IS TRADE ADJUSTMENT ASSISTANCE EFFECTIVE?

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ABSTRACT

The Trade Adjustment Assistance (TAA) program offers unemployment benefits to U.S. workers who have been displaced from the workforce as a result of import competition. The program aims to reemploy displaced workers; therefore the program includes a mandatory training requirement in addition to monetary support. TAA began under the Kennedy administration as a way to reduce the use of protectionist measures following trade negotiations. Over the years, the program served a political role of making opponents more agreeable to trade liberalization policies. The program also acts as a method of redistribution of payoffs from the winners of trade to the losers.

The difficult question of whether TAA is effective in its advertised goal can be analyzed in an indirect and direct method. First, studies of federal unemployment insurance program (UI) can be interpreted and applied to TAA, which can be viewed as an extension of the federal UI program. But a problem becomes apparent in the analysis that the TAA recipients do not represent a sample of the unemployed population. TAA recipients are the ones facing the worst reemployment conditions since TAA-eligible workers’ industry may face high import penetration rates. This often requires displaced workers to retrain for employment in another industry. This means that applying the UI findings directly to TAA workers does not provide a sound conclusion.

Studies exist that analyzes TAA specific data. This direct method minimizes the self selection problem although it does not eliminate it entirely. To answer the original question, the paper looks at the escape rate and reemployment wages of TAA recipients. The escape rate is an indicator of how quickly workers can move back into the work force. These two indicators for TAA recipients who have undergone training can be compared to TAA non-trainees and non-recipients to see if the program had any positive effects.

From evidence presented through the escape rate analysis, the program is effective. In terms of reemployment wages, TAA trainees were found to receive higher wages after 12 quarters on the new job; however sample selection issues prevented a firm conclusion. The human capital theory can then be applied to further support the findings.

If the program is assessed on a bigger scale, it certainly is effective. For more than 50 years, TAA has reduced opposition to trade liberalization.
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I. Introduction

One of the biggest current issues of debate in the U.S. is the effect of import competition. Individuals in industries exposed to direct import competition face anything from work reduction to job loss. In a globalized economy where almost every industry faces such competition, more and more individuals are exposed, causing the issue to become a front-burner topic for many politicians. For the U.S. economy, it is perhaps the greatest challenge in the free-trade era. Solutions are unclear, however. There are many complex implications of globalization ranging from the need for more human capital to the need to further transform from a manufacturing economy into a service economy. While the government has put in certain protectionist measures to protect domestic manufacturers, the most direct attempt at assisting affected workers is the Trade Adjustment Assistance Program (TAA). The program offers monetary payments and training of new skills for reemployment in another industry.

This paper is on the TAA program, specifically assessing whether the program has been effective. The paper first gives an overview of U.S. trade liberalization policies since the 1930s as a way for readers to see where the program falls in the overall U.S. trade liberalization efforts. Since international trade is generally agreed to be always beneficial to countries involved, the next section of the paper shows trade’s benefits theoretically through the specific-factors trade model. The model is setup to replicate the conditions under which TAA applicants are produced. Protectionist remedies used in addition to TAA is also explained and compared briefly. After a section on the program’s legislative history, I interpret the portion of the U.S. Code where the regulatory details of TAA are spelled out (eligibility, enrollment, benefits, etc.). This is useful in understanding exactly how the program works and is helpful in the succeeding analyses. An empirical section on why TAA was introduced is included to put into perspective what to expect
in the final analyses which comprises of the second half of the paper. The analyses attempt to answer the question: “Is TAA effective in achieving its goal?” This is measured in two ways: (1) Analyzing the reemployment rate of TAA recipients; and (2) Comparing reemployment wages of TAA recipients.

TAA is administered by the U.S. Department of Labor (DOL) to help workers who have been displaced or are under the threat of displacement due to competition from imports. The program includes several other categories designed to assist affected firms as a whole and even communities. This paper focuses on the main part of the program—assistance to individual workers.

The program offers assistance to workers in several ways. A regular monetary payment is made to workers as a financial support during unemployment. A mandatory training portion serves the purpose of preparing workers for new industries and increasing the overall qualifications of workers. This is perhaps the most important part of the program since it’s adjusting workers’ skill sets to match the changing market. Other benefits include reimbursement for job searches and relocation costs. There are strict enrollment procedures in place to ensure that only the workers who have been affected specifically by import competition are accepted into the program.
II. Trade Liberalization

A hallmark of the 21st century is the unprecedented level of global trade. The 2010 export estimate for the top three exporting nations totaled about $4.7 trillion. The European Union exported the most—about $1.9 trillion, it was followed by China and Germany at $1.5 trillion and $1.3 trillion, respectively. Close behind Germany is the U.S. which exported $1.2 trillion worth of goods and services (CIA, 2010). For most industrialized countries, international trade is growing rapidly (figure 1), and it’s expected to grow in the future. The increase in trade among industrialized countries as well as developing nations can be attributed to consistent trade liberalization efforts.

Figure 1: Merchandise Trade as a percentage of GDP, 1890-2000

Source: Feenstra and Taylor, 2001

The Role of U.S. in Globalization

American trade liberalization policy for the last century can be broken down into three stages. The first stage is from the 1930s to the mid-1960s where significant tariff reductions were
made through reciprocal agreements between trading partners. The underlying notion for this period of tariff reductions is the recognition of the benefits of international trade and the need to disperse American surplus goods. The second stage extends from the mid-1960s to the mid-1990s and is characterized by further reductions in both tariff and non-tariff barriers. This period also marks a resurgence of protectionist policies, specifically in the form of non-tariff barriers. The last and current stage can be seen as a breakdown in multilateral trade negotiations. Current talks lack the rigor and effectiveness seen in the prior stages. Throughout all stages, the average U.S. duty on imports dropped from 51.2% in 1931 to 4.8% in 2004 (Irwin, 2007). The cause of this dramatic reduction is due to a combination of specific tariff-reducing negotiations as well as the tariff reducing effects of rising import prices (Baldwin, 2009).

In 1934 Congress passed the Trade Agreement Act of 1934 which allowed the president to negotiate tariff reductions by up to 50% over a three year period. The strategy to achieve such reductions is through reciprocal negotiations; this meant trading partners must also agree to reduce tariffs in sync with American efforts. This worked well; by 1945, a reduction of 50% was achieved (the Act was extended in increments of three years until 1945). Multiple reasons were cited throughout the period for its extension: the reciprocal agreements allowed for increased sales of American surplus goods; trade negotiations eased tensions in international relations, especially during wartime and the postwar era; President Roosevelt also cited economic benefits (Baldwin, 2009).

Multilateral trade negotiations were setup in Geneva in 1947 where the U.S. agreed to reduce average tariff levels by 21% (Lavergue, 1981). The General Agreement on Tariffs and Trade, known as GATT was also established in these negotiations. GATT setup trade rules for countries participating in multilateral negotiations. Three important principles were created, the
most-favored-nation clause, the national treatment clause, and the escape clause. The first of the
three specifies that the lowest tariff rate imposed by a GATT member on another member is the
same rate that the latter member imposes on all other GATT members. The national treatment
clause states that national (internal) policies within a member country should never unfairly
protect the domestic industry. The escape clause states that a member nation can temporarily
reverse tariff reductions or impose barriers in order to protect severely threatened domestic
producers. By an Executive order, the escape clause was to be inserted in every U.S. trade
concession.

Another protectionist mechanism was introduced by the Truman administration in 1948.
The peril point provision allowed the U.S. Tariff Commission (later renamed to U.S.
International Trade Commission) to determine the extent in which a tariff can be reduced without
injury to the domestic industry. This policy acts as an additional check to ensure domestic
producers are not severely hurt by trade. Voluntary export restraints (VER) were used by the
Eisenhower Administration to reduce Japanese cotton exports to the U.S. It’s safe to conclude
that even before the end of the first stage of U.S. trade liberalization, there was a surge of
protectionist policies amidst barrier reductions. During the two rounds of GATT negotiations in
1955 and 1962, the U.S. agreed to reduce tariffs by 3.5% and 2.4% respectively (Baldwin, 2009).

The second stage is marked by the passage of the Trade Expansion Act of 1962 and the
beginning of what is known as the Kennedy round of trade negotiations. The act allowed for
negotiations for up to 50% reduction in tariff levels. Its passage was helped by the inclusion of
protectionist mechanisms including TAA, which made its first appearance. With its power to
negotiate, the Kennedy administration was able to reduce tariffs of nonagricultural goods by 36%
to 39% across the EU, UK, and Japan. Average tariff rates for agricultural goods were reduced
by about 20% due to difficulties in negotiations with the presence of developing countries. The industrialized nations also devised and agreed to preferential tariff treatment policies for developing countries.

The surge in protectionist policies since the 1960s was a reactionary effort to counter the rapid rise in import penetration ratios experienced in many domestic sectors (U.S. Congress, 1973). It was also heavily due to pressures from organized labor groups. TAA was inserted in the 1962 act to appease such opponents. In the Trade Act of 1974, more protectionist policies were introduced; however there were also significant reductions in barriers through the negotiation powers given by the act.

The 1974 act allowed the Nixon administration to reduce non-tariff barriers such as subsidies, dumping, licensing policies and tariff barriers by up to 60%. Main protectionist mechanisms introduced include the need for congress to approve all future trade concessions, a retaliatory clause that allows the president to engage in retaliatory barrier increases in response to unfair trade actions. Amendments to TAA were also introduced in the act.

The Tokyo round of GATT negotiations occurred soon after the passage of the 1974 act. This round achieved reductions of about 35% for nonagricultural goods. As with previous rounds, discussions surrounding agricultural goods were always subject to disagreements and stalemate.

The Uruguay round started in 1986 and is considered to be the most successful post-World War II round of trade negotiations (Preeg, 1995). The General Agreement on Trade in Services (GATS) was introduced as a transfer of goods-related policies into the realm of services and intellectual property. Various agreements on the protection of intellectual property were also reached. To ensure that countries present at the negotiation followed through their agreements, the World Trade Organization (WTO) was established. Each member nation’s congressional
body must accept all agreed upon provisions. On top of these administrative changes, average
tariff levels of nonagricultural goods were reduced by about 33%.

The third and current stage of U.S. trade liberalization efforts is marked by a series of
free trade agreements between the U.S. and its closest trading partners. However, the current
status of negotiation is shrouded in disappointment and stalemate. Congress passed the Trade Act
of 2002 which mainly comprised of amendments to the TAA program along with new provisions
on health insurance for workers (P. L. 107-210, 2002). The ninth round of GATT/WTO
negotiations took place in Seattle, Washington in 1999, however disagreements on agricultural
negotiations between the industrialized and developing nations stopped the round at its
preliminary meeting stages. The little that was accomplished at Seattle was further marred by
protests and violence, mostly by WTO opponents.

Figure 2: The 1999 Seattle Protests

![The 1999 Seattle Protests](Source: University of Washington, Digital Collections.)

The round proceeded in Doha, Qatar in 2001. Setting aside the long-running
disagreements on agricultural policies, the agreement to negotiate was due in part to the
European Union’s concession on stopping all export subsidies by 2013. The round mainly
consisted of non-tariff discussions covering what is known as the Singapore issues: trade investments, competition policy, procurement policy, intellectual property, and others. The meetings in Doha were considered to be a failure due to disagreements between industrialized and developing nations on the Singapore issues. The negotiations concluded without setting a future agenda (Baldwin, 2009).

Preliminary meetings for further negotiations broke down in 2007 and again in 2008 due to agricultural disagreements. Specifically, in 2007 the U.S. and India reached an impasse on whether to allow developing nations to raise agricultural duties in response to rapid increases in imports. As the proportion of exports originating from developing countries increases, so does their negotiating power. The regularity of severe disagreements in recent years can be seen as a result of the shift in negotiating power from the industrialized countries to the developing countries. According to the WTO, exports from developing countries constituted 17% of global exports; this number grew to 27% in 1999 and 38% in 2008.

The increase in negotiating power along within the lack of domestic adjustment policies in developing countries is causing the slowdown in trade liberalization. It is very important that developing countries acknowledge the potential solutions provided by programs like TAA. Implementing similar programs will allow developing countries to be more agreeable to trade concessions. In this sense, TAA’s benefits may not only be isolated to the U.S. workers. All participants in WTO negotiations may indirectly benefit from the effects of TAA programs through a higher willingness to concede on the part of developing countries.

The Doha round stands incomplete with the major impasse on agriculture issues. Several leaders have called for negotiations and the round’s completion in the immediate future. At
Davos 2011, the UK Prime Minister David Cameron and German Chancellor Angela Merkel both called for resuming talks and closing the round (BBC, 2011).

**Application of Trade Theory**

Trade liberalization creates both winners and losers. The intuitive explanation suggests certain industries in the domestic country will have a bigger market once trade opens and therefore gain new customers and profits. Other domestic industries that face import competition once trade opens, lose on margins and customers due to the increased competition. This can be formally represented in several basic trade models developed over the last century such as the specific-factors model and the Heckscher-Ohlin (H-O) model. The latter is more complex and allows for the mixture and movement of factors of production between industries whereas the specific-factors model specifies that an industry use only certain factors of production other than labor. I will use the latter to illustrate the gains and losses from trade liberalization.

The specific-factors model describes two countries engaging in trade. Here, we name them home and foreign. Each country has a total of three factors of production and two industries. The factors of production are capital, land, and labor. The two industries are manufacturing and agriculture which employ capital and land respectively. While both industries employ labor, capital and land are fixed to their respective industry with no ability to move between industries. This most closely describe industries in the short run where it takes time and money to retool, refurbish, build machinery, and develop land for a different use in another industry. In the real world, labor is free to move between industries in the short-run and this is reflected in the model (“free” as in one can immediately quit and work elsewhere). In the long-run, capital and land are also mobile but this is only represented in the H-O model which will not be discussed in detail.
The model will first set an autarky situation between the two countries and then open trade to analyze the winners and losers, specifically what happens to the earnings of labor, land, and capital in their respective industries and countries. This model is a good representation of free trade because it accurately describes short-run outcomes without being too complex. The model is applicable in the analysis of TAA because it reflects the conditions in which TAA recipients are displaced from work. Once trade opens, the higher autarky home price of an industry is driven down and labor is forced to move to another industry. This movement of labor between industries represents the stigma faced by TAA recipients. Due to its simplicity, the model doesn’t reflect the inability for labor to move quickly in some cases as experienced by TAA recipients.

