The Fear of Competitive Pressure of Globalization and Outsourcing

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Abstract

Why does the current wave of globalization create more public concern/opposition than previous rounds of trade liberalization? This paper identifies a key difference between globalization and trade liberalization that could be responsible for it. It is shown that while both globalization and trade liberalization create *inter-sector* income distribution, the former also creates *intra-sector* income distribution and *intra-sector uncertainty*. These new features of globalization imply lower public support.

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1   Introduction

One of the most significant effects of globalization on the patterns of international trade is the phenomenon of international outsourcing. However, recently there has been a considerable amount of controversy, not only in the popular media but also among academia, concerning the benefits of globalization and international outsourcing. The critics argue that globalization and international outsourcing will reduce jobs in the U.S. and make the country worse off. But instead of trying to identify the unique feature of globalization and international outsourcing, they resort to the traditional "terms-of-trade argument" in the classical trade model. That is, they argue that technology progress in the export sector of your trading partner could worsen your terms of trade and living standard.[1], which is recognized by mainstream international economists only as a theoretical possibility rather than any empirical evidence. On the other hand, the advocates come to the defense of globalization and international outsourcing by reiterating the principle of comparative advantage and the traditional argument of gains from trade, which they claim to be equally applicable to international outsourcing.[2]

This has lead to the neglect of recognizing some crucial differences between the previous rounds of trade liberalization and the current wave of globalization. Some important questions are yet to be answered. For example, since Americans were concerned about the growing Japanese economy in the 1980's but subsequently their fears were proven to be unfounded, why should we now be concerned about the growing Chinese economy and other emerging economies? On the other hand, if international outsourcing is no different in economic terms from trade in goods and services, why is the public resistance to globalization (e.g. in the U.S.) much stronger than trade liberalization?[3]

Trade policy often adversely affects some individuals in the short-run (though they may benefit in the long-run). Therefore, to analyze public support for trade liberalization and globalization, we should use a short-run model. However, the traditional short-run model in the international trade literature is the celebrated *specific-factors model* . This model is a useful

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[1]E.g., Samuelson (2004).

[2]E.g., Bhagwati, et al. (2004) and Greg Mankiw's remark that international outsourcing is "the latest manifestation of the gains from trade that economists have talked about at least since Adam Smith. ... More things are tradable than were tradable in the past, and that's a good thing."

[3]See, e.g., the public demonstration against the WTO meeting in Seattle, CNN's Lou Dobbs Show, etc.

workhorse for analyzing trade liberalization, but it is inadequate for analyzing globalization. As will be shown, the key difference between trade liberalization and globalization is that the impact of trade liberalization is *sector-specific* but that of globalization is *not*. Most trade negotiations since the post-war period have focused on tariff reductions in some specific industries and therefore they are highly sector-specific. The impact of globalization and international outsourcing, however, has rarely been confined to just certain industries. It occurs across-the-board including manufacturing and service sectors, affects blue-collar as well as white-collar workers, and even has very different effects on workers in the same industry.

In this paper we have developed a simple model that captures these important features of trade liberalization and globalization. We have derived the following important implications for the public support of these trade policies and the challenges for the current government trade adjustment assistance (TAA) programs. First, while all workers in the same sector (e.g. an export sector) benefit in a similar way from trade liberalization, the impact of globalization could be very different for them. Globalization creates opportunities for international outsourcing of intermediate products/services and as a result, some may benefit from globalization much more than from trade liberalization, but others may suffer. Therefore, unlike trade liberalization that creates only *inter-sector* income distribution, globalization also creates *intra-sector* income distribution. As a result, winners under globalization become more concentrated, which reduces public support for globalization policy.

Second, the intra-sector income distribution associated with globalization implies not only that a *larger* amount of affected workers should be compensated but also that the minimum compensation ratio – the ratio of the number of workers who receive compensation to the total number of all affected workers – should be greater for globalization than trade liberalization. As is shown, this makes it less likely for globalization policy to be politically acceptable even when trade liberalization policy is.

