

Preliminary and Incomplete

Employment Risk, Fairness and the Political Economy of Trade Policy

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When economists think about the labor market effects of trade (and globalization more generally), we think about wages; when every one else thinks about the labor market effects of trade (and, by all accounts, they do), they think about jobs. Thinking in terms of wages, especially as represented by generalizations of the Stolper-Samuelson theorem as embodied in the mandated wage regression approach, we have pretty much convinced ourselves that trade is essentially irrelevant to labor markets (Slaughter, 2000). Unfortunately, this framework has nothing to say about jobs.¹ This is particularly problematic when it comes to the positive analysis of trade policy, where there is little evidence that relative wage effects matter at all and considerable evidence that unemployment matters a great deal. Thus, in this paper, we build on earlier work that analyzes the link between trade and unemployment to provide an analysis of trade policy and unemployment.

We present a model with equilibrium unemployment in which we can illustrate two channels via which unemployment matters to the determination of trade policy: a directly economic effect that works through the benefit of jobs that last; and an additional benefit that derives from a notion of fairness in bearing unemployment risk. In the next section we extend Davidson, Martin and Matusz' (1994) model of search generated unemployment in an overlapping generations model, in which inter-generational employment transfers produce a social surplus, to the multi-sector case appropriate to the analysis of trade policy. This framework provides a natural representation of the widely held notion that long-lasting jobs are in some sense "good jobs". With this framework in hand, we are able to identify three key policy implications: the government has an incentive to increase employment in sectors characterized by "good jobs" (i.e. low turnover); the government has an incentive to pursue

¹ Not only is it the case that full employment is an equilibrium condition, but in the even case (i.e. the number of factors is equal to the number of goods) that is generally deployed, the zero profit conditions, from which the Stolper-Samuelson theorem is derived, are separable from the full employment conditions.

this policy in a gradual fashion by channeling new and unemployed workers into the good job sector; and opposition to trade liberalization can be reduced by welfare state policies. We will argue that there is, at least indirect, evidence consistent with each of these propositions. The following section turns to the issue of fairness. After reviewing the warrant for this concern, we draw on work by Davidson, Matusz and Nelson (2006), which applied the analysis of Fehr and Schmidt (1999) to the case of income distribution effects of trade policy, to present an analysis of fairness and unemployment risk. This extension yields the same three implications. Thus, the final substantive section reviews research bearing on these three implications.

This paper is, of course, not the first to deal with trade policy in the context of unemployment (though there is surprisingly little work on this topic). **We need to provide a brief discussion of Davidson/Matusz on trade and trade policy with unemployment. I'll come back to this, but I want to think about section 3 (or 4 if you want to label the introduction).**

In addition to work on the link between trade and unemployment, there is a small body of work on the link between unemployment and the politics of trade.² To start with, macro tariff regressions consistently find a positive link between the unemployment rate and protection (e.g. Takacs, 1981; Magee and Young, 1987; Hall, Kao and Nelson, 1998).³ A recent paper by Magee, Davidson and Matusz (2005) builds on a search model similar to the one developed in this paper to develop an analysis of the link between the foundations of

² The Grossman-Helpman (1994) "Protection for Sale" model, which has become the workhorse of current theoretical and empirical research on the political economy of trade, is characterized not only by full employment, but a fixed wage for all labor in the economy. Thus, contrary to the empirical and policy literatures, labor issues cannot play a role in the determination of trade policy.

³ The purpose of macro tariff regressions is generally not to examine the effect of unemployment, in fact unemployment is usually one of several variables intended to capture business cycle effects. All of these variables are quite closely correlated. In addition to econometric studies, a wide range of policy comments draw a connection between cyclical downturn and protection, and these comments virtually always stress that the variable of most political significance is unemployment. This link will figure prominently in our analysis of the link between unemployment and public support for protection.

sectoral unemployment, preferences over trade policy and lobbying behavior. The empirical work reported in that paper is supportive of a link between sectoral turnover rates and political activity that will play a central role in the theory developed in this paper. An important early paper by Michael Wallerstein (1987) developed an analysis of the link between unemployment and demand for protection based on a model with unions that are active in bargaining on the wage and in the politics of protection. The union wage is above market clearing and, thus, creates sectoral unemployment that generates a demand for protection. Where Wallerstein, like Magee, Davidson and Matusz, is primarily concerned with the demand side of the market for protection, recent work by Bradford (2006) embeds a bargaining model, like that of Wallerstein, in a model of labor market search like that of Davidson and Matusz, and political lobbying derived from that of Grossman and Helpman (1994).⁴ Bradford's model predicts that protection should be decreasing in sectoral turnover and increasing in unionization, both of which are supported in his empirical work.⁵

Interestingly, all of this research treats the essential link between unemployment and trade policy as being mediated by lobbying (primarily following Grossman and Helpman). In this paper, we argue that this focus may be misguided. Greenaway and Nelson (2005) develop a distinction, due originally to Schattschneider (1960), between group and democratic politics. The basic idea is that the group politics ("lobbying") of trade policy have primarily to do with distributive politics (and thus very little to do with unemployment). By contrast, democratic politics are public politics and, as we will argue in the next section, when trade policy becomes the focus of democratic politics, it is likely that activists on the

⁴ An earlier paper by Bradford (2003) focused on the link between *employment* (not unemployment) and protection, in an economy characterized by sectoral minimum wages and equilibrium unemployment. He finds that protection is increasing in sectoral employment, but not output (as predicted by the Grossman-Helpman model). An important recent paper by Matschke and Sherlund (2006) focuses on unionization and labor mobility, but is not directly concerned with unemployment. Interestingly, unions and specific capital are allowed to lobby independently or together. The empirical results are strongly supportive of their model relative to the basic Grossman-Helpman model with passive labor.