Labor in any sector faces diminishing returns, meaning there is a point in adding additional workers to the labor force where the additional output of the additional unit of labor starts to decrease. In theory, there is a point where there is so much labor that an additional unit will not produce a measureable increase in output. To illustrate this concept, imagine the kitchen of a diner. The kitchen can benefit from having a prep cook in addition to a line cook and even a couple more hands to help with expediting orders. But there is a point when an additional hand is not really helpful as limited resources begin to run out—such as space in the kitchen, available utensils, limited access to the freezer, etc. As more and more cooks are added to the kitchen, the kitchen may become so full of people that no one can move around and operations will cease to a halt. At that point, not only the marginal product of labor is zero, but total output is zero.

The marginal product of labor, MPL, is defined as the additional output produced by an additional unit of labor. As previously described, MPL would exhibit a negative relationship with the amount of labor in a sector. This is shown for the two sectors in our model in figure 3.
If we combine the production output in both sectors we obtain a production possibility frontier, PPF, as shown in figure 4. The shape of the curve is bowed outward due to the decreasing marginal product of labor in both sectors. This means as the economy production point moves closer to one end of the curve, the economy must give up more and more of one good in order to produce the same increase of the other good—due to decreasing marginal product of labor. This also embodies the idea of opportunity cost.
The ratio of the amount of one good that must be given up in order to gain a certain amount of the other good is also the slope of the PPF, which is the negative of the ratio of the two marginal product of labor. The slope of the PPF curve is $-\frac{\text{MPL}_A}{\text{MPL}_M}$. See figure 5.

The slope of the PPF, $-\frac{\text{MPL}_A}{\text{MPL}_M}$, is also the relative price of manufacturing, $\frac{P_M}{P_A}$. In a competitive market, a firm will set the cost of labor, the wage $W$, equal to the value of the marginal product of labor. The value of an additional unit of output generated by labor is
calculated as the price of the output multiplied by the MPL. So in the two sectors of our model, we have:

\[
W = P_M \cdot MPL_M \\
W = P_A \cdot MPL_A \\
P_M \cdot MPL_M = P_A \cdot MPL_A \\
P_M/P_A = MPL_A/MPL_M
\]

The model specifies that labor is free to move between sectors so the wage must equalize across sectors which allows the two equations to be set equal. This result says the relative price of manufacturing is equal to the opportunity cost of manufacturing which is also the slope of the PPF and ratio of the two marginal product of labor.

The PPF illustrates what the entire economy can produce and based on where the production point is, the mixture of what can be produced. As long as the production point is on the PPF curve, the economy is producing at 100% efficiency. It’s impossible to produce beyond the curve due to lack of resources and it’s inefficient to produce at a point within the curve. In order for the economy to reach the highest utility curve with the given PPF, the production point must be on the PPF and at a point where the slope of the PPF equals to the slope of the indifference curve which is the consumers’ utility curve. This occurs around the center of the PPF curve; any point to the left or right of this point will result in crossing a lower utility curve. See figure 6.
The point in figure 6 is the autarky production point for that country. We can assume the relative prices of the foreign country to be different from those of the home country. This can be due to differences in productivity which leads to different comparative advantages. A country with a comparative advantage in manufacturing can produce manufacture goods at a lower (opportunity) cost and lower price; this is the core theme of the simpler Ricardian trade model (Feenstra and Taylor, 2008). Relative price differences can also be caused by the factor endowments of a country. A conclusion of the H-O model is that a country will always export goods that utilize the country’s abundant factor in its production. Factors can be labor, capital, land, etc. If the foreign country has more capital than other factors, then it will export goods which heavily utilize capital in its production. This means the capital-produced good has a lower relative price and will be exported according to the H-O theorem.

The above reasoning is applicable to real world events such as the increase of exports out of China. It’s a country that is currently both capital and labor abundant while more so the latter. I chose China to represent the foreign country in our model since the U.S. heavily imports Chinese goods and because it’s often the argument that Chinese imports are the cause of job loss.
in the U.S. China has always been labor abundant before the rapid expansion of capital intensive industries, and during that time, it exported large amounts of labor intensive goods such as textile at very low prices. Over the years, it began to shift into capital intensive sectors such as the electronics sector and thereby increasing its export of electronic goods. Today, most personal electronic gadgets are manufactured in China or Taiwan. The cost of manufacturing and therefore the relative price of manufactured goods are lower in China than in the U.S. In our model, we can represent this by setting the relative price of manufacturing in the foreign country to be lower than the home country. This also means the foreign country can produce manufacturing goods more cheaply. Below, foreign prices are denoted with an * and world price are denoted with a superscript W.

\[
\frac{(P^*_M/P^*_A)}{\frac{P_M}{P_A}} < \frac{(P_M/P_A)^W}{(P_M/P_A)}
\]

The world price exists only after trade opens between these two countries. And once trade occurs, the world price will be somewhere between the higher autarky home price and lower autarky foreign price. The prices in both countries will equalize to the world price. Opening trade can be represented on our graph by a new relative price line (representing the world relative price) with a slope that is smaller than the autarky slope. The point where the slope is tangent to the PPF indicates the production mixture of the economy. This point occurs in the upper region of the PPF curve where the economy is now producing more agriculture goods and less manufacture goods, implying home will import manufacture goods and export agriculture goods. The economy is still producing the same aggregate amount. However, with trade, consumers enjoy lower prices and more quantity, allowing them to reach a higher utility curve. See figure 7.
The increase from $U_1$ to $U_2$ represents the overall gain in the home economy, achieved through allowing foreign to produce more of what they do best and allowing home to import the good it would rather not produce. Additionally, home now imports manufacturing goods at a lower price and exports agriculture goods at a higher price. This defines trade. It makes both countries better off when there is a price difference in the autarky state. There is an overall gain by society for both countries. If the prices were the same, meaning both countries have similar comparative advantages, factor endowments, etc., then there would be no incentive to trade because the gains would be zero. However it’s very unlikely for two countries to have identical characteristics. As the model shows, a country can never be made worse off by opening trade.

What does our model mean for labor in the two sectors of home? Once trade opens, the relative price of manufacturing at home drops to the lower world price which means the relative price of agriculture rises in the home country. These changes create the incentive for labor to move between sectors, specifically from the manufacturing sector into the agriculture sector. This can be shown using graphs which can be analyzed to determine trade’s effect on real wages of labor when purchasing manufacture and agriculture goods.
The equilibrium wage in the two sectors can be represented on one graph using two y-axes; one for each industry. The wage curve against labor (on the x-axis) is simply the MPL curved scaled up by P since:

\[ W = P_M \cdot MPL_M \]
\[ W = P_A \cdot MPL_A \]

The resulting graph consists of two wage curves crossing at the labor market equilibrium that indicates the amount of labor in each industry and the equilibrium wage \( W \). Note the wage curve for agriculture is read from right to left since the origin is at the right corner of the graph; this keeps the decreasing marginal product of labor denoted by a curve with decreasing slope. See figure 8.

**Figure 8: Allocation of Labor between Manufacturing and Agriculture**

The wage curves shift as a result of opening trade. At home, the relative price of manufacture goods decreased after opening trade. With regards to the ratio representation—\( P_M/P_A \), either \( P_M \) decreases or \( P_A \) increases in order to represent the decrease of the relative price
of manufacture goods. For the following analysis, we can pick either situation since the result on real wages is the same.

First, assume $P_M$ decreases which would cause the manufacturing wage curve to shift downward resulting in a lower equilibrium nominal wage and movement of labor from manufacturing into agriculture. The outcome is lower nominal wage across home and less labor in manufacturing. This is represented in figure 9 The real wages of labor after trade can be determined by analyzing the buying power against each good. With a decrease in nominal wage and a constant agriculture price (in this first case, we didn’t change $P_A$), the real wage in terms of agriculture goods has decreased. In terms of manufacture goods, the result seems ambiguous at first since the nominal wage decreased along with the price of manufacture goods. The direction of the real wage can only be determined if relative magnitude of the two decreases can be compared. A numerical ratio analysis is shown in Feenstra and Talyor (2008) and applying those methods here, the outcome in our example is that the real wage in manufacture goods has increased. Consumers now have more buying power in terms of manufacture goods and less in terms of agriculture goods.
Figure 9: A Decrease in the Price of Manufactured Goods

Feenstra and Taylor’s numerical analysis outcome of the real wage of manufacturing can be proved if we assume the second scenario—an increase in $P_A$ in the relative price ratio $P_M/P_A$. Recall the ratio is the relative price of manufacturing which decreased at home after opening trade, and to represent this, we can either analyze a decrease in $P_M$ or an increase in $P_A$. An increase in $P_A$ shifts the wage curve for agriculture upward resulting in a higher equilibrium nominal wage and a movement of labor out of manufacturing and into agriculture (See figure 10). The latter result is the same as in the previous case where we chose to decrease $P_M$. And even though the nominal wage increased in this example, real wage changes are the same as in the previous case as well.
Figure 10: An Increase in the Price of Manufactured Goods

An increase in nominal wage with constant $P_M$ indicates the real wage with respect to manufacture goods has gone up—the same result reported in the first case after applying Feenstra and Taylor’s numerical analysis. And now it appears the real wage against agriculture goods is ambiguous since nominal wage increased along with $P_A$, but as the previous case demonstrated, there is decrease in real wages against agriculture goods. The numerical ratio analysis can show the same conclusion.

In our model, opening trade has increased the real wage of buyers of manufacture goods and lowered that of the agriculture goods in home. So the effect on a consumer depends on his or her consumption ratio of manufacture and agriculture goods. If a consumer solely buys manufacture goods then he or she is better off; but with any mixture of consumption, the consumption ratio would have to be taken into account to determine the outcome. This also means that it’s hard to tell whether the consumers gained or lost overall as a result to opening trade. Note this ambiguity applies to the effects of trade on the labor/consumer market with in an
economy. As previously noted, the overall effect of trade on the entire economy is positive since it now enjoys a higher utility curve.

To see more broadly who gains and who loses we can analyze the earnings of capital and land which, respectively, comes from the manufacturing and agriculture sectors of our model.

The consumer analysis of the effects on labor illustrates the typical result of trade in the smallest scale; some will be hurt while others will benefit. I have setup this specific factors model to represent the current U.S. trade situation as closely as possible in order to illustrate the effects of competing imports. It’s a very simple model that describes, and can generally predict, what will occur in different trade situations. But there exists more advanced and more recent models that account for more characteristics of the economy. While those models more closely describe what is happening, their complexity goes beyond the scope of this paper and is not needed here for the purpose of setting the theoretical background of TAA.

The model reveals some theoretical outcomes with regards to the current trade situations that the U.S. faces. Home is a representation of the U.S. with a high autarky manufacturing price compared to countries like China which has lower autarky manufacturing costs. The difference is explained in the model as attributed to differences in factor endowments and comparative advantages. According to the model, when trade opens, U.S. labor is expected to move out of the manufacturing sector into another industry. The other sector is denoted as agriculture in the model but can be any sector with similar relative (to manufacture industry) characteristics as the agriculture industry in the model. The model accurately describes reality where import competition forces domestic industries to cut jobs causing some workers to become unemployed for extended amount of time. These workers are all essentially qualified to participate in the TAA program. So the model broadly explains the origins of TAA participants.
The model also explains the decline of the manufacturing industry in the U.S. Note figure 11. Faced with foreign competition, labor, as well as resources, move into another industry. For the U.S. currently, that industry seems to be the services industry. The top graph shows a decrease in the proportion of manufacture labor to the rest of the labor market while the bottom graph indicates a sharp increase in the real wage of the services sector. Taken together, these graphs suggest the movement of labor and resources from the manufacture sector into the services sector.
The model also explains the increase in U.S. buying power of the imported good—manufacture good in our model. This closely describes reality where the U.S. has carried an increasing trade deficit with China since at least 1985 (U.S. Census). Today, almost all of our everyday personal belongings are manufactured elsewhere: from an mp3 player originating in
to a shirt out of India. And when U.S. consumers can buy cheaper and cheaper imports, the domestic producers face tougher and tougher competition. The model broadly describes our increasing trade deficit which in turn explains the increasing import competition.

To see other effects of trade on the U.S. manufacturing sector, we analyze the earnings (rent) from the production factors of the home country in our model. The production factors are capital in the manufacturing sector and land in the agriculture sector. Labor is a factor that is free to move between sectors as demonstrated before. The rent of capital and land is defined as the payment or earnings of capital or land per unit of capital or land. The term “rent” refers to the amount the owner of the production factor could get if the factor was rented to someone else.

Payments to land and capital are what are left over of the revenue after paying labor which is the wage multiplied by the amount of labor. Let $Q_M$ be the quantity produced in the manufacturing sector and $P_M$ be its price; let $Q_A$ be the quantity produced in the agriculture sector and $P_A$ be its price. The following is the payments to capital and land:

- Payments to capital: $P_M \cdot Q_M - W \cdot L_M$
- Payments to land: $P_A \cdot Q_A - W \cdot L_A$

Let $K$ and $T$ be units of capital and land respectively. Rent on capital and land can be calculated as:

$$R_K = \frac{P_M \cdot Q_M - W \cdot L_M}{K}$$
$$R_T = \frac{P_A \cdot Q_A - W \cdot L_A}{T}$$

Another way to calculate $R_K$ and $R_T$ is to use the marginal product of capital, $MPK$ and the marginal product of land $MPT$. Just as wage was calculated as $MPL$ multiplied by the price of the good, $R_K$ and $R_T$ can be calculated as:

$$R_K = P_M \cdot MPK$$
$$R_T = P_A \cdot MPT$$
From the previous analysis of our model, we know labor at home moves from the manufacturing sector into the agriculture sector due to the increase in relative prices of agriculture goods and the decrease in relative prices of manufacture goods. More labor in the agriculture sector means the marginal product of land will increase because there is now more labor to work on the land. And as labor leaves the manufacture sector, the MPK will fall because there are less and less workers to utilize the capital.

Generally, an increase in the quantity of labor in a sector will increase the productivity of the factors of production employed in that sector. A decrease in labor will decrease the factors’ productivity. In our model the relative price of manufacture goods (\( P_M / P_A \)) decreased.

Assuming \( P_M \) decreased and \( P_A \) remained constant:

\[
MPK = \frac{R_K}{P_M}
\]

\[
MPT = \frac{R_T}{P_A}
\]

Rearranging the \( R_K \) and \( R_T \) equations allows us to see the effect on the real rent of capital and land. Since MPK suffered a decrease, the real rent on capital (\( R_K/P_M \)) also decreases. Since we are assuming \( P_M \) decreased, the percentage decrease of \( R_K \) must be greater than the percentage decrease of \( P_M \). The real rent of capital against agriculture goods has decreased as well, since we are assuming \( P_A \) to be constant. Capital is the factor of production used in the manufacture sector which is the importing sector in our model. It is clear this sector is worse off since the owners of the factors of production loses real earning. To compensate, capital owners may choose to reduce costs by cutting jobs, reducing hours, etc.

