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A BEHAVIORAL MODEL OF UNEMPLOYMENT, SOCIOTROPIC CONCERNS, AND THE POLITICAL ECONOMY OF TRADE POLICY

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We present a behavioral model in which agents are concerned about the scarring effects from unemployment for themselves and others and explore the manner in which unemployment matters for trade policy. We derive three policy implications: the government has an incentive to increase employment in sectors characterized by "good jobs," where the good job/bad job characterization depends on an industry's job creation and destruction rates; the government has an incentive to pursue this policy in a gradual fashion by channeling new and unemployed workers into the appropriate sector; and opposition to trade liberalization can be reduced by welfare state policies.

> Customs tariffs which implied profits for capitalist and wages for workers meant, ultimately, security against unemployment, stabilization of regional conditions, assurance against liquidation of industries and, perhaps most of all, the avoidance of that painful loss of status which inevitably accompanies transference to a job at which a man is less skilled and experienced than at his own. (Polanyi, 1944)

When economists think about the labor market effects of trade, we think about wages; when everyone else thinks about the labor market effects of trade, 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 direct evidence that relative wage effects matter at all and considerable evidence that unemployment matters a great deal.[2] Thus, in this article, we build on earlier work that analyzes the link between trade and unemployment to provide a new analysis of trade policy and unemployment.

Our main goal is to draw on recent work in behavioral economics in order to examine the implications of unemployment for the design of trade policies. Specifically, we argue that, in addition to affecting individual wellbeing, unemployment plays a central role in citizen evaluation of government performance. The economic and psychological foundations for this centrality are obvious from introspection and increasingly supported by empirical research. Most obviously, it should be clear that unemployment

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[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.

[2]We discuss the evidence supporting this below, but the basic fact is that unemployment variables are always significant in macro tariff regressions. In addition, the public opinion data, which are often taken as providing evidence supporting a significant role for relative price effects (e.g., Slaughter, 2000), are ambiguous in this regard, while it is widely agreed that framing questions in terms of unemployment has the effect of increasing protectionist sentiment significantly (Hiscox, 2006; Scheve and Slaughter, 2001a, 2001b).

can be psychologically, as well as economically, traumatic. Current research suggests that the economic consequences of job loss are nontrivial.[3] 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 life's most traumatic events (e.g., 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 were asked to rank the impact of certain life events on their wellbeing, unemployment ranked as more traumatic than separation or divorce from a spouse! There is also evidence that unemployment brings with it significant health risks – layoffs more than double the risk of heart attack and stroke for older workers and workers losing their jobs face an 83% greater chance of developing stress related health problems.[4] Furthermore, evidence indicates that even short jobless spells have longer-term scarring effects on workers.[5] Additional support for our claim that individuals, in particular in their role as voters, show more concern for unemployment than for price (and wage) effects comes from surveys of attitudes toward (and knowledge of) the macroeconomic environment suggesting that voters are more concerned about (and aware of) unemployment than inflation (Conover et al., 1986; Di Tella et al., 2001, 2003).

Our interpretation of the evidence is that in addition to the consequential reduction in income, unemployment generates two sources of welfare losses for individuals. First, there is a scarring effect from losing one's job that lowers utility even if reemployment is found relatively quickly. Second, individuals are concerned about the employment risk faced by others – through some combination of empathy rooted in introspection on the economic and psychic costs of unemployment, and social attachment to a community – and thus, suffer a loss in welfare when others are unemployed. We refer to the latter as a "sociotropic" or "fairness" concern and argue that this is the effect that most individuals are primarily concerned about when they refer to "fair trade."[6] We note here that calls for "fair trade" are common in the public political discourse about trade policy, and there is considerable evidence that fairness considerations have played a significant role in shaping trade policy for generations (e.g., Stiglitz and Charlton, 2005). 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

[3]See Jacobson et al. (1993); or, with reference to job losses associated with international trade, see Kletzer (2001). In addition, in a recent paper Krishna and Senses (2009) find that trade has a significant effect on lifetime income risk. While their focus is on income, the fact that this risk derives largely from switching industries suggests that employment risk plays a part as in the work of Kletzer.

[4]See "At Plant Closing, Ordeal Included Heart Attacks" in the *New York Times*, Feb. 24, 2010.

[5]The scarring effects relate to both future labor market performance (Arulampalam, 2001; Gregg, 2001; Gregg and Tominey, 2005; Gregory and Jukes, 2001) and to future "happiness" (Clark et al., 2001; Lucas et al., 2004).

[6]The term "sociotropic" comes from political science and refers to other-regarding preferences, usually in the context of voting. Specifically, that voters are concerned with *national* wellbeing when casting their votes. The term was used in this context originally by Kinder and Kiewiet (1979, 1981) and studied extensively (e.g., Cowden and Hartley, 1992; Funk and Garcia-Monet, 1997; Hibbs, 1993; Kiewiet, 1983; Kinder et al., 1989; Lanoue, 1994; Lewis-Beck, 1988; MacKuen et al., 1992; Markus, 1988, 1992; Romero and Stambough, 1996). Two important papers for us are Mutz and Mondak (1997), who provide a strong link between sociotropic evaluation and fairness, and Mansfield and Mutz (2009), who focus directly on attitudes toward international trade. The results overwhelmingly show that both self-regarding and national-level sociotropic evaluation are central to individual political decision-making.

adjustment assistance (e.g., Lawrence and Litan, 1986) and calls for wage insurance (e.g., 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 (Hiscox, 2006; Mayda and Rodrik, 2005; Scheve and Slaughter, 2001a, 2001b).[7] It is our contention that such concerns are rooted in a view that job losses tied to changes in trade patterns are somehow "unfair" and that society has an obligation to reduce the hardship associated with such life-changing events.