Third, although it is certain that the intra-sector income distribution will benefit some but at the same time hurt others, *ex ante*, no one knows who will be positively and who will be negatively affected, or which jobs will face the competitive pressure of international outsourcing under the globalization. Therefore, globalization also creates an *intra-sector uncertainty*. This also results in reduced public support. This result, however, does not depend on risk-averse

preference under uncertainty.

Finally, the intra-sector uncertainty suggests that the TAA program should include every kind of job loss, because *potentially* every worker could be adversely affected by globalization. However, some job losses are due to, for example, technological changes other than trade policy. Therefore, the difficulty in identifying the various causes of job loss will become a huge challenge for governments in implementing their TAA programs.

Recently, among international economists there has been a surge of research interests in globalization and international outsourcing.[4] However, despite the hot political debate and public interests surrounding international outsourcing, there are no studies that focus on the political economy of international outsourcing.[5] On the other hand, there has been a surge of research interest in political economy approaches,[6] but none of them looks at the issue of international outsourcing. By investigating the public support of globalization and international outsourcing, the current paper is a first step towards bridging this gap.

The rest of the paper is organized as follows. In Section 2 we start our analysis by setting up the basic model and then, in Section 2.1, we examine public support of trade liberalization policy, which provides a bench-mark for our analysis. Section 2.2 is the main section, in which we investigate public support of globalization policy. Emphasis is placed on the comparison of public support between globalization and trade liberalization, and on the implication for government policy. In Section 3 we discuss how government compensation policy should be targeted under globalization, and we provide some concluding remarks.

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[4]There are three main approaches in the research on international outsourcing. The first approach focuses on perfectly or monopolistically competitive market structure, epsecially regarding the intermediate product market (e.g., Jone, 2000). The second approach, which is discussed in length by Spencer (2005), uses the theory of incomplete contracts (e.g., McLaren, 2000; Grossman and Helpman, 2004; Antràs (2003); Antràs and Helpman, 2004). The third approach focuses on strategic outsourcing and the different effects of trade liberalization in intermediate and final-good products (Chen, Ishikawa, and Yu, 2004).

[5]A recent paper by Davidson, Matusz and Nelson (forthcoming) investigates the issues of compensation and free trade. Amiti and Wei (2005) show that the fear of outsourcing is not supported by the empirical evidence on the extent of outsourcing vs. 'insourcing'.

[6]E.g., see Grossman and Helpman (1994), Osborne and Slivinski (1996), Besley and Coate (1997), Fernandez and Rodrik (1991), Mukand and Rodrik (2005), and Yu (2005).

2 The Basic Model and a Short-run Analysis

Consider a small open economy with two perfectly competitive sectors producing goods X and Y. Both goods are produced by labor only with a constant-returns-to-scale technology – specifically,

$$X = L_x/a_x; \qquad\qquad Y = L_y/a_y \qquad\qquad (1)$$

and

$$L_x + L_y = \overline{L} \qquad\qquad (2)$$

where $a_i > 0$, $i = x, y$, is the unit labor requirement in each sector. Since this is a short-run model, labor cannot switch their jobs.

Suppose the small open economy exports good X and imports good Y. Following Fernandez and Rodrik (1991), suppose the economy initially has a tariff, τ_y^o, of a magnitude such that

$$P^o = a_x/a_y \qquad\qquad (3)$$

where $P \equiv p_x/p_y$ is the (tariff-inclusive) relative price of good X in terms of good Y. The domestic price of good Y is the international price multiplied by the tariff, $p_y = \tau_y p_y^*$.

The initial allocation of labor between sectors X and Y, L_x^o and L_y^o, is given by history. Perfect competition in both the product and labor markets ensures that

$$w_i = p_i/a_i, \qquad\qquad i = x, y \qquad\qquad (4)$$

Therefore, given the initial tariff level on good Y, τ_y^o, that corresponds to P^o, wages are the same in both sectors (i.e., $w_x^o = w_y^o$).

Suppose further that good X has two components and is produced by the following Leontief production function,

$$X = \min\{\frac{l_1}{a_1}, \frac{l_2}{a_2}\} \qquad\qquad (5)$$

There is no harm in thinking that production of good X requires two types of jobs or services (type-1 and type-2), using constant-returns-to-scale technology: l_j/a_j, $j = 1, 2$. Notice that the nature of these two jobs is not that one is skilled and the other is unskilled. They are simply different types of jobs and both can be skilled or unskilled.