MPT increased in our model due to the movement of labor, so \( R_T/P_A \) increases. The real rent on land against agriculture goods increases as well as against manufacture goods since \( P_M \) decreased. The employers of this factor of production will enjoy an increase in real earnings.
against both agriculture good and manufacture goods. The owners of land may increase investment efforts by buying more factors of production or increase hiring efforts.

To summarize, a decrease in the relative price of an industry’s output will decrease the real rent earned by the factor specific to that industry but will increase the real rent of factors specific to the other industry.

This analysis shows the winners and losers in terms of sector, more specifically, the owners of factors of production employed in each sector. Recall, the analysis is triggered by the change in relative prices at home due to opening trade. The manufacture sector at home also imports while the agriculture sector exports. If we view owners of factors of production as those who have decision making power in companies within the sectors, we can see why some sector must reduce costs and why some can enjoy expansions. Within the model, TAA candidates would be the ones that were formerly employed in the manufacture sector but were displaced due to a decrease of real rent on capital. The owners of capital must react to such effects on their bottom line, and cutting jobs is often the solution.

From the specific factors model, it is clear that once trade opens, the specific factors used in the export industry will gain while the factors in the import industry will lose. This model broadly explains why the importing sector in the U.S.—manufacturing has been declining and why our export sector—services, has enjoyed growth.

Theory tells us that the total gains are larger than the total losses from opening trade. However, there will always be opposition as long as there is a single group that loses; “The moderately increased satisfaction of the many from trade liberalization could be judged insignificant compared to the dramatic unhappiness imposed on the few” (Richardson, 1982). If transfer payments can be made so that the losers are compensated by the winners, then society
can still enjoy the gains from trade while quelling the opposition. As this paper will discuss later, TAA also serves an important role to do just that.

Due to theory and historical observations, it is an accepted notion today that international trade increases the overall welfare of a country through economic gains (Feenstra and Taylor, 2008). However, specific industries and regions within a country can suffer greatly, enough so to bring international trade, especially the issues of import competition and outsourcing, to the forefront of national politics. Most economists and politicians understand the best interest of a country in the long-term is to open trade and suffer the short-term consequences of import competition, but reaping the reward of growth.

Politics and Policies

Politicians have always debated on policies regarding two conflicting goals—adjusting to new conditions of trade in order to capture the benefits versus insulating the economy in order to slow or reverse the negative short term effects. With few rare exceptions, it is often the case that the interests of politicians are first aligned to re-election and then perhaps to the interest of the country. For a lot of issues, there is overlap between the two interests so politicians are appeasing supporters but also indirectly doing what’s best for the nation.

Unfortunately, trade liberalization is one of those issues where popular interest does not overlap with what’s best for the nation. Yes, trade liberalization has many harsh negative short-term effects on certain domestic industries, but the gains in other industries (any exporting industry) and overall long-term gains greatly outweigh the negatives. Wacziarg and Welch (2003) showed that countries that liberalized trade over the 1950-1998 period experienced an average increase of 1.5 percentage points in their annual growth rate relative to the pre-liberalization
period. But politicians like to focus on the short-term losses in order to obtain supporters; and in the shoes of a politician, one would stress the following negative aspects of trade liberalization (some of which are highly debatable): higher unemployment, lower wages for low-skilled labor, competition, child labor, uneven economic development, etc.

Most of the disadvantages that a politician would care about have to do with import competition that directly hurts the domestic market, especially the domestic workers. Below is a still frame from a campaign ad for Zack Space, the 2010 incumbent House representative in Ohio’s 18th congressional district:

Figure 12: Political Campaign Ad., U.S.

![Campaign Ad](image)


Many similar campaign ads feature statistics on how the opponent’s free trade agenda hurts jobs—including one by Pennsylvania’s Joe Sestak. In these ads where opponents’ names are repeated more than the candidate’s name, one should recall that well known but disrespectful saying about statistics. In the case of Zack Space’s ad, he doesn’t mention how tens of thousands of export-related jobs were created in Ohio or how Ohio’s exports to China soared from $292 million in 2000 to $1.9 billion in 2009 (Ohio Department of Development, 2010). There is no
doubt that new jobs and additional shifts were created to match the increase in the production of these exports.

Nevertheless, there is some truth in what the politicians are so interested in pointing out. When foreign imports enter a domestic market, the price of imports is usually much lower than the price of domestic goods leading to intense competition felt by the domestic market; this is shown previously by the specific-factors model. Sometimes the price difference forces domestic producers to find ways to increase efficiency to their own long term benefit, but most of the time, domestic producers face reduced profitability and must reduce output, cut jobs, or even shut down entirely. Firms’ domestic production may have to go overseas in order to stay competitive. The result is that what used to be made in the U.S. with U.S. labor becomes made elsewhere, thereby dislocating that portion of the U.S. labor force.

Policies have been in place in the U.S. ever since the beginning of international trade to protect the domestic markets. Most of the current policies are concerned mainly with controlling the adverse effects on domestic markets due to a fall in the price of competing imports (Bown and McCulloch, 2005). Unfortunately most of these policies are protectionist with only a few as adjustment policies for freer trade.

The broad categories of government policies that help domestic markets include antidumping measures, countervailing duties, safeguards, and assistance programs. TAA falls under assistance programs and along with safeguards are the only two categories not considered to be purely protectionist policy. The other policy categories are what Bown and McCulloch (2005) refer to as policies that try to maintain the status quo rather than promote adjustment to new market conditions. They argue that a harmed domestic market and a fall in import prices may indicate a shift of comparative advantage in the domestic market. However, there is no
acknowledgment in U.S. policy of such a possibility; therefore no U.S. policy that explicitly addresses the need to adjust out of certain industries. Additionally, the protectionist policies deprive consumers of the lower prices and greater variety available through trade; and they also inhibit growth in industries that are gaining comparative advantage—the nation’s current and potential export industries.

Safeguards include measures to lessen the impact of import competition on the domestic market. Safeguards can be temporary increases in tariffs for certain products, quotas, voluntary export restraints (VER), import licenses, negotiations, etc. They are used to protect the domestic industry in the face of fair trade practices as opposed to antidumping measures and duties designed to combat unfair trade practices of dumping and illegal subsidies.

Safeguards seem to promote some adjustment by attempting to reverse the domestic industry’s decline but TAA is a policy that prepares workers to adjust to increased import competition via training and employment in new industries. Also, it seems that the creation of TAA has a deeper political motive that is actually meant to promote more trade liberalization as pointed out by Magee (2001)—which will be analyzed later.

For an idea of the relative proportion of U.S. trade remedies, the following table was adopted from Bown and McCulloch (2005). Based on the number of antidumping petitions, it seems that firms tend to petition more on the grounds of having been harmed by illegal trade practices than to simply petition for assistance via safeguards or duties. Noting the number of TAA petitions, it may be the case that TAA is working as an unofficial channel for firms to relieve import pressures. Perhaps firms see TAA as an easier way to relieve import pressures as compared to other options. For example, it may be easier to lay off workers knowing they can
apply for TAA independently than to file a formal petition seeking investigation by the U.S.
International Trade Commission and World Trade Organization.

Figure 13: Frequency of Petitions under U.S. Trade Remedy Laws and Programs

<table>
<thead>
<tr>
<th></th>
<th>Years of Program Availability</th>
<th>Number of Petitions Initiated (through May 2004)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GENERAL TRADE REMEDY LAWS AND PROGRAMS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safeguards (Section 201)</td>
<td>1975–</td>
<td>73</td>
</tr>
<tr>
<td>Trade Adjustment Assistance (Department of Labor)</td>
<td>1972–</td>
<td>31,076¹</td>
</tr>
<tr>
<td>Antidumping (currently Section 731)</td>
<td>1921–</td>
<td>2,170</td>
</tr>
<tr>
<td>Countervailing Duties (currently Section 701)</td>
<td>1897–</td>
<td>932</td>
</tr>
<tr>
<td><strong>SECTOR- OR COUNTRY-SPECIFIC TRADE REMEDIES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China Safeguard (Section 421)</td>
<td>2002–</td>
<td>4</td>
</tr>
<tr>
<td>China Textile Safeguard (Department of Commerce, Office of Textiles and Apparel)</td>
<td>2003–</td>
<td>3</td>
</tr>
<tr>
<td>Textile and Clothing Transitional Safeguard (Department of Commerce, Office of Textiles and Apparel)</td>
<td>1995–2004</td>
<td>24²</td>
</tr>
<tr>
<td>Agriculture Special Safeguard (U.S. Notifications to the Committee on Agriculture under Article 5 of the WTO Agreement on Agriculture)</td>
<td>1995–</td>
<td>Hundreds of 10-digit HTS³ products</td>
</tr>
<tr>
<td>Trade Adjustment Assistance for Farmers and Fishers (Department of Agriculture)</td>
<td>2003–</td>
<td>25</td>
</tr>
<tr>
<td><strong>Trade Adjustment Assistance for Firms</strong> (Department of Commerce, Economic Development Administration)</td>
<td>1975–</td>
<td>5,435⁴</td>
</tr>
<tr>
<td>Services Safeguard (GATS)</td>
<td>Proposed</td>
<td>0</td>
</tr>
</tbody>
</table>

²Petitions filed against WTO members only, as reported to the WTO Textiles Monitoring Body for the 1995–2001 period.
³Harmonized Tariff Schedule.
⁴Number of firms certified (source: Economic Development Administration records). No data available for 1979 or for petitioning firms not certified.

Source: Bown and McCulloch (2005).
III. The Trade Adjustment Assistance Program

Legislative History

The idea of compensating workers, firms and communities on the grounds of import competition was first mentioned in a 1953 report by the Commission on Foreign Economic Policy, also known as the Randall Commission. The commission was setup to recommend long-term U.S. trade strategies. The report expressed concerns of injury to domestic producers as a result of lowering tariffs. It proposed a program where workers, firms, and communities are temporarily assisted monetarily by the government. It was argued that the assistance would help affected industries to enact changes to maintain competitiveness and expand employment (Hornbeck and Rover, 2011).

John F. Kennedy first attempted to introduce those principles as the TAA program in the Trade Adjustment Act of 1954. The argument was made on similar grounds as explained in the Randall Commission report but JFK and backers of the bill took a step further by specifically stating that, in addition to fairness, the goal of the program was to respond to negative effects of trade liberalization without resorting to protectionist policies (Congressional Record, 1955). Similar to the modern interpretation, TAA wasn’t considered a pure protectionist policy. Additionally, JFK argued that the program is meant to help adjust and prepare workers for a new industry, not provide a living for them: “this cannot and will not be a subsidy program of government paternalism.” Unfortunately congress did no act on the bill in 1954.

TAA was finally passed as part of the Trade Expansion Act of 1962. The program drew attention since it was different from newly introduced protectionist mechanisms such as the escape clause and peril point. The program allowed for case-by-case and worker-by-worker aid instead of using protectionists mechanisms to affect an entire industry. It was not passed without
opposition. House Republicans resisted and the Senate attempted to delete or modify the TAA provisions from the bill (Frank Jr., 1977). The bill passed with original terms very similar to the modern version: extended unemployment benefits, training, relocation allowances, and loans for firms, etc.

TAA was not amended again until the introduction of the Trade Act of 1974. During the in-between years, the program faced sharp criticism for its ineffectiveness; “Ineffective” for its lack of certification of workers or firms into the program. The program existed without doing what it was advertised to do. Between 1963 and 1969, not a single worker or firm was certified into the program. The threshold for certification during this period was set too high. The language called for proving the injury or threat of injury was “caused in major part” by trade liberalization. During this period of inactivity at face value, the program still fulfilled one of its other goals: gain support of trade liberalization policies from opponents.

The Trade Act of 1974 made amendments to TAA for easier certification into the program along with several other major changes. The overall tone of the changes suggests that Congress is willing to use and fund the program as a meaningful form of relief from import competition. The program will no longer just act as a political tool to gain protectionist support. As figure 14 shows, the number of workers certified increased after 1974:
Figure 14: Workers Certified for TAA Benefits, 1969-1987

Source: U.S. Department of Labor

From the 1970s to the 1990s there were no major amendments to TAA. However, several threats to cut its budget altogether, citing dramatic increases in claims and rising costs. The drastic increase in both petitions and certifications in 1980 was due to the increase in foreign automobile imports. It’s estimated that over 1.3 million workers were certified between 1975 and 1981 (U.S. Congress OTA, 1987). The threats of discontinuation never materialized because TAA became such an integral part in trade liberalization efforts and therefore most barrier-reducing trade bills included some provision for the support of TAA. The program was extended (reauthorized by congress) multiple times between those years (see figure 16).

Government spending on the program dramatically increased after the 1974 changes to eligibility requirements. The total spending on the program in 1976 was about $150 million but jumped to $1.6 billion in 1980. Training was not required until after 1988 therefore the majority of the spending went to monetary benefits. It’s estimated that of the $3.9 billion spent on TAA in
the first seven years since 1976, $3.85 billion was spent on monetary income support (U.S. Congress OTA, 1987).

The Regan administration conducted studies showing many benefit recipients were recalled to their previous jobs due to the length and timing of the certification process; this, along with the lack of interest in training and relocation support, made TAA a target for budget cuts. The monetary benefit portion of TAA was reduced to unemployment insurance levels and started only after UI benefits ran out. There were other cost cutting measures but the most severe measure wasn’t in the form of legislated program changes but in the certification approval process. The criteria to certification was not changed, however approvals dropped drastically after 1980. See figure 15.