We therefore present a behavioral model in which agents are concerned about the scarring effects from unemployment both for themselves and for others. We then explore the manner in which unemployment matters for trade policy. We show that this framework provides a natural representation of the widely held notion that long-lasting jobs are "good jobs," with the characterization of a job as "good" or "bad" tied to an industry's job creation and job destruction rates. The model yields three policy implications: the government has an incentive to increase employment in sectors characterized by "good jobs"; the government has an incentive to pursue 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 argue that there is at least indirect evidence consistent with each of these propositions.

In the next section, we introduce our behavioral model and explore its implications for trade policy in the presence of scarring effects and sociotropic concerns tied to employment risk. In Section 3, we examine the link between openness and the generosity of the welfare state.

This article is not the first to deal with international trade and unemployment. Nearly 40 years ago, Brecher (1974) used a minimum wage to introduce unemployment into a standard trade model and Davidson and Matusz, along with their coauthors, have developed trade models with search generated unemployment since the mid-1980s.[8] In this vein, there are three papers that offer results on unemployment and trade policy. Davidson et al. (1999) embed search frictions into an HOS model and examine the link between trade and factor returns. They show that the return to employed factors is a convex combination of Stolper–Samuelson and Ricardo–Viner forces with the weights tied to the sectoral turnover rates. The Ricardo–Viner forces are generated by the search costs that must be incurred to find employment. Since these costs are relatively low in high turnover industries, factor returns are mainly driven by Stolper–Samuelson forces in such industries. In contrast, when turnover rates are relatively low, employed factors have strong ties to their industries and the Ricardo–Viner forces dominate. The link between preferences over trade policies and unemployment then follows directly from the fact that the sectoral unemployment rates are determined by the turnover rates.

[7]The Hiscox study is particularly relevant for our purposes since it shows that protectionist arguments couched in terms of job destruction significantly increase opposition to trade liberalization *and* that such arguments clearly trump pro-trade arguments couched in terms of job creation and lower prices. While Hiscox focuses on framing as the key issue, we believe that there are additional substantive issues tied to attitudes toward unemployment and trade policy that are revealed by this study. We provide a more detailed analysis of this issue in Section 2 of our working paper precursor to this article, Davidson et al. (2010).

[8]In addition to Davidson et al. (1987, 1988), work on trade and unemployment includes, but is not limited to, Copeland (1989), Brecher (1992), Matusz (1994, 1996), and Davis and Harrigan (2011) who model unemployment using efficiency wages; Kreickemeier and Nelson (2006) and Egger and Kreickemeier (2008, 2009) who use models with fair wages constraints; Davis (1998) who assumes minimum wages; and Helpman and Itskhoki (2010) and Felbermayr et al. (2011) who use search models.

Costinot (2009) uses a model with search frictions and specific human capital to examine the relationship between trade policy and unemployment. In his model, the government uses trade policy to reallocate workers and he shows that any parameter that is positively (negatively) related to unemployment is also positively (negatively) related to trade taxes. Costinot's results are driven by the nature of the externalities generated by search activity; an issue that is present in our analysis as well. Finally, Davidson et al. (1994) develop an overlapping-generations model with search and show that changes in employment transfer income across generations and produce a social surplus. The size of the surplus varies across sectors, with job creation and job destruction rates playing key roles, therefore having implications for trade policy. It is worth noting that the results of Costinot (2009) and Davidson et al. (1994) identify optimal policy as a response to a distortion in traditional welfare-theoretic terms, while the current paper emphasizes political economic (i.e., noneconomic) considerations.[9]

In addition to work on the link between trade policy and unemployment, there is a small body of work on the link between unemployment and the politics of trade.[10] To start with, macro tariff regressions consistently find a positive link between the unemployment rate and protection (e.g., Hall et al., 1998; Magee and Young, 1987; Takacs, 1981).[11] A recent paper by Magee et al. (2005) tests the predictions of Davidson et al. (1999) on the link between 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 plays a central role in the theory developed in this article. An important early paper by 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 in a model of labor market search like that of Davidson and Matusz, and political lobbying derived from that of Grossman and Helpman (1994).[12] Bradford's model

[9]It is worth noting that in Bradford (2006) the government uses trade policy to buy the votes of the unemployed. Thus, Bradford's explanation is also political.

[10]The Grossman–Helpman (1994) "Protection for Sale (PFS)" 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.

[11]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.

[12]An earlier paper by Bradford (2003) focused on the link between *employment* and protection, in an economy characterized by sectoral minimum wages and unemployment. He finds that protection is increasing in sectoral employment, but not output (as predicted by the Grossman-Helpman model). A 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.

predicts that protection should be decreasing in sectoral turnover and increasing in unionization, both of which are supported in his empirical work.[13]

Interestingly, the majority of this research treats the essential link between unemployment and trade policy as being mediated by lobbying (primarily following Grossman and Helpman). In this article, we argue that this focus may be misguided. Greenaway and Nelson (2010) 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 when trade policy becomes the focus of democratic politics, it is likely that activists on the 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. SCARRING, SOCIOTROPIC CONCERNS, AND TRADE POLICY

In this section we introduce a simple model with search generated unemployment that takes into account both the scarring effects of unemployment and sociotropic concerns about employment risk faced by others. After the model has been developed, we explore the implications of our behavioral assumptions for trade policy.