⁵ Also related to our work is the sizable literature on the link between globalization and welfare states. For example, Gaston and Nelson (2004) develop a model of the political economy of unemployment benefit in an open, unionized economy. Their model of the political process is also derived from Grossman and Helpman.

issue will seek to link trade to unemployment. As a result, in an effort to keep trade policy from becoming a focus of public politics, and in addition to the general attempt to keep unemployment low, politicians will attempt to be seen as responding to trade-linked unemployment with trade-linked policies. This suggests that a preliminary approach to modeling the connection between unemployment and trade policy can fruitfully focus on the link between unemployment and aggregate social welfare.

2. Unemployment and the Public Politics of Protection: Is it all framing?

To provide some context, we briefly consider an important recent study of popular preferences for protection by Michael Hiscox (2006). Hiscox participated in the construction of a survey of American adults, part of which asked about trade policy preferences. Respondents were randomly placed in one of four groups, differentiated by the introduction that was read to them before they were questioned about their preferences. One group was not read any introduction, while those read to the other three groups could be characterized as Pro-Trade, Anti-Trade, and Both. The exact wording for each introduction is given below:

Pro-Trade Introduction: Many people believe that increasing trade with other nations creates jobs and allows Americans to buy more types of goods at lower prices.

Anti-Trade Introduction: Many people believe that increasing trade with other nations leads to job losses and exposes American producers to unfair competition.

Both: Many people believe that increasing trade with other nations creates jobs and allows Americans to buy more types of goods at lower prices. Others believe that increasing trade with other nations leads to job losses and exposes American producers to unfair competition.

There were two main findings. First, somewhat surprisingly, subjects that were read the pro-trade introduction were no more likely to support trade liberalization than those that were given no introduction. In other words, pro-trade arguments couched in terms of job creation and lower prices do not alter the trade preferences of the subjects. Second, subjects that were read either the anti-trade introduction or both introductions were significantly more likely to

oppose freer trade than those in the control group. Thus, not only did anti-trade arguments linked to job destruction make subjects less likely to favor liberalization, these arguments clearly trumped the pro-trade arguments. Similar results were found with respect to the intensity of preferences: anti-trade arguments couched in terms of job destruction significantly increased the intensity of opposition to freer trade.

For Hiscox, the essential issue is framing. That is, it is well-known among survey researchers that even minor rephrasing of questions can result in substantial differences in survey response. Thus, depending on the framing of a question, respondents can be induced to provide quite widely varying responses. Hiscox is primarily concerned with whether, in some straightforward sense, people are more pro-trade than much recent research on trade attitudes would suggest.⁶ It is well-known that linking trade with unemployment tends to elicit protectionist attitudes. This is why Hiscox focuses on such a linkage in his “anti-trade introduction”.⁷ One way of looking at these results is that people are “naturally” supporters of Liberal trade policy—that is, the “pro-trade” framing has no effect relative to an unframed treatment. This would appear to be Hiscox’ interpretation. However, “framing” is something of a two-edged sword: Hiscox seems to argue that political preferences *really are* Liberal and people are induced to give more protectionist responses than their true attitudes; but, especially given the large changes over time, it is just as consistent to argue that most people’s attitude toward trade is very weakly held.⁸ Our position is that, on issues like trade

⁶ Hiscox’ particular targets are Scheve and Slaughter (2001a,b), O’Rourke and Sinnott (2002), and Mayda and Rodrik (2005), all of which report quite high levels of opposition to trade liberalization in the US (Scheve/Slaughter) and OECD countries generally (O’Rourke/Sinnott and Mayda/Rodrik).

⁷ See, for example, the discussion in Scheve and Slaughter (2001b). Hiscox is quite explicit that the main reason he chose to base the anti-trade argument on potential job destruction is that job losses in import-competing sectors was the main reason given for opposition to free trade in Roper polls taken during the 1970s. Of course, job creation and lower consumer prices were rated as the most persuasive pro-trade arguments in the same surveys and these arguments appear to have carried no weight with the subjects. Hiscox notes that one possible explanation for this asymmetry is “loss aversion”, a theory from psychology attributed to Kahneman and Tversky (1979), in which people react more strongly when they are told about possible losses (job destruction) than they do when they are told of possible gains (job creation).

⁸ There is some evidence of this conjecture in Hiscox’ Table 3, which deals with intensity of preference: all treatments involve sizable majorities (in the neighborhood of 60% of respondents) with weakly held preferences

which are not central issues for most of the electorate, attitudes are quite malleable, but that this is not the whole story.

The great majority of issues treated by government are not in any meaningful way on the public (i.e. electoral) agenda, so the public is quite rational in its ignorance. When posed a question about such an issue by a pollster, individuals naturally seek to extract information from the question about the “correct” answer. In particular, for questions with strong normative content (e.g. “*should* trade policy be more liberal” or “more protectionist”), individuals seek to identify stable values to which the answer can be attached. This is a sizable source of framing effects. International trade policy is clearly in precisely this situation. From something like 1934 (the date of the Reciprocal Trade Agreements Act) until very recently (maybe starting with the NAFTA debates), trade was essentially off the public political agenda. Hiscox work is completely consistent with this interpretation of framing. People respond strongly to unemployment and professional authority. Note, however, that this actually tells us almost nothing about what these attitudes would be if trade policy became a significant public issue. Here the “macro framing” induced by the public politics of trade policy would dominate the “micro framing” of the survey situation. William Riker’s (1986) analysis of heresthetic as an essential tool of political competition emphasizes the introduction of new issues as a way of changing the center of gravity (and the identity of the median voter) of public political competition. An essential part of this competition involves a struggle to define the new issue’s public meaning—i.e. to provide a macro frame for the issue. Once the macro frame is in place, and more-or-less independently of the

(i.e. “somewhat oppose” and “somewhat favor” increasing trade); and, somewhat contrary to the “natural Liberal” hypothesis, both the pro-trade and anti-trade treatments have the effect of increasing “strongly” held responses. That is the response to framing relative to weak opinion is not asymmetric.