**Figure 15: Workers Certified for TAA as a Percentage of Workers Applying**

<table>
<thead>
<tr>
<th>Fiscal year for certification</th>
<th>Workers applying for certification</th>
<th>Workers certified</th>
<th>Percent certified</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970-75*</td>
<td>121,330</td>
<td>53,899</td>
<td>44.70</td>
</tr>
<tr>
<td>1975*</td>
<td>73,036</td>
<td>34,879</td>
<td>48</td>
</tr>
<tr>
<td>1976</td>
<td>219,641</td>
<td>144,396</td>
<td>66</td>
</tr>
<tr>
<td>1977</td>
<td>183,218</td>
<td>116,726</td>
<td>64</td>
</tr>
<tr>
<td>1978</td>
<td>255,452</td>
<td>165,866</td>
<td>65</td>
</tr>
<tr>
<td>1979</td>
<td>214,856</td>
<td>140,879</td>
<td>65</td>
</tr>
<tr>
<td>1980</td>
<td>840,794</td>
<td>684,786</td>
<td>81</td>
</tr>
<tr>
<td>1981</td>
<td>354,863</td>
<td>51,072</td>
<td>14</td>
</tr>
<tr>
<td>1982</td>
<td>157,549</td>
<td>19,465</td>
<td>12</td>
</tr>
<tr>
<td>1983</td>
<td>266,954</td>
<td>56,173</td>
<td>21</td>
</tr>
<tr>
<td>1984</td>
<td>88,133</td>
<td>19,688</td>
<td>22</td>
</tr>
<tr>
<td>1985</td>
<td>72,001</td>
<td>25,339</td>
<td>35</td>
</tr>
<tr>
<td>1986</td>
<td>168,005</td>
<td>93,132</td>
<td>55</td>
</tr>
</tbody>
</table>

*OTC estimate, based on first and second quarters, fiscal year 1987

Through March 1975 From April 1975 to September 1975

Source: U.S. Department of Labor

The drop in certification rates is due to intense scrutiny by the Department of Labor in the certification process after 1980. This is caused by what was deemed to be a pattern of certification of ineligible petitions. For example, it was found that many approvals in 1980 were
to car dealers which are considered to sell services, not goods, therefore ineligible for TAA (U.S. Congress OTA, 1987).

When the North American Free Trade Agreement or NAFTA was introduced under the Clinton administration in the early 1990s, the bill included a special TAA program that only pertained to the effects of trade from Mexico and Canada. By 2002, NAFTA-TAA was formally merged with TAA along with the introduction new amendments under the Trade Act of 2002. It introduced the following changes: introduction of government health insurance for effected workers, TAA eligibility for upstream suppliers and downstream producers, and a new TAA program for farmers.

Throughout the first decade of the new millennium, TAA’s reauthorization had support of both Republicans and Democrats. Notably the program was reauthorized as part of the American Recovery and Reinvestment Act (ARRA) in 2009 which was designed as a financial recovery act in response to the global recession that started in 2008. The most recent reauthorization bill confirmed the program until 2013 but discontinued the provision of TAA for communities. The program’s consistent reauthorization throughout the years of Republican and Democrat controlled congress, recessions, and wars shows the program’s importance in the overall theme of trade liberalization. For all its reauthorizations, the program must be doing an effective job at something.
Table 1: TAA Reauthorization, Enactment to 2011

<table>
<thead>
<tr>
<th>Year</th>
<th>Bill Title</th>
<th>Public Law</th>
<th>Extension Date</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983</td>
<td>A bill to Amend the International Coffee</td>
<td>P.L. 98-120</td>
<td>Sept. 30, 1985</td>
<td>2 years</td>
</tr>
<tr>
<td></td>
<td>Agreement Act of 1983</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lapses until March 1986</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1988</td>
<td>Omnibus Trade &amp; Competitiveness Act</td>
<td>P.L. 100-418</td>
<td>Sept. 30, 1993</td>
<td>2 years</td>
</tr>
<tr>
<td>1998</td>
<td>District of Columbia Appropriations</td>
<td></td>
<td>June 30, 1999</td>
<td>9 months</td>
</tr>
<tr>
<td></td>
<td>Lapses Sept. 30, 2001, to August 6, 2002</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Continuing Appropriations Act of 2009</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>American Recovery &amp; Reinvestment Act (ARRA) of</td>
<td>P.L. 111-5</td>
<td>Dec. 31, 2010</td>
<td>2 years</td>
</tr>
<tr>
<td>2010</td>
<td>2009</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>To Extend the GSP and for other purposes</td>
<td>P.L. 112-40</td>
<td>Dec. 31, 2013</td>
<td>34 months</td>
</tr>
</tbody>
</table>

Source: CRS from various sources.

a. Appropriations only.
b. Increased provisions under the ARRA expired on February 12, 2011. Most TAA programs were authorized at pre-ARRA levels until February 12, 2012.

Source: Hornbeck and Rover, 2011
TAA in Detail (Interpretation of the U.S. Code)

To provide a basic understanding of TAA, the following is an interpretation of the relevant section from the most recent version of the U.S. Code. As with any other federal law, all trade acts mentioned previously were officially incorporated into the U.S. Code once they pass congress and the president.

The reason for taking the effort to interpret the law directly from the source is to reduce bias and increase foundational understanding; to avoid just knowing a second-hand overview. In most of the literature on TAA there are sections like this one that briefly explains the rules and regulations of the program, however most of such accounts are re-cited from other indirect sources who themselves are probably cited from others’ interpretation. Biases in both directions are incorporated whether purposely to make a point or accidental. To get the most accurate and unbiased account of how TAA works, an interpretation from the original source is a time consuming, but most effective method.

TAA was created in 1962 and further expanded under the Trade Act of 1974. The purpose of the Act was to allow for more global trade as well as to maintain competitiveness in the changing global economy. More specifically, the Act is designed to:

1. Foster the economic growth […] and [promote] full employment in the United States and to strengthen economic relations between the United States and foreign countries through open and nondiscriminatory world trade;

2. Harmonize, reduce, and eliminate barriers to trade on a basis which assures substantially equivalent competitive opportunities for the commerce of the United States;
3. Establish fairness and equity in international trading relations, including reform of the General Agreement on Tariffs and Trade;

4. Provide adequate procedures to safeguard American industry and labor against unfair or injurious import competition, and to assist industries, firms, workers, and communities to adjust to changes in international trade flows;

5. Open up market opportunities for United States commerce in nonmarket economies; and

6. Provide fair and reasonable access to products of less developed countries in the United States market.

(19 USC 2102, 2010)

TAA pertains to (4) of the above which is to safeguard U.S. labor against increasing import competition brought on by the act and by globalization in general. The TAA program is introduced in multiple parts under subchapter II of the Trade Act of 1974: “Relief from Injury Caused by Import Competition.”

To better understand the context of the TAA program in relation to other trade laws, the following is a description of where the trade act rests within the U.S. Code. The U.S. Code has 50 titles, from Title 1: “General Provisions” to Title 50: “War and National Defense.” Title 19 is named “Customs Duties” and it contains chapters on federal regulations pertaining to trade; chapters vary from the Tariff Act of 1930 to a chapter entitled “Clean Diamond Trade.” There are also chapters on smuggling, the wine trade, and NAFTA. Chapter 12 is the Trade Act of 1974. Within the act there are eight subchapters covering topics such as agricultural disaster assistance and “tariff treatment of products.” Subchapter II is where TAA lies and is entitled “Relief from Injury Caused by Import Competition.”
Within subchapter II there are six parts. Part one is entitled “Positive Adjustment by Industries Injured by Imports.” It contains trade policies on how Congress and or the President can take action when domestic markets are injured by import competition; this is the section on safeguards. Part 2 is entitled “Adjustment Assistance for Workers” and it is the core legislation on providing benefits to individual affected workers under TAA. Part 3 is entitled “Adjustment Assistance for Firms”; this is equivalent to part 2 but focused on firms. Part 4 is “Adjustment Assistance for Communities” and specifies how a community as a whole can petition for assistance. Part five contains miscellaneous provisions, and Part 6 provides regulations on “Adjustment Assistance for Farmers.”

It is clear from the title of each part above that the TAA is designed to be an all-encompassing program that addresses multiple segments of the labor market and society. It’s important to realize that firms as well as communities are eligible for the program.

**Part one – Positive Adjustment by Industries Injured by Imports**

Part one is on proactive protectionist policies rather than “transition” policies such as the TAA program. It opens with a declaration of presidential action that states the U.S. President has power to take all appropriate and feasible action within his power to make a positive adjustment to import competition and to “provide greater economic and social benefits than costs” (19 USC 2251 (a), 2010). Import competition, as used here, is assumed to have a negative impact on the domestic markets. A “positive adjustment” is made when the domestic industry becomes competitive against the foreign imports as well as when the domestic industry “experience[s] an orderly transfer of resources to other productive pursuits,” meaning a relocation of resources to an industry where the domestic market can have a competitive advantage. Positive adjustment is
also defined as moving dislocated workers from an affected industry to an industry where the workers can offer a competitive advantage.

There are three lengthy sections within this part on investigating whether or not a domestic industry is negatively impacted. It also contains provisions on how the United States International Trade Commission (the Commission) should issue recommendations after an investigation. There is a section on the actions by the President after determination of injury as well as monitoring, modification, and termination of protective actions.

Below is an example of factors that the Commission would apply to determine if an industry has been injured or faces the threat of injury (19 USC 2252 (c), 2010):
(c) Factors applied in making determinations

1. In making determinations under subsection (b) of this section, the Commission shall take into account all economic factors which it considers relevant, including (but not limited to)—

A. with respect to serious injury—
   i. the significant idling of productive facilities in the domestic industry,
   ii. the inability of a significant number of firms to carry out domestic production operations at a reasonable level of profit, and
   iii. significant unemployment or underemployment within the domestic industry;

B. with respect to threat of serious injury—
   i. a decline in sales or market share, a higher and growing inventory (whether maintained by domestic producers, importers, wholesalers, or retailers), and a downward trend in production, profits, wages, productivity, or employment (or increasing underemployment) in the domestic industry,
   ii. the extent to which firms in the domestic industry are unable to generate adequate capital to finance the modernization of their domestic plants and equipment, or are unable to maintain existing levels of expenditures for research and development,
   iii. the extent to which the United States market is the focal point for the diversion of exports of the article concerned by reason of restraints on exports of such article to, or on imports of such article into, third country markets; and

C. with respect to substantial cause, an increase in imports (either actual or relative to domestic production) and a decline in the proportion of the domestic market supplied by domestic producers.

Source: U.S. Code

Note that simply having an increase in imports and a decline in domestic market share in an industry can be considered as substantial grounds for starting an investigation.

And if the Commission finds injury, then the foreign imports can face anything from tariffs to a combination of tariffs and quotas (19 USC 2252 (e) (2), 2010):
The policies outlined in part one are very different from the rest of the subchapters since part one contains language considered to be protectionist. Protectionist policies create barriers to actively reduce imports so the domestic markets are not harmed. This is different from the TAA program, which helps the domestic markets once they are affected by aiding the workers, firms, communities, etc. TAA can be seen as a reactive measure to help the domestic sector since the imports are allowed into the domestic market without much restriction and the negative consequences are assessed and addressed afterwards. Protectionist policies are considered to be proactive where it puts so many restrictions on imports that negative consequences are never realized. As explained before, governments choosing reactive measures are seeking the long term benefits of international trade.

Part Two – Adjustment Assistance for Workers

Petition and Determination

Part two covers assistance for workers who are affected by import competition. The petition process works as follows. A group of workers or a recognized union must petition as a group for “certification of eligibility” for the TAA program. The act indicates that the petition is

Source: U.S. Code

(2) The Commission is authorized to recommend under paragraph (1)—
   (A) an increase in, or the imposition of, any duty on the imported article;
   (B) a tariff-rate quota on the article;
   (C) a modification or imposition of any quantitative restriction on the importation of the article into the United States;
   (D) one or more appropriate adjustment measures, including the provision of trade adjustment assistance under part 2 of this subchapter; or
   (E) any combination of the actions described in subparagraphs (A) through (D).
to be filed with the “Secretary of Labor and the Governor of the State in which the firm and
workers are located;” but the petitions can be filed online at the Department of Labor (DOL)
website or at a local office. The employer can also petition for workers and unions (19 USC 2271
(a), 2010).

Once the DOL reviews the petition and recognizes that the workers meet the
requirements, the workers become “certified.” They can then apply for the various types of
assistance as outlined later in the act. It’s a two-step process of petitioning for certification, then
applying for assistance. The DOL determines whether workers meet certification requirements
using two general qualification categories. 1. A large proportion of workers in the petitioning
workers’ firm must have been totally separated, partially separated or are threatened to become
separated from the firm; and 2. The firm must exhibit numerous types of negative economic
criteria (19 USC 2272 (a), 2010).

Negative economic characteristics include an absolute decrease in sales or production and
an increase in competition from imports, whether it is a finished product or some component of a
product. Additionally, the Act notes that some services are also eligible for assistance (19 USC
2272 (a)(2)(A)(i)(I), 2010). Domestic firms’ decision to move production to a foreign country
may also constitute reason for certification—as long as that shift in production contributes to
workers’ separation or threat of separation. This is an important clause in the act because it
implies that threats from offshoring or outsourcing can be covered under the program. The
“threat of separation” is mentioned everywhere “workers’ separation” is mentioned, meaning
some cases will require further investigation on the extent of circumstances that qualify as
“threat of separation.” Most likely, the definition will differ from case to case and so there will
be a lot of room for interpretation.
Workers in public agencies and secondary workers are eligible for certification as well, although cases for public agencies are less common and only covered by the requirements of proof of separation and threat of foreign competition (19 USC 2272 (b), 2010).

Secondary workers must face total, partial, or threat of separation and the firm must be a supplier or downstream producer to a firm that employed workers who received certification. The supplier’s components must either account for 20% or more of the producing firm’s product or the supplier has lost business entirely from the producing firm. This is seen as softening the market-wide impact of import competition. If competition affects a finishing producer, then many levels of upstream production will be affected and many more firms and workers will be affected; the act only covers one level up and one level down in the value chain (19 USC 2272 (c), 2010).

Once a petition is filed, the DOL makes a decision within 40 days (19 USC 2273 (a), 2010). If the group of workers meets the requirements, then a “certification of eligibility” to apply for assistance is issued. Each certification will specify the start date of total, partial or threatened separation. DOL has the power to review existing certifications and if it finds conditions to no longer meet the requirements, the certification will be terminated.

The International Trade Commission (ITC) also has a role in the determination process. There is a section that specifies the procedures of notification after a decision is made by the DOL and the ITC. The DOL is to look into the number of workers in the industry who have been or are likely to be certified for adjustment assistance and report that information to the International Trade Commission. Once a determination is made by the Commission, the DOL notifies representatives of the affected domestic industry along with the petitioning group. It is the DOL’s role to clarify to the groups the program’s benefits and all other aspects related to the
TAA program. The Commission can be seen as having only a limited role in determining cases but doesn’t interact directly with affected groups (19 USC 2274-2275, 2010).

**Program Benefits - Trade Readjustment Allowances**

Program benefits for workers include Trade Readjustment Allowances (TRA), training, allowances, and a category labeled as “other employment services.” TRA is the regular monetary payment portion of the program and is the main monetary benefit of the TAA program. Like all benefits, one can only apply after certification, as described previously.