Since minimum-cost production implies $X = l_1/a_1 = l_2/a_2$, we have

$$a_1 + a_2 = a_x \qquad\qquad (6)$$

Therefore, labor's initial allocation between these two jobs in sector X is

$$l_1^o = \frac{a_1}{a_1 + a_2} L_x^o; \qquad\qquad l_2^o = \frac{a_2}{a_1 + a_2} L_x^o \qquad\qquad (7)$$

and wages are the same for them when both components are produced ($w_1^o = w_2^o = w_x^o$). Suppose import of these components is not possible because the magnitude of the import tariffs on the components is initially high,

$$w_x^o a_j \leq \tau_j^o p_j^*, \qquad\qquad j = 1, 2 \qquad\qquad (8)$$

where p_j^* is the world price and τ_j^o is the import tariff of component j.[7]

As discussed earlier, since the Second World War, each round of GATT/WTO negotiation has focused on trade liberalization in some specific sectors. The recent wave of globalization, however, is characterized by the reduction of trade costs in a much broader spectrum (including tariff and non-tariff barriers, transport costs, etc.) and sectors. To capture the essential difference in the simplest way, in the following analysis we define *trade liberalization policy* as a reduction of the import tariff on the final goods (i.e. τ_y) only, and *globalization policy* as an across-the-board reduction of import tariffs on the final goods as well as the intermediate components (i.e. τ_y, τ_1 and τ_2). We do not model unemployment in this paper and trade policy only affects wages.

2.1 Trade Liberalization and Public Support

If the small open economy adopts trade liberalization policy, a reduction of τ_y leads to a lower level of p_y (since $p_y = \tau_y p_y^*$). Consequently, the wage rate in Y sector ($w_y = p_y/a_y$) decreases but the relative price of good X ($P = p_x/p_y$) increases. It is straightforward to show that w_y/p_y stays the same but w_y/p_x becomes lower. As a result, the real wage of the workers in Y sector decreases, and therefore they will oppose trade liberalization policy. It is also straightforward to show that although the nominal wage of the workers in X sector remains the same ($w_x = w_x^o = p_x/a_x$), they are in favor of trade liberalization policy since their real wage increases:

$$w_x/p_x = 1/a_x; \qquad w_x/p_y = (P/a_x) \uparrow \qquad\qquad (9)$$

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[7]In order to focus on the issues of outsourcing (rather than "insourcing"), we assume throughout the analysis that the home country could not export the components. That is, $w_x^o a_j > p_j^*/\tau_j^*$, where τ_j^* is the foreign tariff on component j, $j = 1, 2$.

Thus, we obtain the following result.

Lemma 1 *Public support for trade liberalization policy is $L_x^o - L_y^o$ (or, $l_1^o + l_2^o - L_y^o$).*

Notice that the key feature of trade liberalization policy is *sector-specific* and it affects *inter-sector* income distribution. Trade liberalization makes all workers (including type-1 and type-2) in the exporting sector better off but those in the import-competing sector worse off.

With a majority voting model, trade liberalization policy will be adopted if $L_x^o - L_y^o > 0$. Rather than using a specific voting model or other public-choice models, the discussions throughout the paper rely on a simple assumption that a policy is more likely to be adopted (or face less opposition) the greater the public support it has. Therefore, we will focus on the comparison of public support for trade liberalization policy and globalization policy.

2.2 Globalization and Public Support

Unlike trade liberalization, the adoption of globalization policy reduces tariffs on the final and intermediate goods, including τ_y, τ_1 and τ_2. This will create an opportunity for outsourcing/import of a component in X sector. Thus, the effect of globalization policy on the workers in the same sector will be different – it will affect intra-sector income distribution (and inter-sector income distribution as well). If outsourcing occurs in component-2, type-2 workers will be worse off, but, as will be shown, type-1 workers will be much better off (better than under trade liberalization). However, outsourcing could also occur in component-2 since, *ex ante*, workers in X sector do not know which component will face the competitive pressure of outsourcing. Therefore, the first important feature of globalization is that it affects *intra-sector income distribution*. The second is the effect of *intra-sector uncertainty*. In the rest of this section, we will show that each of these features will result in lower public support for globalization than for trade liberalization. We will also discuss policy implications.