An important implication of weakly held preferences is that the aggregate preference at any moment in time is quite “footloose” (Nelson, 1998). Hall and Nelson (2004) illustrate the phenomenon of footloose policy preferences on trade policy with public opinion data from the period during which NAFTA was widely discussed in the United States.

understandings of academic specialists, the issue practically *really is* about the content in the frame.⁹

Unemployment is a powerful valence issue.¹⁰ The economic and psychological foundations for this centrality are obvious to introspection and increasingly supported by systematic empirical research. Most obviously, it should be clear that unemployment can be psychologically, as well as economically, traumatic. Current research suggests that the economic consequences of job loss are non-trivial.¹¹ Perhaps more importantly, this is consistent with considerable evidence in the growing literature on the economics of happiness which suggests that job loss is considered one of the most traumatic life events (see, for example, Winkelmann and Winkelmann 1998; Helliwell 2003; Oswald 2003; and/or Layard 2005). Some of this evidence is quite startling. For example, Helliwell (2003) reports that in surveys in which subjects from over 30 countries were asked to rank the impact of certain life events on their well-being, unemployment was ranked as a more traumatic event than separation and/or divorce from a spouse! Furthermore, there is evidence that even short spells of unemployment have longer-term scarring effects on workers (Clark, Georgellis and Sanfey, 2001; Arulamparam, 2001). Additional support for our central claim that individuals, in particular in their role as voters, show more concern for unemployment than for price (and thus wage) effects comes from surveys of attitudes toward (and knowledge of) the macroeconomic environment suggesting that voters are far more concerned about (and aware

⁹ Thus, and somewhat contrary to the implication of Hiscox' analysis, where professional authority is a powerful component of micro framing, i.e. framing in the interview situation, its role is considerably reduced once the macro frame is in place. It is precisely the lack of a macro frame (i.e. a social context) that renders professional authority so powerful in the interview situation. It is worth recalling in this regard that more than 1000 members of the American Economics Association signed a petition warning against the Hawley-Smoot tariff, which passed Congress easily and was signed by President Hoover.

¹⁰ Donald Stokes (1963) introduced valence issues as a central element of his critique of the spatial model. Stokes defines valence issues are "those that merely involve the linking of parties with some condition that is positively or negatively valued by the electorate" (Stokes, 1963, pg. 363; see also Stokes, 1992). The idea is that these are issues with strong emotive content. An essential component of partisan competition is the attempt to associate oneself with positive valence issues and ones opponent with negative valence issues. Unemployment is obviously a powerful negative valence issue and has been used as such by both parties.

¹¹ With particular reference to job loss associated with international trade competition, See Davidson and Matusz (2000) or Kletzer (2001).

of) unemployment than inflation (Conover, Feldman and Knight 1986 and di Tella, MacCulloch and Oswald 2001, 2003).

Thus, if trade (and globalization more generally) becomes a significant public political issue, framing in terms of unemployment is all but inevitable. Contrary to the central claim of Hiscox, then, we would argue that, precisely when public opinion will be relevant to public policy on trade (i.e. when/if it becomes a public political issue), it is quite likely to be macro framed in terms of unemployment. If that is the case, preferences in the moment *really will be* quite protectionist. This is reason enough to analyze the links between trade, unemployment and trade policy. However, a potentially more important reason is that, from a positive perspective, rational politicians (even trade Liberal politicians) will seek to adopt policies that provide sufficient response that the trade-unemployment link does not become a live public political issue. In this paper we abstract from political economy micro-foundations and consider two channels via which unemployment could enter into the trade policy calculus.¹² Specifically, we consider a welfare maximizing government responding to an externality in a very standard model of search generated unemployment; and then we consider the implication of social preferences for equity in the face of differential unemployment risk for policy determination. These models seem to build on very different foundations but, as we show in our formal development, they share a common structure.

3. Surplus Values and Employment Risk

In this section we introduce a simple overlapping generations model with search generated unemployment and show that in such a setting there is a natural reason for the government to take into account employment risk when designing policies, even if all agents are risk neutral. The introduction of this model also provides us with a framework that will

¹² Davidson, Matusz and Nelson (2006) provide a simple political economy model based on the same micro-foundations that underlie our second model.

be useful when we discuss issues related to fairness concerns in the design of trade policy in Section 3.¹³

Our goal is to find the simplest model in which to illustrate our basic points. As we will show, we need the following features: (1) some workers must be unemployed in equilibrium; (2) jobs must be durable in the sense that there is some positive probability that they will last across periods; and (3) workers must have finite lives. With this in mind, we consider an economy with a fixed number of ex ante identical finitely-lived risk-neutral workers (L). Each worker inelastically supplies a unit of labor in each period of life and faces a probability of d that they will die in any given period. The birth rate in the economy is equal to the death rate, so that the population size remains fixed over time. The assumption that the probability of death is independent of the worker's age gives us a model that Blanchard and Fisher (1989) have referred to as a "model of perpetual youth."