The novelty of our approach is the manner in which we treat preferences. To model the scarring effect of unemployment, we assume that each agent suffers a disutility of s while unemployed. Moreover, agents care about the welfare of others, resulting in an additional welfare loss which is increasing in the unemployment rate (μ) that captures agents' sociotropic concerns. However, the level of hardship associated with unemployment depends on the generosity of the welfare state. This generosity is measured by the level of support provided to unemployed workers by the government (unemployment compensation), which we denote by b. The total loss in utility for each agent due to their sociotropic concerns (i.e., the employment risk face by others) is therefore measured by $\varphi(\mu; b)$ with $\varphi_\mu > 0 > \varphi_b$. Finally, since a more generous welfare state may reduce the scarring from unemployment, we assume that s is also a decreasing function of b.[14,15] Formally, for an agent earning an income of ω and facing a consumer price index of p, we assume that indirect utility is given by $v(p)\omega - s(b)I - \varphi(\mu; b)$ where I is an indicator function which equals 1 while the agent is unemployed and 0 otherwise. Note that this form of the indirect utility function implies risk neutrality.

[13]Also related to our work is the sizable literature on the link between globalization and welfare states. For example, Gaston and Nelson (2004a) 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.

[14]This assumption plays no major role in our analysis. In fact, it only affects our results on openness and the welfare state, where we find an ambiguous relationship. As we explain in footnote 29 below, this ambiguity would be moderated somewhat if we were to assume that s was independent of b (or even increasing in b).

[15]Empirical support for our assumptions about the impact of the welfare state on the utility losses from unemployment can be found in Di Tella et al. (2003), Gangl (2004), and Pacek and Radcliff (2008).

We consider a continuous time small open economy with a fixed number ($\bar{L}$) of ex ante identical infinitely lived risk neutral workers who each inelastically supply a unit of labor at each point in time. There are two goods and each good is produced in a different sector using 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 (for $i = 1, 2$). Thus, agents seeking a sector i job must find a partner in order to produce. We introduce unemployment by assuming that there are labor market frictions so 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 will be "unemployed." Those agents that find partners and produce are "employed." Unemployed workers choose a sector in which to search based on the expected lifetime utility that each sector offers.

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. Sector-i matches are destroyed involuntarily by an idiosyncratic shock according to a Poisson process. The rate at which shocks occur is defined as $\delta_i \in (0, \infty)$. A match may also 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 (or trade policy) can cause the agents to reassess their options and voluntarily break up an already-formed productive partnership, though all break ups are involuntary in a steady-state. Regardless of the reason for the breakup, whenever a match dissolves both agents must re-enter the search process.

The number of new matches created in a sector is a function of the number of agents searching in that sector. Thus, if we let U_i denote the number of unemployed agents in sector-i, then the number of new matches created in that sector is given by $M_i(U_i)$.[16] We assume that $M_i(U_i)$ is increasing and strictly concave with $M_i(0) = 0$. The assumption of concavity, implying congestion externalities in the search process, is required to generate an equilibrium with diversified production. Since all agents are identical, we assume that each unemployed worker in a given sector is equally likely to find a match. This implies that the sector-i job acquisition rate is given by

$$\pi_i(U_i) = \frac{2M_i(U_i)}{U_i}. \tag{1}$$

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 utility, we now turn to the value equations which describe expected utility in different labor market states. To make our point, it is sufficient to focus on steady-states. If we use V_i^E to denote the expected lifetime utility for an employed sector i worker and V_i^U to denote the expected lifetime utility for an unemployed worker in sector i then we have

$$rV_i^E = v(p)[p_i - \tau(b)] - \varphi(\mu; b) - \delta_i(V_i^E - V_i^U) \tag{2}$$

$$rV_i^U = v(p)[b - \tau(b)] - s(b) - \varphi(\mu; b) + \pi_i(U_i)(V_i^E - V_i^U), \tag{3}$$

[16]Allowing agents to influence the probability of finding a partner by altering search effort would not change our results. See Davidson et al. (1994) for details.

where p_i denotes the world price of good i; r denotes the interest rate; and $\tau(b)$ is the *lump-sum* tax paid by all agents to fund the welfare state. Since each match produces two units of output, a sector-i employed worker earns p_i from the sale of output and pays $\tau(b)$ in taxes. This worker loses his/her job at rate δ_i, in which case there is a capital loss of $V_i^E - V_i^U$. Unemployed workers receive a transfer payment of b from the government but must also pay taxes of $\tau(b)$. These workers find jobs at rate π_i, in which case there is a capital gain of $V_i^E - V_i^U$. In addition, unemployed workers suffer a loss in utility of $s(b)$ due to the scarring effects from unemployment while all agents lose utility of $\varphi(\mu; b)$ due to concerns about the employment risk faced by others.

We can solve (2) and (3) to obtain:

$$V_i^E - V_i^U = \frac{v(p)(p_i - b) + s(b)}{r + \delta_i + \pi_i(U_i)} \tag{4}$$

$$V_i^U = \frac{v(p)\pi_i(U_i)p_i + (r + \delta_i)[v(p)b - s(b)]}{r[r + \delta_i + \pi_i(U_i)]} - \frac{v(p)\tau(b) + \varphi(\mu; b)}{r}. \tag{5}$$

Unemployed workers select a sector to search in based on the relative values of V_1^U and V_2^U; whereas a worker employed in sector i will sever his/her partnership if a shock to the economy causes V_i^E to fall below V_j^U.

The number of new jobs created in any given sector must equal the number destroyed in any steady state. If we use X_i to denote sector-i output (and hence employment) we have the following steady-state condition:

$$\pi_i(U_i)U_i = \delta_i X_i. \tag{6}$$

In (6), the left-hand side gives the number of unemployed workers finding jobs in sector i while the right-hand side measures the number of employed workers who lose their jobs.

Next, let L_i denote the number of workers attached to sector i at any point in time. Then, we must have the following two accounting identities

$$L_i = X_i + U_i \tag{7}$$

$$\bar{L} = L_1 + L_2. \tag{8}$$

And, for a balanced budget we need

$$\tau(b) = \frac{b(U_1 + U_2)}{\bar{L}}. \tag{9}$$

Finally, in any diversified equilibrium, unemployed workers must sort themselves so that they expect to earn the same lifetime utility in both sectors. Thus,

$$V_1^U = V_2^U. \tag{10}$$

This completes the description of the model. The novelty of our approach is in the agents' attitudes toward unemployment as captured by the personal scarring effect of unemployment, $s(b)$, and our fairness measure, $\varphi(\mu; b)$.