2.2.1 Intra-sector Income Distribution

2.2.1A The Issue

Notice that there are potentially four cases implied by (8): (i) $w_x^o a_1 < \tau_1^o p_1^*$ and $w_x^o a_2 = \tau_2^o p_2^*$; (ii) $w_x^o a_1 = \tau_1^o p_1^*$ and $w_x^o a_2 < \tau_2^o p_2^*$; (iii) $w_x^o a_1 < \tau_1^o p_1^*$ and $w_x^o a_2 < \tau_2^o p_2^*$; and (iv) $w_x^o a_1 = \tau_1^o p_1^*$ and $w_x^o a_2 = \tau_2^o p_2^*$. The adoption of globalization policy will force the production of component 2 to face the competitive pressure of outsourcing under Case (i), and component 1 under Case (ii).

It will not render any competitive pressure for either component under Case (iii) and therefore, the effect of globalization would be the same as trade liberalization. When $w_x^o a_1 = \tau_1^o p_1^*$ and $w_x^o a_2 = \tau_2^o p_2^*$ as in Case (iv), globalization would let the small open economy import both components, but this is ruled out since we still maintain the assumption that the economy exports good X. Therefore, only the first two cases are of interest to our analysis. We will focus on Case (i) since analysis of Case (ii) follows similarly.

Consider the following globalization exercise in Case (i) in which $w_y^o a_y = \tau_y^o p_y^*$, $w_x^o a_2 = \tau_2^o p_2^*$ and $w_x^o a_1 < \tau_1^o p_1^*$ initially. Suppose, in addition to the reduction in τ_y (which is the same as that under trade liberalization), there is a proportionate reduction in τ_1 and τ_2 (but $w_x a_1 < \tau_1 p_1^*$ still holds). Similar to trade liberalization, workers in Y sector will be negatively affected by globalization and therefore they will oppose globalization policy.

However, the effect on the workers in X sector is different, depending on which type of job they have. Since a perfectly competitive market ensures $w_2 = (\tau_2 p_2^*)/a_2$, w_2 will be lower $(w_2 = w_y)$. Thus, similar to the workers in Y sector, type-2 workers are worse off and therefore they will oppose globalization policy. It is also important to notice that type-2 workers are in the export sector of the economy. Thus, globalization affects not only import-competing but also export-related workers. This is different from trade liberalization.

Perfectly competitive market also ensures that $w_1 a_1 + w_2 a_2 = p_x$. Thus, we have

$$
\begin{aligned}
w_1 &= \frac{p_x - w_2 a_2}{a_1} \\
&= \frac{p_x - w_y a_2}{a_1} > w_x
\end{aligned}
\tag{10}
$$

Notice that since type-2 workers are paid less $(w_2 < w_x)$, type-1 workers are paid more under globalization than under trade liberalization $(w_1 > w_x)$. They are much better off under globalization. Therefore, public support for globalization policy is $l_1^o - (L_y^o + l_2^o)$.

With Case (ii) where $w_y^o a_y = \tau_y^o p_y^*$, $w_x^o a_1 = \tau_1^o p_1^*$ and $w_x^o a_2 < \tau_2^o p_2^*$ initially, similar analysis shows that public support for globalization policy is $l_2^o - (L_y^o + l_1^o)$. In summary, we have the following result.

Proposition 1 *Since globalization affects not only inter- but also intra-sector income distribution, public support for globalization policy is lower than for trade liberalization policy.*

Notice that the key issue here is that the effect of intra-sector income distribution of global-

ization makes the gains from trade policy more concentrated. Compared to trade liberalization policy, fewer people gain under globalization policy but they gain much more.

2.2.1B Policy Implication

Since gains are more concentrated, globalization policy should be coupled with a greater extent of income re-distribution. According to Scheve and Slaughter (2001), a majority of American workers would support further trade liberalization provided that those who are negatively affected receive some kind of compensation. If everyone who is negatively affected were compensated, there would be no problem for the public support of trade policy. In reality, however, it is not the case that most of the affected workers would actually receive assistance/compensation from TAA.