There are N goods produced in this economy. Each good is produced in a different sector and each one uses labor as the only input. For simplicity, we assume that the production of two units of good i requires two agents working as a team. Thus, agents seeking employment in sector i must find a partner in order to start producing. We introduce equilibrium unemployment by assuming that there are trading frictions in the labor market in that it takes time and effort for agents seeking partners to find each other. This means that some agents seeking a partner will be unsuccessful and these agents will be "unemployed." Those agents that find partners and produce are "employed." Since all workers are risk neutral, unemployed workers choose a sector in which to search based on the expected lifetime income that sector offers.

¹³ The material in this section is based largely on the arguments presented in Davidson, Martin and Matusz (1994).

Once a match is formed, the workers produce output, sell it on the world market and split the proceeds evenly until the match is destroyed. Matches can be destroyed involuntarily by the death of a partner or by an idiosyncratic shock which occurs with probability h^i in sector i . Matches break-up voluntarily if the partners expect to earn more by searching for a new match in another sector rather than continuing to produce in their current sector. Thus, a change in the terms of trade can cause the agents to reassess their options and voluntarily break-up an already-formed productive partnership. Regardless of the reason for the break-up, whenever a match dissolves both agents (if still alive) must re-enter the search process. In any steady-state equilibrium all break-ups are involuntary. The steady-state survival rate for a match in sector i is denoted by $\sigma^i \equiv (1-d)^2(1-h^i)$; that is, the joint probability that both agents survive and no idiosyncratic shock occurs.

The number of new matches created in a sector is assumed to be a function of the number of agents searching in that sector. Thus, if we let S^i denote the number of agents seeking sector i employment, then the number of matches created in that sector is given by $M^i(S^i)$.¹⁴ We assume that $M^i(S^i)$ is increasing and concave with $M^i(0) = 0$. In addition, since each match consists of two partners, $2M^i(S^i)$ is bounded above by S^i . Since all agents are identical, we assume that each searching agent in a given sector is equally likely to find a match. This implies that the probability of finding a job in sector i is given by

$$(1) \quad \pi^i(S^i) = 2M^i(S^i)/S^i.$$

Note that the numerator of π^i gives the number of new jobs created while the denominator reflects the number of agents competing for those jobs.

Since search decisions are driven by the desire to maximize expected lifetime income, we now turn to the value equations which describe expected income in different labor market

¹⁴ We could also allow agents to influence the probability of finding a partner by altering search effort without changing our results. See Davidson, Martin and Matusz (1994) for details.

states. To make our point, it is sufficient to focus on steady-states. We begin with employed workers. If we use p^i to denote the world price of good i , then since each match produces two units of output, while employed a sector i worker earns p^i from the sale of output. With probability σ^i this agent's match survives to the next period, so that he/she remains employed. With probability d this agent dies and with the remaining probability, $1 - d - \sigma^i$, this agent survives but sees his/her match dissolve and must therefore begin the next period unemployed. It follows that if V_E^i denotes the expected lifetime income for an employed sector i worker and V_U^i denotes the expected lifetime income for a worker searching for a match in sector i then we have

$$(2) \quad V_E^i = p^i + \sigma^i V_E^i + (1 - d - \sigma^i) V_U^i$$

$$(3) \quad V_U^i = \pi^i V_E^i + (1 - \pi^i)(1 - d) V_U^i$$

Note that (3) indicates that unemployed agents receive no income while searching for a job.

Equations (2) and (3) can be solved for V_E^i and V_U^i . The difference between these two values measures the increase in expected lifetime income generated by employment – that is, the value of a job. Solving (2) and (3) we obtain

$$(4) \quad V_E^i - V_U^i = \frac{p^i(1 - \pi^i)}{1 - \sigma^i(1 - \pi^i)}$$

The right-hand-side of (4) is decreasing in π^i and increasing in σ^i indicating that jobs are more valuable when they are relatively difficult to obtain and relatively durable. For later use, we also provide the solution for V_U^i

$$(5) \quad V_U^i = \frac{p^i \pi^i}{d[1 - \sigma^i(1 - \pi^i)]}$$

In any steady state the flows into and out employment in each sector must be equal. If we use X^i to represent steady state employment in sector i , then the flow out of employment

in each period is given by $(1 - \sigma^i)X^i$. The flow into employment is dictated by the number of new matches created, $M^i(S^i)$. Since each match consists of two agents, the flow into sector- i employment is given by $2M^i(S^i)$. Thus, in a steady-state we must have $(1 - \sigma^i)X^i = 2M^i(S^i)$.

Using (1) to substitute for $M^i(S^i)$ allows us to rewrite this steady-state condition as

$$(6) \quad S^i \pi^i(S^i) = (1 - \sigma^i)X^i$$

To turn (6) into a more useful form, let L^i denote the number of agents tied to sector i at the beginning of a period. This includes all agents who begin the period employed (because they were employed in that sector in the previous period and their match survived) and those who begin as searchers. Since the former group consists of $\sigma^i X^i$ workers, it follows that $L^i = S^i + \sigma^i X^i$. Using this expression to substitute for S^i allows us to re-write (6) as

$$(7) \quad \pi^i L^i = [1 - \sigma^i(1 - \pi^i)]X^i$$

The numbers of agents tied to the different sectors are determined by the agent's optimizing behavior. Each unemployed agent, whether newly born or recently displaced from a previous match, searches in the sector that offers the highest expected lifetime reward (as measured by V_U^i). Since all unemployed agents are identical, this implies searchers will sort themselves to equate V_U^i across all sectors in which production occurs. Thus, if sectors i and j are active while sector k is not, then in equilibrium we must have

$$(8) \quad V_U^i = V_U^j > V_U^k \quad \text{for all } i, j \text{ with } X^i > 0, X^j > 0, \text{ and all } k \text{ with } X^k = 0.$$

Given the matching functions and the parameters (p^i, σ^i and d), (1)-(3) and (7)-(8) can be solved for the equilibrium values of the model's unknowns: V_U^i, V_E^i, π^i, S^i and X^i .