To examine the model in greater detail, we begin by focusing on the case in which $b = \tau(b) = 0$. Our goal is to show that the steady-state equilibrium is unique.

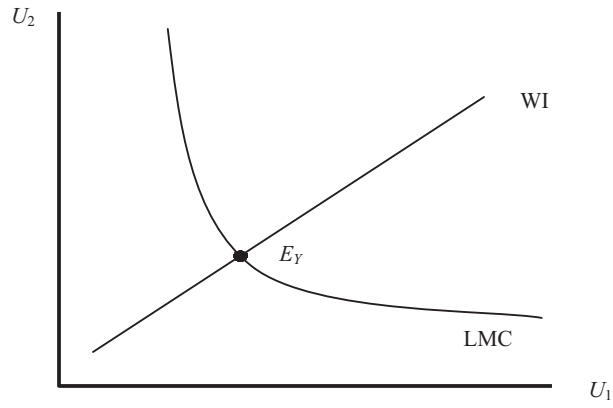

Figure 1. Equilibrium is unique.

Straightforward substitution into (8) and (10) allows us to reduce the model to two equations in two unknowns, U_1 and U_2. Using good 2 as the numeraire and defining $p = p_1$ we obtain

$$\frac{\pi_1(U_1)v(p)p - s(b)(r+\delta_1)}{r+\delta_1+\pi_1(U_1)} = \frac{\pi_2(U_2)v(p) - s(b)(r+\delta_2)}{r+\delta_2+\pi_2(U_2)} \tag{11}$$

$$U_1 + \frac{2M_1(U_1)}{\delta_1} + U_2 + \frac{2M_2(U_2)}{\delta_2} = \bar{L}. \tag{12}$$

Equation (11), which comes from (10), is the Worker Indifference (WI) condition. Since $\pi_i'(U_i) < 0$, this condition is clearly upward sloping. Intuitively, an increase in U_1 reduces the returns to search in sector 1 (due to the congestion externalities) and makes that sector less attractive. To restore equality, sector 2 must become less attractive, requiring an increase in U_2.

Equation (12) is the Labor Market Clearing (LMC) condition. It is downward sloping and strictly convex (see Figure 1). The convexity comes directly from the concavity of the matching technologies. To see this, note that the absolute value of the slope of the LMC curve is $\frac{\delta_1+2M_1'(U_1)}{\delta_2+2M_2'(U_2)}\frac{\delta_2}{\delta_1}$. As we move up and to the left on the LMC curve, U_1 falls and U_2 rises. By concavity, $M_1'(U_1)$ must rise while $M_2'(U_2)$ falls so that the slope rises.

The steady-state equilibrium is given by the intersection of the LMC and WI curves. We now have our first result, which follows directly from Figure 1.

Proposition 1. There is a unique steady-state equilibrium.

For later use, we note that changes in trade policy or unemployment compensation shift the WI curve up or down. In particular, protecting sector 1 shifts the WI curve down (since $\pi_i'(U_i) < 0$) causing sector 1 to expand and sector 2 to contract. We examine the impact of changes in unemployment compensation below.

2.1 *Social Welfare in the Free Trade Equilibrium*

To begin our discussion of trade policy, we start by calculating welfare (continuing to focus on the case in which $b = \tau(b) = 0$). We assume that Social Welfare is the sum of the individual agents' welfare. Thus, in any steady state we have

$$W = \text{Welfare} \equiv \sum_i \left\{ X_i V_i^E + U_i V_i^U \right\} = \sum_I \left\{ L_i V_i^U + X_i (V_i^E - V_i^U) \right\}. \tag{13}$$

Substituting from (4) to (7) we obtain

$$W = \frac{1}{r} \left\{ \sum_i \left\{ v(p) p_i X_i - s(0) U_i \right\} - \bar{L} \varphi(\mu; 0) \right\}. \tag{14}$$

Equation (14) illustrates how concerns about the scarring effects of unemployment and sociotropic concerns enter into social preferences. In particular, (14) indicates that in our behavioral model welfare consists of three components: the value of output, the personal costs from unemployment, and the utility loss due to sociotropic concerns.

It is clear from (11) that workers internalize the scarring effect of unemployment when selecting a sector. Even so, congestion externalities in the search process suggest that the free trade equilibrium would not maximize the value of output net of the scarring costs of unemployment, $Y \equiv \sum_i \{ v(p) p_i X_i - s U_i \}$. Moreover, sociotropic concerns play no role in allocating resources. This is evident from the observation that the worker indifference condition (11) is independent of $\varphi(\mu; b)$.[17] The presence of congestion externalities combined with the absence of fairness considerations in the worker decision-making process strongly suggests that the free trade equilibrium will not maximize welfare as defined in (14).

In the Appendix of our working paper (Davidson et al., 2010), we show that the allocation of resources that maximizes Y satisfies

$$\frac{2M_1'(U_1) v(p) p - s(0)(r + \delta_1)}{r + \delta_1 + 2M_1'(U_1)} = \frac{2M_2'(U_2) v(p) - s(0)(r + \delta_2)}{r + \delta_2 + 2M_2'(U_2)}. \tag{15}$$

Yet, in the free trade equilibrium unemployed workers sort themselves across sectors so that (11) holds (with $b = 0$). A quick comparison of (11) and (15) confirms that since $2M_i'(U_i) \neq \pi_i(U_i)$, the two allocations are different. The reason for this outcome is clear. Individual choices are driven by the *average* job acquisition rates [i.e., the $\pi_i(U_i)$ terms in equation 11]; whereas (15) tells us that labor should be allocated based on the *marginal* job acquisition rates (in sector i this would be $2M_i'(U_i)$) in order to maximize the value of output net of scarring effect (Y). With congestion externalities present, the marginal and average rates are not equal.[18] Thus, even if we ignore sociotropic considerations, the free trade equilibrium is distorted. Even for a small country, a trade tax or subsidy can be welfare enhancing by tilting incentives to induce a worker allocation consistent with (15).