**Requirements**

TRA requires five conditions to be met: (1) a worker must have applied for this benefit within 2 years of certification and before any termination dates, as noted in the certification. (2) In the 52 weeks before total or partial separation, the worker needs to have worked at least 26 weeks at a wage of $30 or more per week within the firm (19 USC 2291 (a)(2), 2010). The certification process certifies petitioning workers in batches; each usually containing a large number of workers all belonging to a union or a firm. Requirement (2) acts as a filter to exclude those who did not work much. The $30 per week minimum is generous enough to include most, if not all types of employees at an affected firm. If a worker is on leave for vacation, sickness, injury, maternity leave or military duty, the duration will still be treated as time at work at wages of $30 or more. The same applies for an employee who does not work because of a disability that is covered under workman’s compensation.

The third requirement is important because it links TAA with another government program—unemployment insurance. (3) The worker needs to be eligible for unemployment
insurance but has exhausted all rights to any federal unemployment insurance. This prevents workers from collecting TRA and unemployment insurance in the same time frame, although state unemployment insurance is still allowed (19 USC 2291 (a)(3), 2010). (4) The worker must be eligible for extended unemployment compensation under the Federal-State Extended Unemployment Compensation Act of 1970. Like requirement three, this requirement links other federal compensation programs to the TAA as means of double-checking for eligibility.

The fifth and final requirement for TRA eligibility is that the worker must to be enrolled or have already completed a TAA training program. This requirement essentially forces a worker to apply for training either before or concurrently with the TRA application. Training is crucial for “readjustment” into another industry since the goal of the program is not to provide payments but to transition workers into another job. Many critics of the TAA program claim recipients take advantage of TRA and never actively seek reemployment; but this requirement forces workers to begin the reemployment process. The importance of training is shown by the act specifically stating that if the worker failed to begin or has ceased to participate in the training program, all TRA payments will be stopped until the worker begins or resumes training (19 USC 2291 (b), 2010).

A lengthy “Waivers of training requirements” appears in the same TRA requirements section and describes how the requirement for training can be waived under certain circumstances, some of which are surprising and even seem to undermine the training requirement (19 USC 2291 (c), 2010). The DOL may issue a waiver of training if the worker “possesses marketable skills” for reemployment. Marketable skills are determined by an assessment of the worker under the Social Security Act, but more specifically, a marketable skill may be a postgraduate degree from an institution of higher education or postgraduate
certification in a specialized field (19 USC 2291 (c)(1)(B), 2010). The health of the worker and the availability of training can also be considered for a waiver. With regard to the latter, the Act states that if DOL-approved training is not “reasonably available” to the worker, then a waiver may be applicable. “Reasonable availability” most likely refers to training within a certain distance of the worker’s residence.

For the critics of TAA, the waivers of training clause may seem like a loophole that allows individuals to collect TRA without making an attempt to transition into a new industry. The marketable skills clause is vague and marketable skills are left for interpretation by the DOL. However, regardless of reason, all waivers will be reviewed by the DOL after the first three months and once a month thereafter. All waivers expire after six months unless renewed by DOL (19 USC 2291 (c)(2), 2010). Even though training exemptions are in place, overall, the act still conveys the importance of training as an integral part of the entire program. Only with data can we tell exactly how much of an impact the waivers have on the program and therefore training’s effectiveness.

*Amounts and Limitations*

Another place where TAA is linked to the unemployment insurance program is in the determination of TRA payment amounts. The amount of weekly TRA for a worker simply equals the amount of unemployment insurance the worker has received or would have received (19 USC 2292 (a), 2010). Recall requirement three of TRA is that the worker must be eligible for unemployment insurance. This cross-referencing of government programs is cost saving. Instead of creating a new formula and requiring subsequent man hours to determine the TRA amount, the amount can just be copied from the unemployment insurance program where calculations of
payments are already in place. In addition to the amount calculated from unemployment insurance, workers may also be paid a training allowance depending on the type of training (19 USC 2292 (b), 2010).

The limitations section includes the maximum amount of allowance payable and more importantly, a limit on the duration of TRA payments. The numerical total for a worker’s TRA in any certification period is calculated as 52 weekly payments minus a sum derived from unemployment insurance.

TRA stops after 104 weeks from the day of total separation; however, an additional TRA of 26 weeks may be provided so that workers can complete training programs (19 USC 2293 (f), 2010). The act contains a “Special rule for justifiable cause” that allows the DOL to extend TRA payment periods beyond the above limitations. Those who serve in the armed forces are one group that may be considered for the special rule.
IV. Why TAA was implemented

TAA is designed to help displaced workers financially while retraining them for reemployment in another industry. To the general public, this is what the program is known for.

However, there are other arguments in support of TAA. These other reasons for its existence are generally not known to the public (they don’t necessarily need to know) but are found in economic and political analyses of the program.

“One of the strongest justifications for the existence of the trade adjustment assistance program is that it reduces workers’ lobbying efforts against trade liberalization” (Magee, 2001). This argument is known as the political efficacy or the practicality reasoning behind TAA. It rests on the accepted notion that trade yields net benefits to each country involved even though the benefits may not be distributed equally within each country and some individuals may even be hurt; our specific-factor model showed the overall gains and specific winners and losers.

However, trade and trade liberalization can be especially beneficial in the long run. It’s argued, due to the overall gains, trade liberalization should be supported and any impediment of it should be countered.

General economic fluctuations and development (market based changes) that cause unemployment are not amenable to pressure group manipulations. This is unlike the case with import competition where there is sufficient political leverage held by lobbyists to impede imports with the use of trade barriers. Those in the first category don’t have the means to cause harmful change; therefore they need not be bribed to accept such changes that cause unemployment. However, import competing sectors have the means to impede liberalization; so effort needs to be made to make such groups more agreeable to liberalization. TAA is a program that fills that role.
Another argument for TAA rests on an argument of equity. Because the benefits from trade are not distributed equally within a country, the government has the role to redistribute the benefits so the majority, if not all, are winners. Compensating the losers within a country as a result of trade can be seen as another way for governments to increase overall equity in societies. This explanation in support of TAA has long been agreed upon by economists such as Aho and Bayard, 1980, 1984; Richardson, 1982; Stein, 1982; Lawrence and Litan, 1986; Wonnacott and Hill, 1987; Bhagwati, 1989; Feenstra and Lewis, 1994 (Magee, 2001).

An increase in the efficiency of labor markets is also hypothesized by economists as another benefit of TAA. The justification is that the program is used to alleviate congested labor markets by moving workers out of industries with high unemployment. In industries with high import penetration, the industry may be declining as a result of a shift in comparative advantage. Technological development has accelerated the increase of skill bias, making it harder for workers to move between industries, especially in the low-education job sector (Gavrel, 2009). The retraining aspect of the program addresses this issue.

The political efficacy argument ties import tariffs to the TAA program. Tariff policy and TAA act essentially as countering forces, with the former being a protectionist tool and the latter promoting trade after-the-fact by minimizing harmful effects on workers. So it is important to understand the connection between TAA and tariff policies; economists have always viewed TAA as a critical component in the efforts to reduce trade barriers; and from the review of U.S. trade liberalization history and TAA’s history, the program often did exactly that. The connection between tariff rates and the program is important in two ways. The benefit of tariff reduction accompanied by TAA is not only direct to the country enacting these measures but also indirect due to the increased willingness of other countries to adopt trade liberalization policies.
once they see how tariff cuts can be successfully accompanied by a program like TAA (Bhagwati, 1989). Additionally, when labor unions see a link between tariff reductions and assistance to displaced workers, they may be less opposed to trade liberalization. Effectively, the TAA program is muting opposition to trade liberalization; it has “tactical value in sugaring the pill of tariff reductions” (Neary, 1982). As explained previously, this second explanation is one reason for TAA’s introduction in the Trade Expansion Act of 1962.

Magee offers rigorous empirical analysis on the relationship between the granting of adjustment assistance and tariff policy by studying how the former responds to changes in the latter. The hypothesis is that “a decline in tariff protection should raise the probability that workers will receive TAA” (Magee, 2001). There are two main implications in the hypothesis. First, as tariffs decrease there will be an increase in import competition that directly affects certain industries at home. As a result, there will be more pressure on the home industry and we expect to see an increase in displaced workers leading to an absolute increase in TAA petitions. The second implication is that when tariffs are lowered by Congress, provisions will be put in place to increase funding and resources for the adjustment program in order to appease unions and other anti-liberalization groups. The first implication is controlled in the analysis to focus on the second one.

The empirical model used by Magee measures “the effect of certain hypothesized variables on the likelihood that petitioning workers are certified as eligible for trade adjustment assistance” (Magee, 2001). This seeks coefficients of variables that make workers more or less likely to be approved for the program. A range of variables are included to specifically test the efficiency, equity, and political efficacy theories.
The variables used are (1) statutory variables containing requirements set by the government for all petitioners. If the DOL narrowly follows the set requirements, then certain variables related to the requirements can be used to determine the correlation between program approval and strictness in interpretation of the law by the DOL. These variables include the change in the industry domestic market import share, the change in employment, and the change in value of industry protection. (2) Political power variables can measure lobbies’ power to affect the probability of certification into the program. In many cases, petitions are not filed individually but rather collectively within a group of displaced workers. Often these groups are a form of unions and other labor organizations. The probability of success of a group’s petition could be impacted by its lobbying power. The fraction of workers who belong to a union and the total industry employment are two indicators of political power within an industry.

Variables (3) to (5) are the hypothesized variables that test the three theories of efficiency, equity, and political efficacy. (3) Hypothesized equity variables measure whether the DOL uses TAA as a means to create equity within society by evening out the distribution of income. If the hypothesis is true, then DOL should be more likely to certify workers who earn lower wages which also means certifying more low-wage, uneducated workers. This is tested by estimating the effect of average real wage in the industry, the education levels of the industry workforce, and the fraction of low or semi-skilled workers in the industry on petitioners’ chances of receiving TAA. (4) Hypothesized efficiency variables test whether the DOL uses TAA as a way to alleviate congested labor markets where unemployment levels between industries are vastly different from each other. If the hypothesis is true then the probability of a worker being certified into the program should increase with his/her industry unemployment rate. The variable used is the industry unemployment rate.
(5) Hypothesized political efficacy variables are used to determine if TAA serves as a tool to lessen opposition in the face of tariff reductions and other liberalization policies, therefore the variables are tariffs and change in tariffs. The assumption is that the program is a less costly method to aid workers than lobbying efforts; therefore labor organizations should reduce their lobbying efforts. An example to illustrate this test is as follows: “Consider two industries with identical import competition, but only the first has experienced a recent drop in tariff protection. If bribing workers to accept tariff reductions is an important goal of the TAA program, then, controlling for the change in import pressure, the first industry should be more likely to receive TAA” (Magee, 2001). The model sets null hypotheses as the DOL not being motivated by equity, efficiency, or political efficacy concerns, while the alternative hypotheses are what has been described above.

Magee’s model consists of the following three regression equations:

\[ E(\text{Tariff}_{t,\tau}|Z_{t,\tau}) = \begin{cases} 
\alpha_{0\tau} + \alpha'Z_{t,\tau} & \text{if } T_{t,\tau}^* > 0 \\
0 & \text{if } T_{t,\tau}^* \leq 0 
\end{cases} \quad (1) \]

\[ E(\text{Petition}_{t,\tau}|W_{t,\tau}) = F(\gamma_{0t} + \gamma'W_{t,\tau} + \gamma_{\text{tariff}}\hat{\text{tariff}}_{t,\tau} + \gamma_{\Delta\text{tariff}}\Delta\hat{\text{tariff}}_{t,\tau}) = 1 \quad (2) \]

\[ E(\text{Certification}_{t,\tau}|Y_{t,\tau}, \text{Petition}_{t,\tau} = 1) = F(\beta_{0t} + \beta'Y_{t,\tau} + \beta_{\text{tariff}}\hat{\text{tariff}}_{t,\tau} + \beta_{\Delta\text{tariff}}\Delta\hat{\text{tariff}}_{t,\tau}) \quad (3) \]

Equation (1) seeks the effect of variables Z on tariff rates. Z is a vector or a set of variables that determines the tariff rates of an industry. An industry’s lobbying power is one determinant which can be measured by total industry employment, the strength of unions, and the four-firm concentration ratio. Another determinant is the comparative advantage of an industry which can be measured by its capital-labor ratio, the labor intensity, the fraction of workers who are scientists and engineers, and the change in import share over the previous year. These are all explanatory variables for equation (1). If the industry in question does not have any
tariffs or even has negative tariffs which can be seen as a subsidy, then the equation is meaningless—indicated by a zero. If the industry has tariffs, then the equation is valid.

The probability of certification, given the workers have filed a petition, is the dependent variable in equation (3). The variables in equation (3) consist of the vector $X$ which can include any of the explanatory variables mentioned previously that might correlate to whether or not workers petition for TAA—such as union membership, capital-labor ratio, etc. There is also a tariff variable, and a change in tariff variable. This equation conditions on workers already having filed an application as indicated by “$\text{Petition}_{i,t} = 1$.” The workers’ likeliness to petition is determined in equation (2). Equation (2) is almost identical to equation (3); it uses $W$ as the set of explanatory variables; this functions in the same way as $X$ of equation (3).

The regression coefficient of the tariffs variable in equation (3) is 0.0375 which is significant at the 5% level. This suggests that higher levels of tariff protection are strongly associated with a greater probability of certification into TAA. This variable dwarfs the other variables used to measure correlation of equity and efficiency with the probability of certification. A one standard deviation increase in the tariff level raises the probability of certification by 8.3 percentage points. In comparison with a one standard deviation increase of other variables, the tariff variable has the largest impact on TAA certification probabilities. These results confirm that higher tariff industries (highly protected domestic industries) require a greater payoff in the form of more TAA certifications in order to be more agreeable to free trade. To further test for the political efficacy hypothesis, we can look at the change-in-tariff variable.

The regression coefficient of the change-in-tariff variable is -0.0165; it is significant at the 5% level. This indicates that a negative value for change-in-tariffs (a decrease in tariffs) will increase the likelihood of TAA approval. This is consistent with the political efficacy theory.
since the result suggests that as you look across industries’ change-in-tariff rates, TAA is more likely to be found in industries experiencing decreasing tariffs at an increasing rate. Under the theory, regulators are using TAA to gain support of the introduction of trade barrier reductions which are series of tariff reductions in this case. So the alternate hypothesis should be accepted, meaning the TAA program is being used as a tool to promote trade liberalization. However, Magee notes some important discrepancies.