Our focus in this paper, however, is not on the equilibrium behavior of this economy. Instead, we are interested in the types of policies that a benevolent government might be

interested in pursuing. We start by focusing on policies that are in the interest of a new-born cohort of workers. In each period, dL^i workers attached to sector i die and are replaced by new-born workers. These newborns begin life unemployed and thus expect to earn V_U^i over their lifetime. It follows that the total expected lifetime income for a typical cohort of new-born workers is given by

$$(9) \quad I_N = d \sum_i L^i V_U^i$$

where I denotes income and the sub-script N refers to the fact that this is a cohort of newborns. We can now use (5) to substitute for V_U^i and (7) to substitute for L^i ; as a result (9) simplifies to

$$(10) \quad I_N = \sum_i p^i X^i .$$

Equation (10) is in no way surprising – each cohort earns income equal to the value of the output produced in steady-state. Thus, it is in this generation's interest for the government to pursue policies that maximize the value of output produced. In a small open economy, this would imply that the optimal policy is free trade.

We now turn the interests of the current generation. This cohort differs from the newly born in that they have had time to search for and acquire jobs. These jobs increase their expected lifetime income above what they would expect to earn if they were unemployed. The implication is that the current generation can expect to earn *more* than the value of the output produced in steady-state; and, as we will show, the existence of this social surplus has important implication for trade policy. Formally, at the beginning of each period there are $\sigma^i X^i$ workers in sector i who are employed and these workers expect to earn V_E^i over the remainder of their lifetime. The remainder of the sector i workers are

unemployed and searching for a partner. These workers expect to earn V_U^i over the remainder of their lifetime. Thus, the expected lifetime income for the current generation is given by

$$(11) \quad I_c = \sum_i \sigma^i X^i V_E^i + (L^i - \sigma^i X^i) V_U^i = \sum_i L^i V_U^i + \sigma^i X^i [V_E^i - V_U^i]$$

From (9) and (10) we can simplify this further to

$$(12) \quad I_c = (1/d) \sum_i p^i X^i + \sum_i \sigma^i X^i [V_E^i - V_U^i]$$

Equation (12), which provides the fundamental result of this section, shows that the interests of the current generation are made up of two components. The first term measures the total value of the output produced during the expected lifetime of a typical agent; whereas the second term reflects the total value of the jobs that survive across periods. Since (10) indicates that a new-born cohort always earns the value of the output they produce, the second term in (12) is purely a social surplus that is enjoyed by the current generation -- that is, this surplus does not come at the expense of future generations.

The existence of the social surplus has important policy implications which we explore in some detail below. First, however, we need to explain where the surplus comes from; a task that is facilitated by reviewing a classic insight about the nature of equilibria in over-lapping generations models. Samuelson (1958) was the first to point out that the competitive equilibrium in an overlapping generations model is generally not Pareto efficient. To see why, consider a simple overlapping generations pure exchange economy with no population growth in which agents live for two periods. Assume further that the agents do not discount the future, that they view consumption their two periods of life as perfect substitutes and that in each period of life each agent receives an endowment of one unit of a single non-storable good. It is easy to show that in such a model the competitive equilibrium involves no trade – in each period, each agent simply consumes his/her unit of the single good. However, as Samuelson noted, this is not an efficient outcome. In fact, there is

another allocation that Pareto dominates the competitive allocation. In this superior allocation, each young agent gives his/her endowment to a corresponding old agent. As a result, in the initial period each old agent consumes two units of output instead of one and is therefore better-off. All other agents, regardless of their cohort, consume two units of output (nothing when young and two units when old) just as they would in the competitive equilibrium. Thus, the current generation gains at no one's expense. The reason for this is that the current generation receives a transfer from the young without sacrificing anything, while all other cohorts sacrifice a unit of consumption when young and are repaid with an extra unit of consumption when old. This transfer across generations produces a social surplus.

In Davidson, Martin and Matusz (1994) we demonstrated that an increase in steady state employment generates a similar transfer across generations in any dynamic model with unemployment, durable jobs and finitely lived agents. The reason for this is that when jobs are lasting, current employment carries with it a claim on future output (this follows from the fact that $V_E^i > V_U^i$; that is, the employed expect to earn more in the future than the unemployed). All current jobs are held (obviously) by members of the current generation, whereas all members of all future generations begin life unemployed. This implies that the current generation always holds a greater claim on future output than all future generations. And, any increase in steady state employment increases the size of this claim, effectively transferring resources from future generations forward to the current generation. As in the Samuelson framework, the current generation receives a transfer from future generations, whereas all future generations give up a transfer when young in order to obtain repayment when their agents have matured and secured jobs. Note that for such cross-generational transfers to generate a social surplus jobs must be durable so that those currently employed expect to consume more than their unemployed counter-parts. If all jobs were to break-up at

the end of the period, the current generation would start the next period on equal footing with the newborns. Thus, an increase in steady-state employment would not transfer resources forward. The importance of this assumption is evident from (12): if all sector i jobs were to break-up at the end of each period, so that $h^i = 1$, then $\sigma^i = 0$ and the social surplus disappears.

