

Trade Barriers

Rapid globalization following the World War II resulted in a high degree of freedom in the movements of goods, services, capital, management, technology, and people allowing firms' to *exploit technological capabilities* in international markets. For instance, The General Agreement of Trade and Tariff rounds of liberalization resulted in decline of tariffs on industrial products from 50% to 4% during 1948-99. Most of the BPO takes place electronically for which WTO members have agreed not to impose customs duties.

Table 1: Determinants of the "Osmotic Pressure" of Offshore Outsourcing

Factors	Explanation	Some examples
Molarity (M)		
Cost advantage	• Drives to improve operating efficiency	• 75% cost saving by outsourcing to India.
Socio-cultural distance	• Influences customer trust and capability to deliver services.	• U.S. customers' complaints to deal with Indian personnel
Outsourcing temperature (T)		
Competition level in the industry	• Pressure to remain competitive varies from industry to industry.	• Low pressure to outsource in agriculture.
Outsourcing constant (R)		
Level of technological development	• Determines what is core and non-core • Influences the ability to monitor quality and coordinate.	• Computer centers (1970s), retailing revolution (1980s), BPO (present).
Trade barriers	• Influence outsourcing potential.	• Triff barriers reduced.
Potential reverse osmotic pressure		
Government pressure	• Can impose pressures to stop offshore BPO.	• Legislation against BPO.
Societal pressure	• Moral and societal pressure.	• Pressures from TORAW, AAMT.

POTENTIAL REVERSE OSMOTIC PRESSURE

Societal pressure

The growing job losses have sparked opposition in several corners of the society, especially in the U.S. Outsourcers are feeling moral, political and societal pressure not to send jobs offshore. For instance, a group of displaced American workers have founded *The Organization for the Rights of American Workers* (TORAW). In June 2002, TORAW organized a demonstration outside the Strategic Outsourcing Conference held in New York City (Koch 2003). Similarly, the American Association for Medical Transcription (AAMT) raised the issues of documentation quality, privacy and confidentiality.

Government pressure

Governments in the origination countries can impose pressures to offshore outsourcing. The U.S. government, for instance, can use its power over industries such as financial services to discourage sending work offshore by raising national security

concerns; or could set "buy American" standards for government purchases (Thibodeau 2003). By the mid-2003, lawmakers in New Jersey, Maryland, and three other states also proposed legislation forbidding offshore BPO (Schwartz 2003).

DISCUSSIONS, CONTRIBUTIONS AND IMPLICATIONS

We have analyzed the determinants of "osmotic pressure" of offshore BPO as well as the sources of potential reverse osmotic pressure (Table 1). It should be noted that for some economies (e.g., China), the two components of the "M" construct—cost advantage and socio-cultural distance produce effects in opposite directions and tend to cancel each other. Similarly, the explanatory variables have differential impacts across industries. For example, cultural differences tend to have a stronger influence on the outsourcing of customer services compared to manufacturing. Also unlike in osmosis, the outsourcing constant (R) might vary across industries and across companies.

Whereas Carmel and Agarwal (2002) identified the stages of maturation of offshore IT outsourcing and the characteristics of companies at each stage, our model helps to evaluate optimum quantity, activities and destinations of BPO. While most of the arguments presented in this paper are equally applicable to other forms of outsourcing, some are unique to BPO. For instance, government and societal pressures are not that strong for IT outsourcing driven by the scarcity of skills compared to call center outsourcing.

From the perspective of outsourcing destinations, socio-cultural distance is probably the variable that can be manipulated more easily. For instance, China is providing incentive packages for boosting English training programs. Similarly, workers in customer service jobs in India watch *Friends* and *Baywatch* to acquaint themselves with the cultural norms of U.S. customers. Lobbying with governments and various societal groups can overcome the likely potential reverse osmotic pressure. It is also necessary to understand the sources of concerns these groups have. For instance, companies providing medical transcription services in India have to ensure documentation quality, and patients' rights to privacy and confidentiality to address the concerns of the AAMT.

The discussions in this paper are, however, tempered by a number of limitations. The face validity of the model not being tested is probably the most serious limitation. Also it might be difficult to operationalize some of the constructs. The limitations indicate the need for further research. Particularly fruitful avenues include operatinalization of the constructs and testing the model represented in this paper. Qualitative in-depth study of firms involved in outsourcing would also provide a deeper understanding of drivers of offshore BPO.

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