Back in 1962, the U.S. government created the TAA program to provide compensation or assistance to workers who lose jobs due to increased import competition. The TAA program is better funded and more generous compared to the standard unemployment insurance (UI) program. According to Kletzer and Rosen (2005), however, between 1974 and 2002, about 25 million workers were eligible but only 2.5 million received the assistance under the TAA program (a ratio of one tenth). A key reason for this is that those who apply for TAA have to show that their job loss is due to a few causes defined by the TAA program (e.g., increased import competition), rather than somethings else (e.g., technology changes). Such a low ratio has two implications.

First, since the amount of financial assistance under the TAA program is to *compensate* the adversely affected workers, none of them will support trade liberalization or globalization policy if everyone thinks that receiving assistance from TAA is not a (almost) sure thing. They would prefer to keep the *status quo*, rather than to take an expected loss. If that is the case, only the winners will support the trade policy. But this does not mean that the trade policy will not be politically acceptable – it depends on whether the winners are the majority of the voters. One thing is certain, however: public support for globalization would be less than for trade liberalization policy simply because gains are more concentrated under globalization policy.

Second, if the losers consist of a majority, then the government has to give assurance to some workers that they will receive financial assistance from the TAA program (or 'bribe' them) in order to get a majority support for the trade policy. Since the winners are more concentrated

under globalization, it is obvious that more people have to be compensated. What is not clear is in order to get the majority support, whether the compensation ratio under globalization – the ratio of the number of workers who receive assistance from the TAA program to the total number of all affected workers – should be higher or lower than that under trade liberalization.

In this model, if $L_x^o < L_y^o$, trade liberalization policy will have the majority support if the number of workers (in Y sectors) who are assured of compensation is greater than $(L_y^o - L_x^o)/2$. Therefore, for trade liberalization to be politically acceptable, the minimum compensation ratio coupled with trade liberalization policy, $\underline{C}^T$, must be

$$\underline{C}^T = 0.5(L_y^o - L_x^o)/L_y^o \tag{11}$$

For globalization policy to have the majority support in Case (i), for example, the number of workers who are assured of compensation must be greater than $(L_y^o + l_2^o - l_1^o)/2$. The minimum compensation ratio coupled with globalization policy, $\underline{C}^G$, must be

$$\underline{C}^G = 0.5(L_y^o + l_2^o - l_1^o)/(L_y^o + l_2^o) \tag{12}$$

Compared to (11), both the numerator and denominator (12) become larger but we can obtain the following result.

Proposition 2 $\underline{C}^G > \underline{C}^T$. That is, the minimum compensation ratio coupled with globalization policy should be greater than that with trade liberalization policy.

Proof: As in Case (i), for example, since $\underline{C}^G = 0.5(L_y^o + l_2^o - l_1^o)/(L_y^o + l_2^o) = 0.5[1 - l_x^o/(L_y^o + l_2^o)]$ and

$\underline{C}^T = 0.5(L_y^o - L_x^o)/L_y^o = 0.5(1 - L_x^o/L_y^o)$, we have $\underline{C}^G > \underline{C}^T$.

Similar results could be obtained for Case (ii).■

The intuition is actually quite simple for the result that a higher compensation ratio is required if winners are more concentrated. Using an extreme example, for instance, if the winners already make up more than a majority, the trade policy will be politically acceptable even if the compensation ratio is zero (i.e. there is no need to 'bribe' any workers). On the other hand, if the winners are few - close to none, then the compensation ratio has to be close to 50% in order to have the majority support for the trade policy.

The result, however, sheds insight on why public support for globalization policy could be low. Suppose, for instance, the current compensation ratio under trade liberalization policy,

C^T, is between $\underline{C}^T$ and $\underline{C}^G$ (i.e., $\underline{C}^T < C^T < \underline{C}^G$). Then, if globalization policy is coupled with a TAA program that has a compensation ratio similar to C^T, globalization policy will not be politically acceptable even when trade liberalization policy is.