While the intergenerational transfers generated by changes in employment are similar to the transfers in the Samuelson model, there is one important distinction. In the Samuelson model it is clear that the current old agents benefit while there is no change in the well-being of any other agent. This is not always the case in our model. To see this, note that the first term (12) is the value of total output, a value which varies with employment. If the government pursues policies aimed at increasing employment in order to increase the social surplus, the total value of output could decrease and trigger a reduction in the aggregate income of the current generation. However, note that if employment is currently at the level that maximizes the value of steady-state output (call this X^*), the employment level that is associated with free trade and the level that is usually considered efficient, then the government clearly has an incentive to institute policies that will marginally increase employment. To see this, note that from (10), the Envelope Theorem ensures that a marginal increase in employment above X^* has no impact on the aggregate income of newborns or any future cohort of workers. As for the current generation, the Envelope Theorem ensures that this change in X has no impact on the first term in (12). However, the increase in X clearly increases the second term. Thus, when employment is X^* , a marginal increase in X increases the welfare of the current generation while leaving all other generations unaffected. This is because at X^* the transfer made by each generation when young exactly equals the transfer get back as their workers mature and find jobs.

We now turn to the political economy implications of this analysis. The goal of a benevolent government is to maximize the welfare of its citizens. It is possible that in this setting the government may want focus on the welfare of the *current* generation, or, alternatively, it may wish to maximize some weighted sum of the welfare of the current and future generations. In either case, since the social surplus affects the welfare of the current cohort, it should be clear that the government will want to take this surplus into account when designing policies.

There are three sets of policy results that that we will highlight. The first set is related to the employment level and the composition of employment in steady-state. We have already discussed the implications for the employment level: the government has an incentive to increase employment above the free trade level. This follows from the fact that a marginal increase in employment above this level benefits the current generation at no one's expense. With respect to the composition of employment, (12) indicates that not all types of employment are equal – some jobs are better than others. The jobs that generate the largest social surplus are the ones that carry with them a larger claim on future output. This requires a relatively high job survival rate σ^i and/or a relatively large difference between V_E^i and V_U^i . From (4), the latter feature is associated with industries in which jobs are difficult to find (π^i is low) and durable (σ^i is high). Thus, the government has an incentive to increase employment in sectors characterized by low-turnover.

The second set of results is related to how the implementation of new policies alters the steady-state. In this environment, the government has a strong incentive to gradually phase in all new policies. The reason for this is that large changes in policy may cause already established matches to break-up. These matches were costly to form initially and carry with them a claim on future output – thus, destroying these jobs destroys the social surplus that comes with them. It follows that if the government wants to alter the

composition of employment it should do so by gradually phasing in policies that provide incentives for unemployed workers to seek new matches in the targeted industries. In other words, it is better to have labor-market reallocation take place slowly with only the unemployed changing their career paths to fill the new jobs.

Finally, we turn to the issue of the overall level of protection across countries. In our framework, the current generation will not support free trade, since this maximizes the value of total output while ignoring the value of the social surplus. Instead, that cohort will favor the protection of industries in which employment carries with it a relatively large claim on future output. In addition, this cohort will be opposed to trade liberalization since it destroys current matches. The degree of opposition to free trade stemming from these agents, however, will not be the same in all countries --- instead, it will be tied to size of the welfare state in each country. To see this, note that a more generous welfare state reduces the cost of being unemployed and therefore decreases the difference between V_E^i and V_U^i (i.e., the welfare state destroys the social surplus). As a result, an increase in the size of the welfare state decreases the relative importance of the social surplus for those in the current generation. It follows that trade liberalization should be easier to achieve in countries with strong welfare states.

4. Fairness and Employment Risk

The results of the previous section are rooted in traditional welfare-theoretic concerns with efficiency. This can represent the basis of a positive analysis either via the notion of an ideal Weberian bureaucrat/Samuelsonian social planner, or via some unmodeled process of political response to generalized social preferences.¹⁵ While the preceding section provides a

¹⁵ One might see the latter as an extension of the public interest side of the Stigler (1971)-Peltzman (1976) political response function, or the aggregate social welfare term in Grossman and Helpman's government objective function.

perfectly accurate welfare analysis of the implications of trade and policy in the context of equilibrium unemployment; as a positive account of employment policy in an open economy, it leaves quite a lot to be desired. In this section we take a completely different approach in our discussion of employment risk and its importance for the design of trade policy. We first survey some recent results on the importance of fairness considerations in a variety of economic settings.¹⁶ We then argue that when individuals think about “fairness” in its relation to trade policy, they are mainly concerned about employment risk. Finally, we use the framework of the model discussed in Section 2 to show how to incorporate such concerns into a political economy model of trade policy determination.

By now there should be no doubt that fairness considerations play an important role in the labor market. This has been documented in a variety of ways. For example, Bewley (1999) surveyed managers and labor leaders in an attempt to determine why wages do not fall during a recession. His results were surprising – the main reason given was that management was concerned that cuts in wages would harm morale and that this would result in lower productivity. The link between wage cuts and a decline in morale was attributed to the view that nominal wage cuts are in some sense unfair. It is important to note that it was management, not labor, that provided the primary source of resistance to wage cuts and that it was concerns about perceptions of fairness that were crucial. The results provide important support for the fair wage theory of Akerlof (1982) and Akerlof and Yellen (1990). Support for the related efficiency wage model comes from experimental economics. In particular, Fehr and Gächter (2000) set about to compare a moral hazard model in which firms pay a minimum wage and expect minimum effort and the efficiency wage model in which firms pay a wage premium in an effort to elicit high effort. The results strongly supported the efficiency wage model.