The coefficients of the tariff equation are sensitive to the examined time period, to a point where the coefficient becomes positive, although insignificantly, in the 1975-1980 and 1989-1992 time periods. Also, the change-in-tariff coefficient may be imprecise. First, there is little variation in tariff declines across industries. Since the Tokyo Round of GATT negotiations, tariff reductions were gradually phased in and the cuts were largely across the board without much variation between industries. A better method would be to implement nontariff barrier data which Magee says “Might provide a stronger test of the effects of changes in protection on TAA certification chances” (Magee, 2001). Second, there may be measurement errors involving the tariff variable being measured as realized duties rather than set tariff rates. Magee concludes that “estimation results provide only tentative support for the hypothesis that TAA is being used to make trade liberalization Pareto-improving or to pay off workers who have lost tariff protection” (Magee, 2001).

The equity justification for the TAA is tested by variables of industry real wage, education, and industry’s fraction of low or semi-skilled workers. The results shows that workers from high wage industries are less likely to receive TAA, meaning the DOL may be approving more petitions from the workers in low wage industries as a way of redistribution. This result supports the equity theory. A one standard deviation increase in the mean industry wage ($2.75)
is associated with a fall of 0.9 percentage points in the fraction of TAA petitions approved. But results from education variables indicate that workers with less education are less likely to be certified. This result counters the equity justification theory. If the DOL is certifying on equity grounds, we would expect to see an increase in the probability of certification for workers with lower education. A one standard deviation increase in the fraction of workers without high school degree lowers the likelihood of certification by 4.2 percentage points.

The results from these two variables in testing the equity theory are contradictory. But in discussing equity in the form of balancing monetarily welfare, the wage variable should have more weight in the analysis. And as discussed above, the variable with more theoretical weight is the variable whose results support the equity theory.

The DOL seems to be certifying petitions on the basis of efficiency. The variable of industry unemployment rate is found to have a positive correlation to the probability of certification. This suggests the DOL is more likely to approve petitions from troubled industries. TAA can help the workers from these industries to retrain and find work in other industries. This process helps alleviate labor market congestions in the troubled industries and is efficiency promoting. “If the industry unemployment rate rises by one standard deviation, the TAA certification probability increases by 1.3 percentage point” (Magee, 2001).

For the most part, empirical analysis confirms the theories behind the introduction and consistent reauthorization of TAA. It serves as a political tool to quell trade liberalization opponents. It serves as a governmental redistribution tool to promote equity. In achieving these objectives, the program alleviates congested labor markets in the domestic importing industries; therefore it’s also an efficiency promoting tool to aide large scale industry and market changes.
V. Is TAA Effective?

Analysis Overview

To analyze whether TAA is beneficial to displaced workers—i.e., to answer the question: “is the TAA program effective?”—I will look at two separate factors that I believe can properly assess the program. The first factor is the unemployment escape rate, simply known as the escape rate. In a sample of unemployed workers, this is the proportion of the sample that find work within a given time period. An effective unemployment benefits program would allow workers to reach a higher escape rate than workers not enrolled in the program. The second factor is the reemployment wage. An effective program that incorporates retraining means the average reemployment wage of a previously displaced worker would be higher than that of a reemployed worker who did not enroll in the program.

The escape rate of TAA recipients can be analyzed by looking at well-known studies that correlate the escape rate to extensions of unemployment insurance benefits. The TAA program can be viewed as an extension of federal unemployment insurance since we saw from the U.S. Code that displaced workers are expected to collect UI until the approval of the TAA certification and application process, at which time UI benefits end and TAA benefits take over. The results from such studies suggest that when UI benefits are extended or augmented, the escape rate significantly decreases (Katz and Meyer, 1990). Therefore this suggests that the TAA program, viewed as an UI extension from 26 weeks to 56 weeks, will decrease the escape rate. However there are some complications in this method of analysis.

Katz and Meyer used data on UI that was representative of the entire unemployed population. However, workers who are certified to receive TAA represent only a segment of the entire unemployed population so there are certain characteristics found more commonly in TAA
certified workers but less evident in the entire unemployed population. One characteristic is that plant closings and company relocations accounting for a far higher proportion of job loss among TAA recipients than the entire unemployment population (Decker and Corson, 1995) (Richardson, 1982). Characteristics of the TAA recipients suggest that they naturally face harsher reemployment conditions so it may be the case that their escape rate is lower not due to the effects of benefits extension but because of their unemployment characteristics and conditions. Analysis of escape rates solely from applying evidence from UI studies would be inconclusive at determining the effects of TAA. UI studies are analyzed in the following section to prove just that—The TAA program cannot be viewed and studied as just another UI program.

But a major emphasis of TAA is training displaced workers. Because the training aspect was not a requirement when the program first began we can look at effects of training on the escape rate of the TAA recipient population. This is done by analyzing TAA recipients before 1988 and recipients of the program after 1988. The results show that the escape rate increased significantly, presumably due to the training. This is consistent with empirical findings that TAA trainees were employed more than comparable nontrainees (Marcal, 2001).

The second factor used to measure TAA’s overall effectiveness is the reemployment wage of TAA recipients. A direct comparison can be made between the respective reemployment wages of UI recipients and TAA recipients but the sample selection problem would again impede any sound conclusion. But since there is a difference in the training requirement for TAA recipients pre and post-1988, the effects of training on reemployment wages can be analyzed by comparing TAA recipients who enrolled in training and those who did not.

The analysis of TAA’s effectiveness will proceed first with an analysis and application of UI studies onto the TAA program. This is valuable in showing inherent differences in the types
of unemployed workers accommodated by the two programs and the sample selection problem that arises in looking at TAA recipients. This problem will be persistent throughout the entire analysis. After looking at the UI conclusions, we will switch to studies that use TAA recipient-specific data to determine TAA’s effect on the escape rate and reemployment wages. This latter portion will heavily determine the answer to the original question of this paper.

**Application of UI Studies**

It is believed that there is a negative correlation between the likelihood of reemployment and the length of unemployment benefits. An increase in the benefit period could increase the length of time the average worker is unemployed. Naturally, there is an incentive problem where workers are less motivated to find reemployment when receiving regular payments as compared to when not receiving payments. In theory, this incentive causes workers to act opposite of what TAA and other unemployment benefit programs are trying to accomplish. And unfortunately, there is empirical evidence suggesting workers are responding to the incentive as predicted by theory, thereby prolonging the term of unemployment. Extending the length of unemployment is not always seen as a negative since the extra time can be used for workers to find better or higher paying jobs. So whether this is seen as decreasing the effectiveness of unemployment benefit programs remains a normative question.

Monetary unemployment benefit is designed to “to provide temporary financial assistance to unemployed worker” (DOL, 2010). Temporary financial assistance can be seen as a temporary replacement of income to assist unemployed workers with maintaining the same standard of living and in job searching. Both UI benefits and TRA portion of TAA aim to fulfill those goals.
A study done by Katz and Meyer (1990) found spikes in the likelihood of unemployed workers becoming reemployed right around the time of expiration of unemployment benefits. The study compares the escape rate from unemployment of workers receiving benefits with the escape rate of workers without unemployment benefits. A sharp increase in the escape rate occurs around the time of benefit exhaustion for workers receiving benefits; however the increase is absent for nonrecipients at similar points of the unemployment spell. This trend alone suggests unemployment benefits do affect the likelihood of reemployment; more specifically, displaced workers react to benefit expiration dates by increasing job searching efforts.

The theoretical foundation used by Katz and Meyer was developed by Mortensen (1977). It consists of a job search model incorporating several parameters such as search intensity, a wage offer distribution, and a constant arrival rate of job offers for a given search intensity. However, this model does not assume the possibility of displaced workers being recalled—something Katz and Meyer believe to be crucial in analyzing workers who receive UI benefits. In the TAA framework, job recall does occur for workers displaced by import competition but it occurs with less frequency compared to the unemployed population (Marcal, 2001).

The model assumes UI benefits only last for a specific duration, not the duration of the unemployment spell. As benefits come to an end, the wage at which a worker is willing to accept a job, called the reservation wage, decreases. This implies an increase of the unemployment escape rate to the point where all benefits are exhausted ($P_0$ and $P_1$ on the graph). From this point on, the model assumes the job seeking environment is stable and so the escape rate remains constant. Different benefit durations will imply different rates of increase in the escape rate as indicated by the dotted and solid lines in figure 17. For example, in (a), the dotted line represents
a different benefit duration since the line becomes flat at a later time when compared to the solid line.

Figure 17: The Relation of the Escape Rate and Potential Benefit Duration


In analyzing how unemployment benefits such as TAA can affect the likelihood of reemployment, it is important to consider how changes in the level or duration of benefits can affect displaced workers. Mortensen describes two conflicting effects when the duration or level of benefit is increased. There is a disincentive effect when benefits are increased as mentioned previously; the value of being unemployed will increase, leading to a reduction of the escape rate. The increase in the value of being unemployed can be due to several factors. Income without effort is always better than earned income; therefore, those who receive UI benefits may view their circumstances as more preferable than working. More benefits also mean more bargaining power on reemployment wages which is crucial in maintaining or even increasing the standard of
living. UI Benefits also translates to more time and resources for job searching. Since these factors are results of UI benefits which is a result of being unemployed, the value of being unemployed is higher with UI benefits than without it.

But there is also an effect known as the “entitlement” effect where the same increases in benefits will cause an increase in “the value of being employed by increasing the utility associated with being laid off in the future” (Katz and Meyer, 1990). Both graphs show that the latter effect outweighs the former. In graph (b) the solid line represents higher benefit level than the dotted line. The two lines become flat at the same point indicating benefit exhaustion at the same time. Since the benefit levels are different, the rate of increase in the escape rate must differ along with the maximum escape rate; the solid line obtains the constant escape rate at a higher level as compared to the dotted line. In (a) the dotted line representing longer benefit duration achieves higher constant escape rate as well.

Since empirical evidence suggests that the majority of insured unemployment spells end in recall (Katz, 1986), Mortensen’s model is not entirely accurate due to the exclusion of the possibility of recall. Katz and Meyer addressed the problem by incorporating recalls into the model and found the option of job recall reduced the job finding rate by raising the reservation wage and reducing the job search intensity. These effects would mean the escape rate would be lower under the new model when similar situations are compared against the old model.

Mortensen’s standard model on job search assumes that the escape rate increases as the duration of benefit decreases; this is based on a sample of all benefit recipients. To further find evidence for the model we must also analyze unemployment situations for displaced workers who do not receive benefits.
The Panel Study of Income Dynamics (PSID) provided a national sample of household heads in Katz and Meyer’s analysis. The data contains records on both UI recipients and nonrecipients as well as data on the escape rate that can be separated into new job finding rate and recall rate. The data confirms that there are sharp spikes in escape rates right around weeks 26 and 39 of unemployment, which coincide with the expiration of unemployment benefits. This phenomenon is found in UI recipients and is absent among nonrecipients. Benefits seem to have a negative effect on new job finding within the UI duration—benefit recipients had considerably lower new job finding rates before week 26 as compared to nonrecipients. This is evidence that UI depresses new job finding and is a disincentive for reemployment, however it’s not incompatible with the escape rate theory presented in figure 17. Notice the curves representing less benefits all show higher escape rates during the UI duration.

The theory and data suggests that UI lowers the escape rate during the UI benefit period, however, higher UI benefits (whether more benefits or longer duration) ultimately leads to a higher escape rate once all benefits have been exhausted.

The graphs below (figure 18) shows the difference between reemployment rates for UI recipients and nonrecipients; the regions before week 26 are highlighted. The graph is on the Kaplan-Meier empirical hazard scale and each point represents a grouping of two weeks; the graph plots the fraction of unemployment spells ongoing at the start of the period but ending during the two-week interval, whether due to new job or recall. For UI recipients, it’s also apparent that there are spikes in recall rates at week 26 and 39. This could indicate that firms are also affected by UI policies in that they take into account the expiration periods when deciding on when to recall workers. The conclusion is that the absence of all above-mentioned patterns for nonrecipients strongly suggests that “these patterns represent behavioral responses by firms and
workers to the incentives created by a UI system with limited benefit duration” (Katz and Meyer, 1990). So the differences in escape rate we saw earlier between the UI and non-UI population could be attributed in part to how firms react to the UI system. That is, firms choose to recall UI workers at the time of benefit exhaustion leading to low escape rates in the time period before benefit exhaustion. For non-UI population, firms have less of an incentive to recall workers at week 26 or 39. In fact, they may recall workers earlier which lead to a higher escape rate between week 0 and week 26 or 39. Again this is consistent with our theoretical analysis in figure 17.
Figure 18: Comparison of Escape Rates between UI and non-UI Samples

Further analysis of the effects of changes in unemployment benefits can provide more evidence on the impact of benefits on the likelihood of reemployment. Data from Continuous Wage and Benefit History (CWBH) suggests that as benefit levels increase, there is a significant decrease in the escape rate; Katz and Meyer report such increases and decreases to be 10 percent and 5.4 percent, respectively. This trend is confirmed in simulation tests where the level and length of UI benefits are changed in order to record the effects on the duration of unemployment spells. The simulation model is based on a predicted survivor function for each individual up to a certain week. The predicted probability of a spell lasting until week t is calculated and aggregated over the number of individuals and number of weeks to get the predicted mean weeks of unemployment. Parameters of benefit level and benefit duration are changed to measure their effects on the mean weeks of unemployment. The following table summarizes the results:

**Figure 19: Effects of Benefit Extensions, Simulation**

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Predicted mean weeks of unemployment</th>
<th>Predicted mean weeks compensated</th>
<th>Predicted benefits paid per spell</th>
<th>Predicted percentage exhausting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base case (39 weeks)</td>
<td>18.4</td>
<td>16.6</td>
<td>51,796</td>
<td>12.9</td>
</tr>
<tr>
<td>Benefit level reduced 10%</td>
<td>16.9</td>
<td>15.5</td>
<td>1,503</td>
<td>10.4</td>
</tr>
<tr>
<td></td>
<td>(−8.3)</td>
<td>(−6.6)</td>
<td>(−16.3)</td>
<td>(−19.4)</td>
</tr>
<tr>
<td>Benefit level reduced 20%</td>
<td>15.4</td>
<td>14.4</td>
<td>1,236</td>
<td>8.2</td>
</tr>
<tr>
<td></td>
<td>(−16.3)</td>
<td>(−13.3)</td>
<td>(−31.2)</td>
<td>(−36.4)</td>
</tr>
<tr>
<td>Benefit level reduced 30%</td>
<td>14.1</td>
<td>13.3</td>
<td>966</td>
<td>6.3</td>
</tr>
<tr>
<td></td>
<td>(−23.4)</td>
<td>(−19.9)</td>
<td>(−44.5)</td>
<td>(−51.2)</td>
</tr>
<tr>
<td>Potential benefit duration reduced to 35 weeks</td>
<td>17.6</td>
<td>15.7</td>
<td>1,690</td>
<td>14.6</td>
</tr>
<tr>
<td></td>
<td>(−4.3)</td>
<td>(−5.4)</td>
<td>(−5.9)</td>
<td>(13.2)</td>
</tr>
<tr>
<td>Potential benefit duration reduced to 26 weeks</td>
<td>16.2</td>
<td>13.6</td>
<td>1,461</td>
<td>20.7</td>
</tr>
<tr>
<td></td>
<td>(−12.0)</td>
<td>(−18.0)</td>
<td>(−18.7)</td>
<td>(60.5)</td>
</tr>
</tbody>
</table>


The results from the simulation match the prediction from the data. Changes in the level of benefits and changes in length of benefits have substantial effects on the duration of unemployment of UI recipients. An increase of the benefit duration from 26 weeks to 39 weeks raises the unemployment spell duration by 2.2 weeks; and a 30 percent increase of benefit level
raises the spell by 4.3 weeks. These results are robust since running other simulations using different parameters to simulate different circumstances produced similar trends. Over all the simulations, it is estimated that a 1-week extension of benefits increases the duration of unemployment by approximately 0.16-0.20 week (Katz and Meyer, 1990).