Corollary *Since globalization policy affects both inter- and intra-sector income distribution, it ought be coupled with a much broader income re-distribution program. This, however, makes it less likely for globalization policy to be accepted by the majority if the compensation ratio under the current TAA program is low.*

2.2.2 Intra-sector Uncertainty

2.2.2A The Issue

So far, we have focused on the effect of intra-sector income distribution in Case (i) where production of component 2 (of good X) is under the competitive pressure of outsourcing, and in Case (ii) where production of component 1 is. In reality, the impact of globalization on the reduction of τ_y, τ_1, and τ_2 is different and uncertain. *Ex ante,* nobody knows for sure which component will face the competitive pressure of international outsourcing. To capture the intra-sector uncertainty within this framework, we assume, for simplicity, that the reduction of τ_y, τ_1, and τ_2 is proportionate, but it is uncertain whether the economy is currently in Case (i) or Case (ii). The economy is in Case (i) with probability θ and in Case (ii) with probability $1 - \theta$. To isolate the economic force of our interests, we assume that all workers are risk-neutral.[8]

Whether it is in Case (i) or Case (ii), the effect on workers in Y sector is the same. They are worse off in both cases (the same as in trade liberalization).

From Section 2.2.1, we know that type-1 workers are better off if the economy is in Case (i) but worse off in Case (ii). Their wage increases to w_1 in Case (i) but decreases to w_y in Case (ii). Thus, a type-1 worker's expected wage becomes

$$
\begin{aligned}
w_1^e &= \theta w_1 + (1-\theta)w_y \\
&= \frac{\theta(p_x - w_y a_2)}{a_1} + (1-\theta)w_y \\
&= \frac{\theta p_x - [\theta(a_1 + a_2) - a_1]w_y}{a_1}
\end{aligned}
\tag{13}
$$

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[8]If workers are risk-averse, support for globalization would be even lower (which will strengthen our results).

Furthermore, since $p_x = w_x(a_1 + a_2)$, we obtain

$$
\begin{aligned}
w_1^e - w_x &= \frac{\theta w_x(a_1 + a_2) - [\theta(a_1 + a_2) - a_1]w_y}{a_1} - w_x \\
&= \frac{(w_x - w_y)[\theta(a_1 + a_2) - a_1]}{a_1}
\end{aligned}
\tag{14}
$$

Type-2 workers, however, are worse off in Case (i) but better off in Case (ii). Their wage decreases to w_y in Case (i) but increases to $w_2 = (p_x - w_y a_1)/a_2 > w_x$ in Case (ii) [similar to (10)]. Thus, a type-2 worker's expected wage becomes

$$
\begin{aligned}
w_2^e &= \theta w_y + (1 - \theta)w_2 \\
&= \theta w_y + (1 - \theta)(\frac{p_x - w_y a_1}{a_2}) \\
&= \frac{\theta a_2 w_y - (1 - \theta)a_1 w_y + (1 - \theta)p_x}{a_2}
\end{aligned}
\tag{15}
$$

Noticing that $p_x = w_x(a_1 + a_2)$, we obtain

$$
\begin{aligned}
w_2^e - w_x &= \frac{\theta a_2 w_y - (1 - \theta)a_1 w_y + (1 - \theta)(a_1 + a_2)w_x}{a_2} - w_x \\
&= \frac{(w_x - w_y)[a_1 - \theta(a_1 + a_2)]}{a_2}
\end{aligned}
\tag{16}
$$

Since $w_x > w_y$, we have the following lemma.

Lemma 2

(i) When $\theta \in (\frac{a_1}{a_1 + a_2}, 1)$, we have $w_1^e > w_x$ and $w_2^e < w_x$;

(ii) When $\theta \in (0, \frac{a_1}{a_1 + a_2})$, we have $w_1^e < w_x$ and $w_2^e > w_x$.