As noted in the introduction, the implications of search generated externalities for trade policy have been explored at length elsewhere (e.g., Costinot, 2009; Davidson

[17]This follows from the two facts – (a) sociotropic concerns enter into V_1^U and V_2^U in the same manner and cancel out and (b) workers treat total unemployment as fixed, since they are small relative to the market.

[18]Without congestion externalities the equilibrium would be efficient but the model would have Ricardian properties in that countries would specialize in production unless world prices equaled autarkic prices.

et al., 1987, 1988) and are well understood. And, since these externalities are not the focus of this article, we will not explore how they distort the allocation of resources. Thus, in order to highlight the manner in which sociotropic concerns affect trade policy (which is the primary focus of this article), we side-step this issue by assuming that in the initial free trade equilibrium the government corrects for search generated externalities by implementing the appropriate production subsidy. This production subsidy equates the marginal and average job acquisition rates in each sector. With this assumption in place, we are now in a position to derive our main results.

2.2 Sociotropic Concerns and Trade Policy

We now turn to the question of how sociotropic concerns about the employment risk faced by others alter trade policy. With the optimal production subsidy in place the free trade allocation of labor maximizes Y. By the Envelope Theorem, small changes in the allocation of labor away from this point create only second order losses. From (14), it follows that the government has an incentive to marginally reduce total unemployment: doing so will have no impact on the first two terms in (14) but will increase welfare by reducing the sociotropic measure $\varphi(\mu; b)$.

Proposition 2. When free trade cum production subsidy maximizes the value of output net of the scarring costs from unemployment, the government can raise welfare by instituting policies that marginally reduce total unemployment.

In the Appendix to our working paper (Davidson et al., 2010), we show that the allocation of labor that minimizes total unemployment [therefore minimizing $\varphi(\mu; b)$] satisfies

$$\frac{2M_1'(U_1)}{r+\delta_1} = \frac{2M_2'(U_2)}{r+\delta_2}. \tag{16}$$

For low discount rates, (16) indicates that sociotropic concerns about unemployment are minimized when the ratio of the marginal job creation rate to the job destruction rate is equalized across sectors. Given the convexity of the LMC curve, there is a unique point on that curve where (16) is satisfied. This point is labeled E_μ in Figures 2 and 3.

While Proposition 2 indicates that the government should marginally reduce unemployment to increase welfare, it does not tell us how to do so. In order to answer that question, we need to compare E_μ to the initial equilibrium. There are two cases to consider, illustrated in Figures 2 and 3. In each figure, the initial equilibrium is represented by E_Y, where the subscript is a reminder that we are starting from an equilibrium that would emerge if the production subsidy that maximizes Y were levied. The sectoral allocation of searchers satisfies both the Worker Indifference condition and the LMC condition at this point.

In Figure 2, E_μ lies to the southeast of E_Y. Unemployment is monotonically decreasing as we move along LMC from E_Y toward E_μ. Since the government's goal is to marginally reduce unemployment, the optimal policy when sociotropic concerns matter must shift WI down toward E_μ, which expands sector 1. However, protecting sector 1 introduces production and consumption distortions, with the optimal policy balancing the reduction in unemployment with the increased magnitude of the

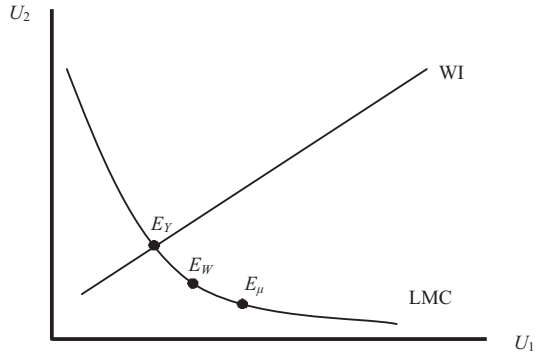

Figure 2. Protecting sector 1 will increase welfare.

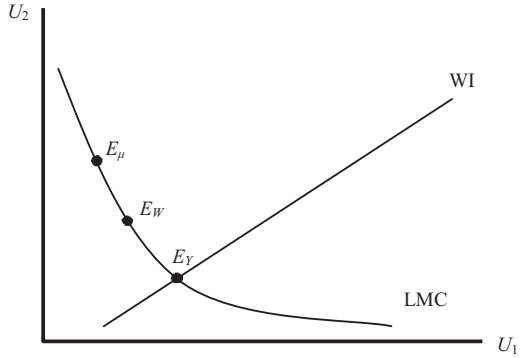

Figure 3. Protecting sector 2 will increase welfare.

production and consumption distortions.[19] In other words, the policy-induced allocation of resources that maximizes welfare will not minimize unemployment, but rather must lie between E_μ and E_Y. We label this point E_W.