The results are consistent with others’ findings. Moffitt (1985) estimated an increase of 0.15 week of unemployment spell for every 1-week increase in benefits. Moffitt and Nicholson (1982) found the rate to be 0.10 week while Ham and Rea (1987) found the rate to be 0.26-0.33 week for Canadian UI recipients. These figures all support the theory that more generous benefits lengthen unemployment spell which is counterproductive to any UI policy designed to assist displaced workers find new jobs.

As explained in a previous section, TAA adopted many policies from the federal unemployment insurance program. Excluding requirements and certification, the monetary benefit policies of TAA are identical to the policies found in the federal UI program. In fact, the amounts of benefit and durations for TRA are calculated directly by the federal UI program. Below is an excerpt from the U.S. Code pertaining to how TRA is calculated:

(a) Formula

Subject to subsections (b), (c), and (d), the trade readjustment allowance payable to an adversely affected worker for a week of unemployment shall be an amount equal to the most recent weekly benefit amount of the unemployment insurance payable to the worker for a week of total unemployment preceding the worker’s first exhaustion of unemployment insurance (as determined for purposes of section 2231 (a)(3)(B) of this title) reduced (but not below zero) by—

Source: U.S. Code

Once a certified worker is approved for TRA, incoming monthly allowances are no different from monthly UI payments. Since the entire TRA aspect of TAA is so similar to the federal UI, it is very likely that the trends seen in studies using federal UI data, i.e., Katz and
Meyer (1990), would also be found under the TAA program. That is, unemployment compensation, TRA under TAA, creates the disincentive for displaced workers to put off intensive job searching efforts as evident in escape rate spikes around benefit exhaustion at week 26 and 39. Furthermore, workers displaced by import competition who receive TRA payments would have lower escape rates than nonrecipients of TRA up to the point of benefit exhaustion.

But there are important factors unaccounted for when conducting such direct application of federal UI trends to TAA. TAA’s success is also heavily weighted on training and other employment services as described in a previous section. Because training is a mandatory requirement (except waiver cases mentioned in a previous section) for all workers who receive TRA, this component should have a significant impact on the likelihood of reemployment and so it cannot be left out of the analysis. In addition, the datasets from PSID and CWBH used by Katz and Meyer represent the entire population of unemployed workers, while the displaced workers under TAA represent only a specific demographic. The difference is large enough; there is evidence that workers displaced by plant closings, i.e., caused by import competition, are less likely to face the same stigma as other unemployed workers (Gibbons and Katz, 1991). This assertion is a key point in most analysis of TAA data, especially when comparisons are made with UI data. This is a biased sample selection problem.

So what can we conclude about TAA from the trends found by Katz and Meyer?

1. The TAA program may seem like an UI benefits extension when in fact it is very different. TAA tries to accomplish the same goal as UI under very different conditions with a different unemployed population. Such population is not represented in the general UI recipient population. Therefore, we cannot treat TAA as UI; specifically, we have to be very careful in applying the results of UI studies to TAA. The effectiveness of UI is well discussed in the
literature while TAA receives less attention. If we can recognize their differences, more researchers will realize the lack of focus on the TAA topic, which hopefully will lead to more discourse.

2. UI recipients may experience lower escape rate than non-recipients during the benefit period however once the benefits end, UI recipients are the ones who ultimately achieve the highest escape rate. Ignoring the sample selection issue for now, this result may give us some preliminary heading on the TRA portion of the TAA program that is, there may be disincentives created by TRA that may reduce the probability of reemployment during the benefit period.

3. The overall effectiveness of TAA can only be judged if we know for sure that data and findings from UI in general can be appropriately corrected and compared to TAA data and that the training portion is also incorporated into the assessment. Training allows workers to acquire new knowledge and techniques that can be applied to work in other industries and thereby increasing workers’ credentials and desirability which would cause an increase in the escape rate. This suggests two countering pressures affecting TAA’s results, one that decreases the escape rate and one that can possibly increase the escape rate. Further analysis of the escape rate and effects of training can be found in studies by Marcal (2001) and Decker and Corson (1995).

**TAA-Specific Data: Escape Rate and similar Indicators of Reemployment**

With an understanding of the UI benefits results and the inadequacies of solely applying those results to evaluate TAA, we now proceed with studies that use TAA specific data. Those listed conclusions that we learned for the UI studies will come handy in interpreting results from TAA-specific data.
In comparing TAA recipients to UI recipients, empirical evidence suggests that TAA recipients tend to remain jobless for a longer period of time (Decker and Corson, 1995; Corson et al. 1993). Comparing a sample of pre-1988 TAA recipients to a sample of UI recipients showed a considerable difference in the median jobless spell. TAA recipients were jobless for a median of 74 weeks while UI recipients (also known as UI exhaustees whose UI benefits expired but do not qualify for TAA) remained jobless for 42 weeks. After the 1988 legislative changes that refocused TAA’s emphasis from monetary benefits to training, TRA recipients still had longer jobless spells. A sample of post-1988 TRA recipients showed a median jobless spell of 55 weeks while UI recipients had a median spell of 39 weeks.

The graph below shows the escape rate for the three samples analyzed in the Decker and Corson study. Throughout the benefit period, the escape rates for UI recipients are higher than those of pre-1988 and post-1988 TAA recipients, temporarily suggesting that the longer benefit period of TAA had an adverse impact on the escape rate. This interpretation may be valid since the study tried to correct for the sample selection problem in the following ways; the sample of UI recipients taken for this study was not at random but was chosen to closely reflect the characteristics of TRA recipients. The UI recipients were selected from the same states as the TRA samples; they were selected from manufacturing, since most TRA recipients come from manufacturing. To further design the data to allow the comparison, Decker and Corson assigned weights to the UI sample so that the distribution of UI and TAA samples were identical across 11 broad industry categories (Decker and Corson, 1995).
Around the 25th week of benefits, the graph shows a sharp acceleration in escape rate in the UI recipients curve (top curve). This acceleration is absent in the pre-1988 TRA recipients curve (bottom curve) and less pronounced in the post-1988 TRA curve (middle curve). The explanation for the sharp increase in the escape rate is consistent with findings previously discussed under Katz and Meyer (1990) and was evident in their graphs. That is, when benefits are close to expiration (expiration for most UI recipients is at week 26), workers do several things to increase the likelihood of reemployment, such as increasing the job search intensity and lowering the reservation wage. For pre-1988 TAA recipients whose benefits expire at week 52, the sharp increase is absent at week 26, and as expected, there is a sharp but small increase in the escape rate right before the 52 week mark.
The post-1988 TRA recipients curve also showed an acceleration in escape rate at the 26th week. Decker and Corson suggest that this is due to the training requirement that was enacted in 1988. “The training requirement may have been an incentive for post-1988 TRA recipients to return to work and stop receiving TRA benefits more quickly than they would have in the absence of the requirements” (Decker and Corson, 1995). Some workers just don’t like training and would rather work for income without training than to receive payments through UI but with training.

More importantly, the graph provides clues on training’s effect on the escape rate of TRA recipients. In the 1970s it was found that TAA primarily provided income support to workers who were not entirely separated from their employers since over 70% ended their unemployment in recall (Corson and Nicholson 1981; General Accounting Office, 1980). Changes were enacted to better help workers who faced long-term unemployment. A shift in 1981 restricted monetary benefits and emphasized training and in 1988 training was added as a requirement to receive TRA. The graph shows the sample of TAA workers who were obligated to training experienced a higher escape rate than those pre-1988 recipients who didn’t face the requirement; as expected, those post-1988 recipients still did worse than UI recipients. So the post-1988 TRA curve rests in-between the pre-1988 and UI recipients curve. This may be evidence that training increases the escape rate, helping workers find new jobs while suppressing the theoretical decrease in escape rate that results from an extension of the benefit period (if benefit extension theory is applicable to TAA).

Marcal (2001) suggests that workers who participate in TAA experience lower escape rates than they would have otherwise. The escape rate measures the proportion of the unemployed sample who found jobs within a set time period. There are other ways to measure
the success or ability for the same unemployed sample to find jobs; one method is simply
counting the number of months employed after the initial UI claim. A higher month-count for a
worker would mean that he or she found a job relatively early on. To see if TAA affects such
month-count parameter, we can compare results between TAA samples and UI samples.
Additionally, we can see the effect of the training requirement by comparing the month-count
between trainees and non-trainees who are in the TAA program.

According to post-reemployment surveys, approximately 45% of TAA trainees reported
that they found a job as a direct result of training (Marcal, 2001). Without any quantitative
analysis, it seems the training programs have a recognizable effect to those who undergo training.
45% is a large proportion, and yet it’s only those who actively recognized their reemployment as
a direct consequence of training. It’s certain that there are many more that benefited from
training but didn’t recognize it.

Since trainees must spend time to attend training, we have to account for those time
periods in calculating the month-count defined previously. This assumes one cannot undergo
TAA sponsored training while being employed which is something consistent with TAA policies
as described in the U.S. Code. A term “month at risk” can be defined as the number of months
available for work (but unemployed) during the initial benefit period (36 months) less the time
spent at training.

\[ 36 - \text{monthsattraining} - \text{employedmonthcount} = \text{monthsatrisk} \]

From the equation, trainees would inherently have a lower month at risk value since they
undergo training. So for a proper comparison, “months at training” is adjusted (controlled) while
isolating “employed month count” and “months at risk”. It’s found that trainees typically
experienced 10 at-risk-months less than non-trainee TAA recipients and UI recipients who have
exhausted their benefits (Marcal, 2001). Or another form, the TAA trainees are employed 10% more on average than the non-trainees and 4% more than the UI exhaustees. Combining the survey results, the difference may be due to the TAA training. This analysis can be seen as properly accounting for those who were helped by training but did not recognize it.

To find what is causing the difference, a logit equation can assess the impact of the program and its training aspect on the proportion of employed risk-months. The results confirm our suspicion that TAA training is highly effective in helping workers to find new jobs. After controlling for observable personal and pre-layoff characteristics, TAA trainees were employed 12% more than identical TAA nontrainees and 9% more than comparable UI exhaustees (Marcal 2001). Controls of personal and pre-layoff characteristics isolate the training variable so that we can conclude the difference is due to TAA training. The 12% difference is significant at the 1% level.

In evaluating the program’s effectiveness using chances of reemployment (via escape rate and months at risk), it’s safe to conclude that TAA helps workers find new jobs. While not everyone can recognize it, the biggest contributing factor is the training requirement. The finding is in line with theory since training readjusts workers’ skills so they are more marketable and inherently more productive in another role or another industry, leading to higher probability of being hired. This is all part of the human capital theory where the education and experience build-up will have positive effects in the future which can be in terms of higher chances of employment or higher reemployment wages. The latter is something we still have to prove.
TAA-Specific Data: Reemployment Wage

The process of using reemployment wages to determine the effectiveness of TAA is similar to the process used in comparing escape rates. Ideally, the most accurate result would come from comparing the reemployment wages of the same group of people for when they participated in TAA and when they didn’t participate in TAA. But of course this is impossible, so again we use a sample of UI recipients who had as many similar characteristics to TAA recipients as possible in addition to comparing TAA trainees and non-trainees.

The charts below (figure 21) offer some preliminary information on what to expect. The pre-1988 sample shows that TRA recipients had lower post-layoff earning for every quarter after the initial UI claim. Interestingly, the post-1988 sample has the same trend until the eighth quarter where TRA recipients began to show higher earnings. Notice most of the trends in the post-1988 chart are not statistically significant but the graph still suggest that training or some other variable which is only introduced after 1988 has an effect on reemployment wages.

Taking what we saw previously on training’s effects and disregarding statistical significance for now, it seems again that the requirement of training has potentially positive effects on the displaced workers.
Figure 21: Reemployment Wages in Quarters after initial UI Claim


Marcal (2001) used the same data as Decker and Corson (1995) and found more revealing details about the TAA sample as compared to the UI sample. “More than 85% of TAA participants came from textiles/apparel, rubber/leather, metals, machinery, and transportation equipment industries where average import penetration rates reached 20%” (Marcal, 2001). But the UI sample had higher concentration of workers in other industries such as food/tobacco,
lumber/furniture, paper/printing, and chemicals; more importantly “these industries experienced lower import penetration rates and higher industry employment growth than those of TAA recipients” (Marcal, 2001). This confirms further that TAA recipients face harsher reemployment conditions to begin with so we expect to see a lower escape rate in the TAA sample (confirming that directly applying UI studies like Katz and Meyer (1990) to the TAA program doesn’t reveal the whole story). This also indicates that the TAA certification process is effective in finding the displaced workers who face the most adverse reemployment conditions due to import competition.

The difference in conditions of unemployment between the workers of the two samples suggests different outcomes once they are reemployed. It’s evident from the data that three years after layoff, the UI recipients were more likely to remain in the same industry, occupation, and firm than the TAA recipients. This means the TAA recipients may suffer a significant wage loss due to loss of industry-specific skills, seniority, etc—from having to switch industries (Richardson, 1982).

Marcal (2001) suggests that a section of the data reflects a time period in the program where the training requirement was enacted but not enforced. Essentially, a TAA recipient had the choice of participation in training. The result of this is reflected in the data in that the proportion of TAA recipients who were most likely to be reemployed in a new industry were the ones that chose to participate in training. This is done by recipients to gain new human capital, while expecting the loss of industry-specific skills. And because changing industries is costly in terms of human capital, even with training, such workers are expected to do the worst in reemployment wages.
Regression analysis confirms that TAA recipients experience greater wage loss than UI recipients (Marcal, 2001). Marcal’s regression uses several pre-layoff job characteristics such as age, education, race, etc, to predict the reemployment weekly wage (independent variable). The results show that TAA trainees earned 12% less than UI recipients and 7% less than TAA non-trainees. This result is expected as explained above; trainees in this dataset are assumed to be the ones that are most likely to change industries upon reemployment.