¹⁶ We offer only a brief survey here; for a more detailed discussion of the importance of fairness in constraints in markets see our earlier paper, Davidson, Matusz and Nelson (2006).

Survey research provides evidence that fairness considerations affect product market behavior as well. Okun (1981) argued that firms adopt pricing strategies that reflect their concerns about their customers' perceptions of fairness. For example, firms may choose not to increase prices during periods of excess demand because consumers view price increases that are not triggered by increases in costs as unfair. To gain a deeper understanding of the type of constraints fairness considerations may impose on business practices, Kahneman, Knetsch and Thaler (1986) conducted household surveys in which they asked customers their opinions about certain practices. They found strong evidence that customers perceive some practices as unfair both during periods of excess demand and excess supply.

Perhaps the best known evidence of fairness comes from the experimental literature on simple market interactions. For our purposes, it is sufficient to restrict attention to the set of results from two-player ultimatum games in which one agent is given the ability to propose ways to divide a fixed surplus. In this setting, the proposer has all the bargaining power and theory predicts that the proposer should be able to extract the entire surplus for him/herself. Yet, this is not what happens in the laboratory. In virtually all experimental studies of this game, regardless of the size of the stakes and/or the experimental design, the vast majority of the outcomes result in the proposer walking away with between 50 to 60% of the surplus. In fact, only in rare instances does the proposer make an offer that leaves the responder with less than 20% of the surplus which the responder then accepts. This seems to suggest that fairness plays an important role in the determining the outcome of even the simplest bargaining games.

In what must already be considered a classic article, Fehr and Schmidt (1999) propose a model of fairness that provides a possible explanation for such outcomes. Since their model is important for our discussion of trade and fairness that follows, we provide a brief overview of their framework here. They begin their paper by pointing to a "bewildering

variety of evidence” that comes from experimental economics. Sometimes the evidence indicates that fairness is quite important in market games (e.g., the ultimatum game described above) while in other cases evidence suggests that all that agents are concerned about is their own self-interest (e.g., in games designed to mimic perfectly competitive environments). Similar contradictory results can be found in the literature on cooperation agreements.

Fehr and Schmidt show that these sets of results can be explained rather simply by using a model in which a fraction of agents take fairness into consideration when determining their actions. To be precise, they assume that these agents maximize a utility function which includes as arguments both their own payoffs and a measure of inequality. Thus, these agents are “inequality averse.” This aversion to inequality is introduced by assuming that these agents suffer a loss in utility if their payoffs fall below or rise above the payoff of other agents. Specifically, suppose that we have an environment with n agents indexed by i in which agent i 's payoff is denoted by x_i ; then Fehr and Schmidt assume that the inequality averse agents have utility functions of the form:

$$(13) \quad U_i(x_i) = x_i - \alpha_i(n) \sum_{j \neq i} \max[x_j - x_i, 0] - \beta_i(n) \sum_{j \neq i} \max[x_i - x_j, 0]$$

where $\alpha_i(n)$ and $\beta_i(n)$ are parameters (for fixed n) with $\alpha_i(n) \geq \beta_i(n)$, $\beta_i(n) \in [0,1]$ and $\lim_{n \rightarrow \infty} \alpha_i(n) = \lim_{n \rightarrow \infty} \beta_i(n) = 0$. Note that the second term in (13) indicates that the disutility suffered by these agents from the presence of agents who earn more (with disutility increasing in the magnitude of the difference); while the third term indicates that that the disutility from the presence of agents who earn less (with the disutility again increasing in the magnitude of the difference). In addition the assumption that $\alpha_i(n) \geq \beta_i(n)$ is used to capture the notion that the agent would rather be overpaid relative to the other agents than underpaid.

Fehr and Schmidt then show that virtually all of the evidence that they review in the early part of their paper can be explained by assuming that some agents are purely selfish

while the remainder are inequality averse (as defined by eq. 13). They do so by analyzing the market settings used in the different experiments under this assumption and showing that in each case the equilibrium outcome is consistent with the experimental findings. Our conclusion is that this set of results, along with the other evidence cited above, provides overwhelming support for the notion that agents take fairness into account when determining behavior and analyzing market outcomes. It is important to emphasize, of course, that we are not suggesting that such considerations are more important than self-interest, only that concerns about fairness complement those of self-interest.

We next turn to the issue of fairness and trade policy. In addition to the calls for “fair trade” that we hear on a daily basis in the political arena, there is considerable evidence that fairness considerations have played a significant role in shaping trade policy for generations. For example, legal structures that provide protection through administered mechanisms are commonly referred to as “fair trade laws.” In addition, fairness is often cited as a primary justification for policies aimed at aiding workers displaced by changes in trade patterns. Examples of this would include trade adjustment assistance (see, for example, Lawrence and Litan 1986) and recent calls for wage insurance (see, for example, Kletzer and Litan 2001). Survey research also indicates that the public is unlikely to support liberalization if there is a perception that some workers will be unfairly harmed by such a policy (Scheve and Slaughter 2001; Hiscox 2004, Mayda and Rodrik 2005).