The conditions under which it is optimal to expand sector 1 can be found by comparing marginal job creation and job destruction rates at E_μ and E_Y. Given the relative positions of E_μ and E_Y and the concavity of the matching functions, it follows that $2M_1'(U_1^Y) > 2M_1'(U_1^\mu)$ and $2M_2'(U_2^Y) < 2M_2'(U_2^\mu)$, where U_i^Y represents the number of unemployed workers in sector i corresponding to the allocation at Y, with the remaining variables defined analogously. Combining these inequalities with (16) we now know that at E_Y we have

[19]Since protection introduces a consumption distortion, it is not the first-best policy – a production subsidy would be superior. The optimal production subsidy balances the loss in welfare from reducing the value of output with the gain in welfare that comes about as sociotropic concerns are reduced (and, with this subsidy in place, free trade would be optimal). Since this policy does not distort consumption, it entails *more* labor market reallocation than the optimal trade policy. However, a common public view is that production subsidies simply trade one set of domestic jobs for another, while protection saves domestic jobs from foreign competition and thus, protection may be an easier way to reallocate resources politically (especially since a production subsidy must also be financed). Since our focus is on how concerns about unemployment alter trade policy, we assume that the first-best domestic policy alternative is politically infeasible.

$$\frac{2M_1'(U_1^Y)}{r+\delta_1} > \frac{2M_2'(U_2^Y)}{r+\delta_2}. \tag{17}$$

Thus, sociotropic concerns lead us to protect sector 1 when (17) holds in the initial equilibrium.

The second case, depicted in Figure 3, is analogous. Now E_μ lies to the northwest of E_Y. As above, the policy when sociotropic concerns matter must shift the WI curve toward E_μ, meaning that we must now expand sector 2. Formally, we have $2M_1'(U_1^Y) < 2M_1'(U_1^\mu)$ and $2M_2'(U_2^Y) > 2M_2'(U_2^\mu)$; and, using the definition of E_μ we find that at the initial steady-state

$$\frac{2M_1'(U_1^Y)}{r+\delta_1} < \frac{2M_2'(U_2^Y)}{r+\delta_2}. \tag{18}$$

Thus, sociotropic concerns lead the government to institute policies designed to expand sector 2 whenever (18) holds. Both cases are summarized in Proposition 3.

Proposition 3. Suppose that the current allocation of labor maximizes the value of output net of the personal costs of unemployment. Then if sociotropic concerns about total unemployment are present, the government can reduce unemployment and therefore increase welfare by shifting resources to the sector in which $\frac{2M_i'(U_i)}{r+\delta_i}$ is highest.

Proposition 3 tells us that when agents are concerned about the fairness of trade policy, governments will have an incentive to protect sectors that offer durable jobs (those for which δ_i is low) and sectors in which it is relatively easy to create new jobs (where the marginal job creation rate, $M_i'(U_i)$, is high). It is in this sense that some jobs are better than others in our framework. The "good jobs" offer a high level of job security and can be found in sectors with high marginal job creation rates. These jobs are better than others to the extent that they are associated with smaller social losses from the sociotropic component of welfare. We note that Bradford (2006) provides some empirical support for Proposition 3 in that he finds that protection is lower in industries with high job destruction rates.

We are not the first to offer a rationale for a good jobs/bad jobs distinction. Many were offered back in the 1980s in response to the debate over industrial policy aimed at expanding sectors with "good jobs." During this debate, Bulow and Summers (1986) correctly pointed out that industrial policy makes little or no sense in a competitive economy: "Competition equalizes the marginal productivities of all equivalent workers. There is no such thing as a good or bad industry." One of the main points of the Bulow/Summers paper is to show that when labor markets are distorted such a distinction makes sense. In their model, the economy is distorted by the inability of firms to observe worker effort. As a result, firms need to motivate employees to work hard and efficiency wages and unemployment provide the necessary motivation. The labor market distortions sever the link between wages and productivity making it possible to increase welfare by expanding some sectors at the expense of others. Similar rationales for the good job/bad job distinction can be found in Acemoglu (2001) and Costinot (2009) where the distortions are generated by labor market frictions or Davis and Harrigan (2011) where efficiency wage

considerations are present.[20] It is important to emphasize we are offering an explanation that is fundamentally different from this previous work (where the good jobs/bad jobs distinction is mainly about high paying jobs vs. low paying jobs). In our setting, the government has already internalized the congestion externalities by instituting a production subsidy – as a result, the initial steady-state equilibrium maximizes the value of output net of the scarring costs of unemployment. The good jobs/bad jobs distinction follows instead from the behavioral aspects of our model – some jobs are better than others because their durability lowers the loss in welfare that is inherently tied to employment risk. Thus, our framework suggests that rather than characterizing jobs as "good" or "bad" it might be more appropriate to label jobs as "more secure" and "less secure."

2.3 Gradualism

Our next result is related to how the new policies alter the steady-state. In this environment, the government has an incentive to gradually phase in all new policies. There are two reasons for this: the presence of congestion externalities in the search process and the existence of scarring effects and sociotropic concerns tied to unemployment. The result that congestion externalities in the labor market can lead to gradualism is not new. This result can be found in Cassing and Ochs (1978) and in Davidson and Matusz (2004).[21] The argument is straightforward. Suppose that the government decides to implement a tariff to increase welfare by expanding sector 1. There are both costs and benefits from phasing in the higher tariff gradually. The cost is that it takes longer to reach the new equilibrium in which welfare is permanently higher. The benefit is that by phasing in the new tariff the government can reduce the congestion externalities generated as sector 1 expands. Davidson and Matusz (2004) show that as long as congestion externalities are present, the benefits may outweigh the costs and gradualism may be optimal. It follows that if the government wants to alter the composition of employment it should gradually phase 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.

In Cassing and Ochs (1978) and Davidson and Matusz (2004), the appropriate measure of welfare is the value of output. In our behavioral model, we have two additional terms in our welfare function that are tied to scarring effects and fairness concerns, both of which depend solely on unemployment. The presence of these new terms makes the case for gradualism stronger by adding benefits without adding new costs. If we assume that the optimal policy is large enough to cause employed workers to quit their jobs and switch sectors if implemented fully and immediately, then unemployment would be lower all along the transition path if the policy would be phased in instead. Phasing in the policy would allow adjustment to take place through the reallocation of *unemployed* workers with all existing employment relationships kept intact. This implies that the total scarring effects from unemployment and the welfare losses associated with sociotropic concerns would be lower with gradualism. Therefore, societies with stronger sociotropic concerns should be more likely to gradually phase in new policies.