Evidence from other authors suggest the same general trend—Topel (1990; 1991; 1993), Ruhm (1991), Jacobson et al. (1992). TAA recipients lost a median of 20% in weekly wages between their old job and new job and are also more likely to experience what is referred to as extreme wage loss where the reemployment wage is less than half of the previous wage. Extreme wage loss is found in 20% of TAA recipients but only 12-13% of UI recipients (Decker and Corson, 1995). For now it seems empirical evidence supports the theory that TAA recipients are worse off than UI recipients in terms of reemployment wages.

A more descriptive regression can be setup to control for labor market transitions such as change in industries to better match the UI sample to the TAA sample, and especially the TAA trainees (Marcal, 2001). The results show a smaller difference in reemployment wage between the samples. TAA trainees earned 7% less than UI recipients while TAA non-trainees earned 3% less. The control is done with the dummy variable “new industry,” “new occupation,” and “recall.” The sign of the estimated coefficient of the dummy variables are as expected since workers lose valuable knowledge when transitioning into new industries. Reemployment in a new industry or new occupation has negative effects on reemployment wages, while being recalled has positive effects. The results of both regressions are shown below:
These two regression results show that even when the TAA sample is controlled for having a higher proportion of workers who must change industries, it still seems TAA recipients are the ones who obtain lower reemployment wage. Marcal suggests there is heavy bias against the TAA recipients in the regressions because the given explanatory variables do not capture the true abilities of the displaced workers. These unobserved abilities may be the important missing piece that is significantly affecting the accuracy of the regression since these abilities are part of

the unemployment circumstances that allowed workers to be certified into the program (a non-random process). The unobserved abilities may be influencing the reemployment earnings. There needs to be controls for the fact that workers with lower job prospects and lower abilities were more likely to participate in TAA.

Since the TAA certification process is designed to find the workers facing worse prospects than the unemployed population (and does a good job at it), any TAA sample of workers is not a random sample of the unemployed population. There exist techniques to correct for “self-selected” observations. Heckman’s (1979) self-selection correction technique is employed on the samples and the resulting regression reverses the findings of the previous regressions (Marcal, 2001). The corrected regression suggests that TAA recipients actually earned 3% more than UI recipients. As discussed, theory says that the selection bias of selecting workers with the worst reemployment prospects would impact the reemployment wage of such group, but the Heckman correction technique also indicates that there isn’t substantial evidence of such selection bias affecting reemployment wages to begin with (Marcal, 2001). This may be a case where we are sure on the theory but the limited sample we have cannot be used to confirm it.

Thus far, it’s inconclusive that TAA has a positive effect on reemployment wages when compared to UI recipients. To further investigate the issue, we should take a closer look at the training aspect of the program especially since we found it to be effective in job placement of TAA recipients. From figure 21 the training requirement does seem to affect wage outcomes of TAA workers, most likely in the same direction as the goal of the program.

Figure 21 showed that TAA recipients had consistently lower reemployment wages than UI recipients before 1988 but the trend may have reversed for the later quarters in the post-1988
data. Even though the reversal is not statistically significant, the observed change is most likely due to additional training and the buildup of human capital. Figure 21 was used as a preliminary check for potential differences between reemployment wages of TAA and UI recipients; but the byproduct of checking in both pre-1988 and post-1988 samples is that we saw some clues on the effects of training since 1988 is the split point between no training and the introduction of the training requirement. To properly analyze the effects of training, the samples can be better matched—meaning the comparison should be made directly between TAA trainees and TAA nontrainees (all other TAA recipients). This is shown in figure 23.

We can explain training’s theoretical effect on wages using the human capital theory. Workers forgo short-term income upon unemployment by enrolling in training which allows them to earn a higher income in the future. An example of this is when high school graduates earn a negative income in the form of a loan in order to seek-post secondary education that would allow them to earn more in the future. For TAA trainees, this means their income in the period after enrollment in the program should show lower earnings than TAA nontrainees, but only up to a point. This prediction is evident in the data shown below where TAA trainees had lower earnings until the eleventh quarter where they began to earn more than nontrainees. The magnitude of the difference in those last two quarters is bigger in the post-1988 data and even statistically significant in the twelfth quarter. This suggests training had a significant positive impact on reemployment wages of TAA recipients.
There are some things to consider before fully accepting that finding. Training before 1988 was not mandatory so it's not random which workers enrolled in training; and given Marcal’s assertions about training after 1988 (training was required but often waived), it still wasn’t a random process after 1988. Decker and Corson suggest that the bias is in favor of
observing higher earnings for trainees. More specifically, the unobserved characteristics in trainees have a positive correlation to earnings to begin with: “trainees may be younger and better educated than other TAA recipients […] trainees may be more motivated, on average, to succeed in the labor market” (Decker and Corson, 1995).

Decker and Corson created a regression to try to account for characteristics of the trainees (results in figure 24). To increase accuracy, the data is further modified to exclude TAA recipients who are still undergoing training at the twelfth quarter.
Table 4. Estimated Models of the Earnings in Quarter 12, TRA Recipients, Excluding Those Still in Training After Two Years. (Dollars: Standard Errors in Parentheses)

<table>
<thead>
<tr>
<th>Explanatory Variable</th>
<th>Pre-88 Sample</th>
<th>Post-88 Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model (1)</td>
<td>Model (2)</td>
</tr>
<tr>
<td>TAA Training</td>
<td>490</td>
<td>-206</td>
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<tr>
<td></td>
<td>(251)</td>
<td>(235)</td>
</tr>
<tr>
<td>Age (years)</td>
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<td>-72**</td>
</tr>
<tr>
<td></td>
<td>(13)</td>
<td>(15)</td>
</tr>
<tr>
<td>High School Dropout</td>
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<td>-291</td>
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<tr>
<td></td>
<td>(285)</td>
<td>(359)</td>
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<tr>
<td>College Graduate</td>
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</tr>
<tr>
<td></td>
<td>(434)</td>
<td>(506)</td>
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<tr>
<td>Hispanic</td>
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<tr>
<td>Other Nonwhite</td>
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<td>-1,300</td>
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<tr>
<td></td>
<td>(1,038)</td>
<td>(1,276)</td>
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<td>-1,083**</td>
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<tr>
<td></td>
<td>(235)</td>
<td>(281)</td>
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<tr>
<td>Married</td>
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<td>515</td>
</tr>
<tr>
<td></td>
<td>(246)</td>
<td>(290)</td>
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<tr>
<td>Children</td>
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<td>44</td>
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<tr>
<td></td>
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<td>(288)</td>
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<tr>
<td>Other Dependent</td>
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<tr>
<td></td>
<td>(273)</td>
<td>(293)</td>
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<tr>
<td>Expected Recall</td>
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<td>65</td>
</tr>
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<td></td>
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<tr>
<td>Union Member</td>
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<tr>
<td>Advance Notice</td>
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<tr>
<td>Previous Weekly Wage</td>
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<tr>
<td>(thousands of dollars)</td>
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<tr>
<td>Previous Job</td>
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<td>Tenure (years)</td>
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<tr>
<td>State Unemployment</td>
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<td>-293**</td>
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<tr>
<td>Rate (percent)</td>
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<tr>
<td>Mean of Dependent</td>
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<td>3,428</td>
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<tr>
<td>Variable (earnings in dollars)</td>
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<td></td>
</tr>
<tr>
<td>Sample Size</td>
<td>829</td>
<td>829</td>
</tr>
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</table>

Note: Sample includes TRA recipients only.
*Statistically significant at the 95% confidence level; **at the 99% confidence level (two-tail tests).
Source: TAA evaluation survey.

Model (1) indicates training increases reemployment wages in both the pre-1988 and post-1988 samples, however, the training variable is only significant in the post 1988 sample. If we introduce additional explanatory variables to account for the observed characteristics of TAA recipients such as age, college degree, race, etc., the training coefficient becomes negative in the pre-1988 sample and insignificant in the post-1988 sample while remaining positive (model (2)). Model (2) proves that the explanatory power of the training variable in model (1) is not entirely due to the TAA training but due to in part other observable characteristics of TAA trainees.

Model (2) indicates that training hurts reemployment wages in the pre-1988 sample. This result is consistent with theory since training was not a requirement before 1988 and so we expect those who chose to undergo training are the ones who really need it, as in the TAA recipients who face the most challenging reemployment prospects. The model doesn’t include variables that might indicate the degree of a recipient’s unemployment stigma; such variables can be a recipient’s industry, import penetration ratio, concentration index, etc.—any variable that would indicate the ease of industry transition for a participant or the ability to retain job-specific knowledge. Because we don’t observe these variables, even in model (2), their effects may be grouped into the training variable. If we can completely isolate the effects of training through more detailed data on the recipients, we may find TAA training to be a small but significantly positive factor in reemployment wages.

The regression is solely based on the 12th quarter after reemployment. According to the human capital theory, the effects of knowledge build up are time lagged. This means training’s effect may not fully appear (significant at 5% level in regressions) until sometime after the 12th quarter. Decker and Corson made the assumption that three years is enough time for the effects
to be apparent but if we applied the same analysis on the quarterly data from the 13th quarter on, we may see that the training coefficient becoming significant and increase over time up to a point.

Even with the results in figure 23, Decker and Corson draw the conclusion that there isn’t enough evidence to support training’s enhancement of reemployment wages. They attribute the positive differences seen towards the last quarters of figure 22 and figure 23 to personal characteristics of trainees that enhance their reemployment wage and not to the effectiveness of training. This reveals interesting discrepancies between their analysis and Marcal’s analysis. Decker and Corson’s claim that such personal characteristics of trainees such as motivation and youth caused the trainees’ positive reemployment differences while Marcal claims the trainees are the ones who need the most help in retaining and reemployment and therefore should have lower reemployment wages. Both analyses are under the assumption that in the post-1988 period, TAA training was still somewhat of a self-selected process. What’s most likely occurring is a mixing of both types of biases which creates the regression results that we see.

A proper analysis of the trainee data must completely isolate the training effect. The nature of the data and the nature of the TAA program hamper an absolute conclusion in determining its effects on reemployment wages. Even with multiple controls and adjustments, we cannot say with confidence that TAA trainees earned more than UI recipients or TAA non-trainees. In similar data analysis of training’s effects on wages, other authors suggest similar inconclusive results.

Until better data is collected and analyzed we may have to rely on theory. The human capital theory has been hinted throughout our analyses and will now be further expanded upon. It’s a theory that is widely accepted and proven in the literature (The existence of this undergraduate level paper can be seen as a product of the human capital theory).
Theodore W. Schultz helped developed the modern human capital theory in the 1960s. He noted that curves relating wage to some characteristics such as age tended to be steeper for a skilled person than an unskilled person. He attributed this to training’s effect on wages.

There are several possible explanations for the increases in real earnings of workers over time. It could be a product of labor supply adjustments or a gauge of the fixed amount of labor. But most likely, it represents the return on investment in human capital through training and education. Such investment increases the same unit of labor over time.

Schultz notes that training programs have been instituted over the years to adjust for the rise in educations and to the changes in the demands for new skills. The latter can stem from the shifting of an economy from manufacturing to service oriented or any sudden shocks experienced by individual workers such as changing industries. This profile exactly matches TAA recipients.

After taking into account other variables that affect increases in wages, how much of the rest of the unexplained increases in wages can be attributed to training and education? In 1961 Schultz estimated 36% to 70% of unexplained increases in wage to be caused by the returns of training and education of workers (Schultz, 1961). Since his description of the circumstances of those who would benefit from training is almost an exact match of the circumstances surrounding TAA trainees, we can safely apply his theory and findings. It’s most likely the case that TAA’s training provides workers with higher reemployment wages in addition to increased reemployment chances.
VI. Conclusion

The answer to the question “is TAA effective?” is not so easy to answer. We have seen the difficulties that arise out of a direct application of UI-specific findings. The sample selection bias is crucial and followed us in the entire analysis, even when comparing two TAA-specific samples. Because the program was given the rigorous certification process from the beginning, its job is to select a sample of the population with very specific characteristics and only those with those characteristics. These characteristics also directly affect our dependent variables of reemployment wage and escape rate, so inherently, the task of analyzing the effectiveness of such program is a difficult econometric problem. Conclusions can still be drawn however.

We have tried to break the program down into parts to evaluate individual aspects of the program separately. Unfortunately, there are discrepancies and inconclusive results, however the overall trend of the results suggests one answer—that is TAA is effective in achieving its goals. Whether the program achieves its advertised goal is best answered by a preponderance of evidence. We have to weigh all evidence on both sides.

UI studies can be interpreted in two ways. One, it helps unemployed workers increase reservation wages and resources to find the most suitable job. Two, it can prolong unemployment by giving workers a disincentive to earn income through working. Ignoring the sample selection issues, the TRA portion of TAA’s contribution to the program may be ambiguous if we extend those UI findings onto TRA. We don’t know for sure if it’s helping workers or creating disincentives.

The escape rate is comparatively higher for workers participating in TAA, especially for those who are trainees under the program. This result shows the importance of training and is evidence for TAA’s effectiveness. Higher reemployment wages are found to have a positive
correlation with TAA training but that specific study may not have accounted for all explanatory variables, so the result is inconclusive. The human capital theory can still provide us with a sound answer to the TAA question. The result is increases in wages are significantly due to buildup of human capital through education and training. This is again evidence for TAA’s effectiveness.

There is more evidence in support of TAA’s effectiveness than against it, therefore I conclude the program is effective in achieving its advertised goal of assisting displaced workers.

For those who only conclude on evidence beyond a reasonable doubt, the answer to the original question is “inconclusive.” But even then, there is hope for TAA supporters. Perhaps the answer to the question does not lie in the program’s benefits to individual workers. In other words, a meaningful evaluation of its effectiveness isn’t conducted by evaluating the program’s advertised goal but by looking at what it accomplishes in addition to its advertised goal. It has reduced opposition to trade liberalization which, in addition to general consensus, we have proven it to be beneficial. If any program is successful at reducing opposition to a beneficial policy, then it is effective. Looking back at the program’s consistent reauthorization in congress since its introduction and despite political and economic climate, saying TAA must be doing something right is an understatement; TAA is accomplishing a lot.
BIBLIOGRAPHY


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