

An Analysis on Offshoring and Welfare

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Abstract

Offshoring is the reallocation of productive economic activity and the associated employment from a home country - normally a developed nation such as the United States - to other parts of the world, especially low-wage countries such as India and China. Offshoring activities include production of basic components, call centers, software development, accounting and other professional services. Many debates and disagreements exist among economists on offshoring. Offshoring is also a political issue as some workers have lost their jobs to offshore. This dissertation is an attempt to analyze the effects of offshoring on national welfare and related economic variables by establishing definitions, analytical frameworks and economics models.

With regard to the definition of offshoring, every firm must make two separate decisions: the boundary of the organization and the location of its activities. Offshoring occurs when firms move production, services or innovation overseas. There are four different trajectories towards offshoring. First, firms are practicing outsourcing, but decide to switch from a domestic supplier to a foreign supplier. Second, firms decide to outsource and to offshore to a foreign supplier simultaneously. Third, firms are practicing overseas outsourcing by a foreign affiliate. Lastly, firms switch the source from an overseas affiliate to a foreign-owned supplier, often involving the sale of foreign affiliates to local firms. The lower cost of labor in developing countries is the principal reason for offshoring. Other reasons include access of educated workers in certain countries, gaining a greater experience in a particular field, of-

fer of multiple-shift services, reduction of product delivery time and market access. The following conditions are required for offshoring to occur: 1) an increase in the telecommunications infrastructure, 2) changes in information technology, 3) remaining competitive with other firms, 4) changes to the work process, 5) higher education system of developing countries and 6) free market.

The theory of fragmentation based for offshoring was first pioneered by Jones and Kierzkowski (1990, 2000). They explained that increasing returns can be obtained if various production fragments in the process are fragmented to regions in which the intensively used inputs are relatively inexpensive in comparison with their productivity. When a proportion of output sufficiently increases, a trade off between lower marginal cost of production and higher costs will arise. Offshoring is investigated in many aspects such as offshoring and contract theory, offshoring and role of institutions and market thickness, offshoring and its ownership and control in export processing, differences between generic versus contractual outsourcing, driving forces of offshoring and its consequences. The theory of offshoring was re-innovated by Grossman and Rossi-Hansberg (2008). They firstly proposed a new view of offshoring called “new paradigm”. Their model represents the production process in terms of sets of tasks rather than simple combination of bundles of inputs and is quite general than the previous models of offshoring.

Chapter 3 focuses on the role of firm heterogeneity and continuum tasks on domestic welfare. I extended Ishikawa and Komoriya’s model (2006) of invisible tasks between two heterogeneous firms to divisible continuum tasks to account for the impact of proportional difference in offshoring. The model shows that offshoring lowers unit costs of production associated with offshoring, conversely bearing additional task-specific offshoring costs. This chapter investigates the effects of foreign wage rates, costs of offshoring, and foreign productivity on domestic outputs, profits, and

domestic welfare in Ishikawa and Komoriya's partial equilibrium model. In addition, Ishikawa and Komoriya (2006) suggested only the effects of market share, this chapter reveals that the effects on domestic welfare also depend on the relative cost-reduction of an efficient firm to a less efficient firms. The relative cost-reduction is derived from the relative marginal task of each firm. Domestic welfare may decrease if the efficient firm has a larger market share, lower proportion of offshored tasks, and vice versa.

The effects of improvement in communication networks and falling offshoring costs on domestic welfare are examined in Chapter 4. A simple general equilibrium model of monopolistic competition in the presence of production offshoring is developed. The model embeds the role of communication networks and offshoring costs in the North-South production offshoring activity. The improvement in communication networks can increase the North's welfare. However, the falling offshoring costs may decrease the North's welfare if the productivity gap between two countries is relatively small. Therefore, to increase the North's welfare, the North's government should impose a policy to limit offshoring or provide a production subsidy.

Chapter 5 mainly focuses on innovation offshoring and welfare. I theoretically analyze the effects of strengthening intellectual property rights protection (IPR) and improvement in technology of innovation offshoring on the rate of innovation offshoring, the rate of imitation, the rate of innovation, relative wages, real wages and domestic welfare. A North-South dynamic general equilibrium model of trade with innovation and production offshoring, and with endogenous imitation is constructed. To trade with lower Southern wages, Northern firms confront the problems of information leakage to Southern firms and monitoring costs if they offshore innovation and production.

From the counter-intuitive results, the model predicts that a strengthening of IPR protection decreases the rate of innovation and the rate of imitation, increases

the rate of innovation offshoring if the South has a sufficiently small population size or the cost parameters of three types of firms, or monitoring or coordination costs are sufficiently high. Also, a strengthening of IPR protection decreases Northern real wages and increases Southern real wages. It may hurt the North but benefit the South. The model also shows that an improvement in technology of innovation offshoring increases the rate of innovation, the rate of imitation, the rate of innovation offshoring and Southern real wages but decreases Northern relative real wages. It may benefit the North and the South.