We see this issue of good jobs/bad jobs and gradualism as being related to active labor market policies (ALMP). The primary goal of an ALMP is to promote labor

[20]A somewhat different rationale can be found in the overlapping generation model of Davidson et al. (1994) where "good jobs" transfer more resources across generations than "bad jobs."

[21]See also the related work of Karp and Paul (1994, 1998, 2005) and Gaisford and Leger (2000).

market adjustment through a variety of policies, generally including: job training; search assistance; and employment subsidies. An essential element of ALMP is the attempt to move people to "better" jobs, where this is generally seen as higher paying and/or more stable jobs.[22] From the early 1950s, with the inauguration of the Rehn–Meidner plan in Sweden, until today, ALMPs have figured prominently in Northern European countries. ALMPs have been promoted as part of the OECD's jobs program (OECD, 1990, 1991, 1994, 2006) and the EU's European Employment Strategy (European Commission, 2002, 2004).[23] A major textbook treatment of unemployment even recommends ALMP as an appropriate policy for dealing with labor market adjustment (Layard et al., 1991). In particular, we see the gradualism result as being directly related to the strategy of ALMP. That is, ALMP does not conceive of moving currently employed people from "bad" to "good" jobs, as a simple comparative static result (or some form of *dirigiste* picking of winners) might suggest, but rather seeks to move people as they become unemployed.

3. OPENNESS AND THE WELFARE STATE

There is a widely held belief, among scholars and policy-makers, that openness to trade is supported by welfare state effort. This relationship was identified by Cameron (1978) and discussed at length in a pair of books by Katzenstein (1984, 1985). Since then, this hypothesis has been extensively studied by economists, political scientists and sociologists. The main justifications for this relationship are broadly plausible: a political economic story in which the welfare state buys support of organized labor that would otherwise oppose greater openness; and an insurance story in which greater openness increases income risk and citizens are more willing to support openness if that risk is insured. Given the plausibility of these stories, and the early empirical support, it is somewhat surprising that more recent research has not consistently found support for this hypothesis.[24] Most of this literature emphasizes econometric work relative to the above, essentially ad hoc, hypotheses.[25]

[22]Not only is our approach consistent with the emphasis on improving matching efficiency as an essential part of the strategy of moving people from bad jobs to good jobs, but Estevao's (2007) suggestion that one of the gains from ALMP is that "active policies may lower the disutility of being unemployed, because they provide an occupation to otherwise unemployed workers, some income, and a hope of keeping their labor skills" seems closely related to our scarring effects. Gangl (2006) presents more systematic empirical support for this claim.

[23]ALMPs have been evaluated at length. An early and influential example is Calmfors (1994), while Heckman et al. (1999) took 233 pages of the *Handbook of Labor Economics* for a survey. Research on the effects of ALMP continue up to the present (e.g., Estevao, 2007). The results in this literature are mixed, to say the least, but for our purposes the essential point is that governments and international agencies continue to see ALMP as a potentially important component of labor market policy.

[24]For example, Rodrik's (1998) paper finds support, with particular reference to the insurance story; Alesina and Glaeser (2004) provides evidence to the contrary. Hicks (1999) and Swank (2002) find evidence supporting the redistributive story, while Garrett (1998) and Pontusson (2005) find a negative relationship. Iversen and Cusack (2000) argue that there is no relationship, that technological change is the central driving force in accounting for change in levels of welfare state provision. A particularly interesting result is that there is a strong positive relationship between globalization and welfare state expansion during what people studying welfare states often call the golden age (i.e., the post-War period up to the early 1970s); but that this relationship disappears following in the current period (Eichengreen, 2006; Huber and Stephens, 2001).

[25]There are, of course, exceptions. Adsera and Boix (2002) offer a game theoretic analysis; Davidson et al. (2007) offer a simple general equilibrium analysis under a referendum; Rama and Tabellini (1998) consider a unionized economy with full employment and a PFS political economy; and Gaston and Nelson (2004b) examine a unionized economy with unemployment and a PFS political economy.

Many studies emphasize that the origins and continued support for welfare states are related to notions of fairness, especially with respect to concerns about lack of work, via notions of citizenship rights. The model we have developed in this article contains all of these elements. Thus, in this section, we examine the relationship between welfare state provision and trade policy implied by our theoretical framework. In particular, we ask if countries with more generous welfare programs might have less protection. In our framework, the answer is not clear cut. We first provide an intuitive explanation of the conflicting forces that are present. We then illustrate our results by focusing on a simple example. Our approach in this subsection is consistent with our approach above. We assume that the initial steady-state equilibrium is given by E_Y and that the government then institutes a welfare program by offering unemployment insurance to all workers.[26] We then want to investigate whether countries with larger welfare states (higher b) will tend to be more open to trade. This approach allows us to take into account the distortions created by the welfare state and analyze their implications for trade policy.