When $\theta \in (\frac{a_1}{a_1+a_2}, 1)$, type-1 workers are better off under globalization compared to trade liberalization (since $w_1^e > w_x$) and therefore, they will support globalization policy. For type-2 workers, however, since $w_2^e < w_x$ and p_y is also lower, we need to compare changes in their real wage. Noticing that $w_2 > w_y$, from (15) we have

$$
\begin{aligned}
\frac{w_2^e}{p_y} &= \frac{\theta w_y + (1 - \theta)w_2}{p_y} \\
&> \frac{w_y}{p_y} = 1/a_y = w_x^o/p_y^o
\end{aligned}
\tag{17}
$$

since $w_x^o = w_y^o$ and $w_x^o/p_y^o = 1/a_y$. That is, type-2 workers' purchasing power in terms of good Y increases. However, since $w_2^e < w_x$ from (16), we obtain

$$
\frac{w_2^e}{p_x} < \frac{w_x}{p_x} = 1/a_x
\tag{18}
$$

11

That is, their purchasing power in terms of good X becomes lower. Thus, the effect of globalization on type-2 workers' real wage is ambiguous. Whether a type-2 worker can benefit from globalization policy depends on how much he/she likes good Y *vis-á-vis* good X. Therefore, only type-1 workers (l_1) will unambiguously support globalization policy.

Similarly, when $\theta \in (\frac{a_1}{a_1+a_2}, 1)$, we can show that only type-2 workers will unambiguously support globalization policy but type-1 workers' position is ambiguous. Therefore, in general, we have the following result.

Proposition 3 *Because of the intra-sector uncertainty associated with globalization, in general, public support for globalization policy is lower than for trade liberalization policy.*

2.2.2B Policy Implication

Although the TAA program in the U.S. has recently been expanded to include, for instance, job losses due to shifts in production to countries with which the U.S. has a bilateral or preferential free trade agreement, it is essentially a targeted labor-market adjustment program and therefore, is very sector-specific. According to Kletzer and Rosen (2005), more than half of the workers who received assistance from TAA were employed in the auto, textiles, apparel, and steel industries, which clearly are import-competing sectors. The TAA program has denied financial compensation to thousands of workers laid off from the services sector, and to those who have lost export-related jobs. The narrow definition used by the TAA program certainly has contributed to the low compensation ratio of TAA and likely to low public support for globalization policy.

Therefore, the intra-sector uncertainty associated with globalization poses a huge challenge for government compensation policy since it suggests not only the number of the adversely affected workers under globalization is larger but also the scope of the job loss is larger too. The workers affected by globalization could have import-competing or export-related jobs. In this model, for instance, intra-sector uncertainty implies that every worker could *potentially* be harmed by globalization. This suggests that TAA program should include every kind of job loss. However, some of the job losses are due to, for example, technological changes other than trade liberalization or globalization. The difficulty in identifying the various causes of job loss becomes a huge challenge for governments in implementing their compensation policy. However, if the TAA program is provided to any worker who lost a job (i.e., similar to unemployment

insurance), it would no longer be related to trade policy.

3 Concluding Remarks

Compared to trade liberalization, globalization creates the unique effects of *intra-sector income distribution* and *intra-sector uncertainty.* While both tend to reduce public support for globalization *vis-á-vis* trade liberalization, it is the second effect that gives the government the biggest challenge in designing their adjustment/compensation policies in coupling with trade policy. When the government adopts a trade liberalization policy, it often knows in advance about which sector(s) will be affected and hence can provide compensation policy to that sector to ease the adjustment process.[9] This can reduce the adverse effect of trade liberalization and is a very effective way to reduce opposition to trade liberalization policy.

When adopting the globalization policy, however, governments often do not know which sectors will be affected because of the *intra-sector uncertainty.* Thus, it is much harder to diffuse opposition to globalization policy. But this does not mean that we have to be pessimistic when it comes to the target of compensation policy. Instead of a sector, what we need is to identify a sub-sector, or certain kinds of products or jobs that are most prone to the competitive pressure of outsourcing. For example, Yu (2005) uses a location model (spacial address model) to study the effect of economies of scope on the patterns of global outsourcing. The model is able to provide some prediction about outsourcing with regard to the attributes of a product and production technology.

In this paper we have focused our analysis on outsourcing. Extensions could be made to allow for possible 'insourcing' – export of some intermediate component – under globalization. This will further increase public support for globalization policy *vis-á-vis* trade liberalization policy, especially when labor is mobile.

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[9]For example, it is well-known that many developed countries often use some kind of subsidies to offset the impact of trade liberalization on their agricultural sector, steel industry, etc.

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