This then leaves us with the following question: If we wish to model the fairness concerns that agents seem to have about trade policy, what is the best way to go about this? One approach, consistent with the Stigler-Peltzman and Grossman-Helpman type of analysis is to assume that the objective function of the government is composed of two parts: campaign contributions and social welfare. In the full-employment environment usually considered in the literature on the political economy of trade (especially when all

agents have quasi-linear preferences), because aggregate welfare takes a particularly simple form, very little effort has been expended on thinking about this term, even though empirical research suggests that it plays a much larger role in determining trade policy than does campaign contributions. Just as the motivation for incorporating general social welfare in the government's objective function must involve either an implicit political constraint (e.g. electoral) or some notion of Weberian bureaucratic responsibility, in a world with unemployment and a widely held notion that trade-generated unemployment is unfair, we might simply model the government as possessing Fehr-Schmidt like preference defined over unemployment risk.¹⁷

Reflecting back to the framework introduced in section 2, it is clear that we will have a Social Welfare function with similar properties to the one obtained in that section (although for very different reasons). After all, σ^i is a measure of employment risk in sector i and $V_E^i - V_U^i$ measures the personal cost of worker dislocation in sector i and both of these measures figure prominently in (12), which measures the welfare of the current generation in our simple search model of unemployment. We can number our sectors so that $V_E^2 > V_E^1$ (and recall that, in equilibrium $V_U^2 = V_U^1$). Now define that objective function as:

$$(14) \quad W \equiv L_E^1 U V_E^1 + L_E^2 U V_E^2 + L_U^1 + L_U^2 U V_U$$

Using the Fehr-Schmidt formula (13), we can obtain:

¹⁷ Of course, there are many in the academic community who would argue that concerns about the impact of trade policy on overall unemployment are misplaced (see, for example, Krugman 1993 and Mussa 1993). However, there is little doubt that changes in trade patterns do cause displacement of some workers and there is strong evidence that the personal losses to these workers are substantial (Jacobson, LaLonde and Sullivan 1993 and Kletzer 2001). Thus, it is not surprising that when governments actively pursue policies aimed at liberalizing trade, the public might object based on the grounds that the worker dislocation that is sure to follow is in some sense unfair to those workers.

$$\begin{aligned}
W &= \frac{1}{d} p^1 X^1 + p^2 X^2 \\
(15) \quad &+ L_E^1 V_E^1 - V_U^1 + L_E^2 V_E^2 - V_U^2 \\
&- \alpha + \beta \left[\left(\frac{L_E^1 L_E^2}{L-1} \right) V_E^2 - V_E^1 + \left(\frac{L_U L_E^1}{L-1} \right) V_E^1 - V_U^1 + \left(\frac{L_U L_E^2}{L-1} \right) V_E^2 - V_U^2 \right]
\end{aligned}$$

For interpretation of (15), we note that the top line of (10) is the “discounted” value of steady-state output. The middle line is the “value of jobs.” The last line is the effect of inequality on welfare.

An alternative approach to deriving such an objective function is to assume that a fraction of citizen/agents have preferences that take into account employment risk when analyzing market outcomes. As we noted above, the role of employment risk in the public evaluation of trade policy has been the subject of several recent articles and the link now appears to be well documented. When this is the case, individual preferences over trade policy will reflect concerns about both self-interest and employment risk such that some subset of citizen/agents have Fehr/Schmidt-like preferences in which the two main arguments are their individual payoff and some sort of measure of employment risk across industries. That is, these agents have preferences like those in equation (15). The government’s objective function now takes an unweighted utilitarian form. When aggregated, this yields a Social Welfare function for the government which includes that total value of the output produced and the distribution of employment risk across industries.

Thus, suppose now that only a fraction (λ) of the population hold fairness preferences. Moreover, assume that an individual’s preferences are not correlated with their employment status or sector. For those without F-S preferences, their lifetime utility coincides with their lifetime income. In this case we have

$$\begin{aligned}
(16) \quad W \lambda &= \lambda \left[L_E^1 U_E^1 V_E^1 + L_E^2 U_E^2 V_E^2 + L_U^1 U_U^1 V_U^1 + L_U^2 U_U^2 V_U^2 \right] \\
&+ 1 - \lambda \left[L_E^1 V_E^1 + L_E^2 V_E^2 + L_U^1 V_U^1 + L_U^2 V_U^2 \right]
\end{aligned}$$

Using (10) from above and equation (12) from the paper, this can be written as:

$$\begin{aligned}
(17) \quad W \lambda &= \frac{1}{d} p^1 X^1 + p^2 X^2 \\
&+ L_E^1 V_E^1 - V_U^1 + L_E^2 V_E^2 - V_U^2 \\
&- \lambda \alpha + \beta \left[\left(\frac{L_E^1 L_E^2}{L-1} \right) V_E^2 - V_E^1 + \left(\frac{L_U L_U^1}{L-1} \right) V_E^1 - V_U^1 + \left(\frac{L_U L_U^2}{L-1} \right) V_E^2 - V_U^2 \right]
\end{aligned}$$

The interpretation of (17) is like that for (15).

Note that the qualitative policy implications of (15) or (17) are the same as those derived from (12) in the preceding section. Since agents care about employment risk, all else equal they will have a preference for jobs in sectors with low turnover. Thus, free trade, since it maximizes the value of total output, will not be the optimal policy. The proof of this claim follows the logic of the argument used in section 2. At the free trade allocation a marginal change in the distribution of output will have no first order impact on the total value of output produced (by the Envelop Theorem). It follows that if agents care about employment risk, a marginal shift of resources from sectors with high employment risk towards sectors with low employment risk will have lead to a first-order increase in welfare. And, just as in section 2, voters will prefer to see such policies implemented gradually so that existing jobs are not destroyed and all labor-market reallocation can take place slowly as unemployed workers and new labor market entrants adjust the sectors in which they seek jobs.

The implications for the link between the welfare state and liberalization follow as well. Since a more generous welfare state reduces the cost of becoming unemployed,

workers in economies with more generous welfare states will be less concerned about employment risk. As a result, the weight on the total value of output in the social welfare function will be larger in those economies with strong social safety nets, making policies aimed at liberalizing trade easier to adopt and implement.

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