Increasing b has two effects. First, increasing b reduces lifetime income loss, the psychic scarring effect, and the sociotropic effect of unemployment. This seems intuitive: for any level of unemployment, transfers to the unemployed will raise their welfare; and the same introspection that reduces the welfare of the currently employed in the face of unemployment will lead to increased welfare as the welfare of the unemployed rises. One of the main reasons that we are concerned about the unfairness of unemployment is that unemployment implies hardship. With a more generous welfare state, this hardship is diminished, implying that we should be less concerned about the scarring effects from unemployment and the costs imposed on others (this is the rationale for our assumptions that s and our fairness measure φ are both decreasing in b). Thus, as b increases, the welfare-maximizing policy places relatively more weight on output and less on minimizing unemployment. This will result in a less interventionist trade policy. We refer to this as the *direct effect* of b, and this is the effect that underlies most assertions to the effect that larger welfare states are associated with greater openness.[27]

However, there is a second effect that is not generally considered in the literature on welfare states and openness: by reducing the personal cost of unemployment, an increase in b should make the high-unemployment sector relatively more attractive; and this should lead to an inefficient expansion of that sector. As resources are reallocated toward the high unemployment sector, we would expect total unemployment to rise and when we take sociotropic concerns into account we will now tend to need a larger trade intervention to lower total unemployment.[28] Since this reallocation of resources is an unintended outcome triggered by an expansion of the welfare state, we refer to this as the *indirect effect* of an increase in unemployment compensation.[29] It

[26]That is, we assume that the government has already instituted policies aimed at correcting for the congestion externalities before the unemployment insurance program is implemented.

[27]Some of the arguments are complicated versions of the above analysis. Rodrik's (1998) analysis, for example, emphasizes the insurance role of the welfare state in the context of an expectation that trade makes incomes in the traded sector riskier. In our model, agents are risk neutral and so it cannot reflect this consideration, but it should be clear that the logic is in the same class as what we have called the "direct effect."

[28]Although one must be careful here – as the sector sizes change, the job acquisition rates change and this alters the sectoral unemployment rates. This is one of the reasons that this analysis is not quite clear cut. We return to this issue below.

[29]Note that magnitude of the indirect effect would be smaller if s were independent b (or increasing in b) since this would moderate the reallocation of labor toward the high-unemployment sector when the welfare state expands. Thus, as we noted in footnote 14, this would reduce the ambiguity of our results by making it more likely that the direct effect would dominate.

follows that where the direct effect reduces the importance of unemployment in the social welfare function, the indirect effect of an increase in b is to increase unemployment, so the overall implication for the link between the generosity of the welfare state and overall protection should be ambiguous.

To formally illustrate these arguments, first note that the LMC curve is independent of b and remember that the economy's initial steady-state is at E_Y. Now, when unemployment insurance is first introduced, the WI curve shifts. To see how, first note that with $b > 0$, the worker indifference condition (11) becomes

$$\frac{\pi_1(U_1)v(p)p + (r+\delta_1)[v(p)b - s(b)]}{r+\delta_1+\pi_1(U_1)} = \frac{\pi_2(U_2)v(p) + (r+\delta_2)[v(p)b - s(b)]}{r+\delta_2+\pi_2(U_2)}. \tag{11b}$$

Next, note that both the left-hand side (V_1^U) and right-hand side (V_2^U) of (11b) increase as b increases, but the left-hand side increases by a larger magnitude if

$$\frac{\pi_2(U_2)}{r+\delta_2} > \frac{\pi_1(U_1)}{r+\delta_1}. \tag{19}$$

With $V_1^U > V_2^U$, unemployed workers start to flow out of sector 2 and into sector 1. As sector 1 expands, congestion causes U_1 to increase, while the flow of unemployed workers out of sector 2 causes U_2 to fall. This reallocation continues until the equality in (11b) is restored. Geometrically, the changes in unemployment are represented by a rightward and downward shift of the WI curve in Figures 1–3. Clearly, WI shifts in the opposite direction if the inequality in (19) is reversed.

The inequality in (19) compares the increase in expected lifetime utilities due to the increase in b across sectors. The sector that experiences the bigger increase expands. Inequality (19) tells us that a low average job acquisition rate (which contributes to high unemployment in a sector) and/or a high job destruction rate (which also contributes to high unemployment in a sector) make it more likely that the sector will expand when b rises. So, our general result is that an increase in the generosity of the welfare state will increase the size of the sector in which $\frac{\pi_i(U_i)}{r+\delta_i}$ is the lowest.

To proceed further, we turn to a specific example in which the matching technologies in the two sectors are identical and given by $M_i(U_i) = \left(\frac{U_i}{2}\right)^{\lambda}$ with $\lambda < 1$. Under this assumption, the only difference between sectors is the job destruction rates. This simplifies matters because with this matching technology $2M_i'(U_i) = \lambda\pi_i(U_i)$, which implies that $\frac{2M_1'(U_1)}{2M_2'(U_2)} = \frac{\pi_1(U_1)}{\pi_2(U_2)}$. To see why this matters, note that Figure 2 is relevant if (17) holds; and, if (17) holds we have

$$\frac{\pi_1(U_1)}{\pi_2(U_2)} = \frac{2M_1'(U_1)}{2M_2'(U_2)} > \frac{r+\delta_1}{r+\delta_2}, \tag{20}$$

so that, by (19) an increase in b causes the WI curve to shift up and to the left and away from E_μ. Since this shift moves the economy away from E_μ, unemployment is increasing and since it also moves the economy away from E_Y and E_W this expansion of unemployment is inefficient. Further increases in the size of the welfare state push the WI curve further up to the left, causing additional increases unemployment and additional distortions. This requires greater government intervention to undo the damage and lower unemployment. This is the indirect effect described above. The direct effect follows from the fact that the increase in b lowers our sociotropic measure φ,

causing E_W to move away from E_μ toward E_Y – that is, the welfare-maximizing point moves closer to the steady-state equilibrium. As a result, a *smaller* government program will be needed to maximize welfare. Thus, as our intuition suggested, the direct and indirect effects have opposing implications for the level of government intervention. Note that the same conclusions apply to Figure 3 since the inequality in (20) is then reversed, implying that an expansion of the welfare state causes the WI curve to move down to the right and away from E_μ.

In summary, in this case, when the generosity of the welfare state increases, we expect the high unemployment sector to expand and concerns about scarring and fairness to be reduced. The first effect leads to more protection aimed at reducing unemployment but the second effect leads to less protection because concerns about the hardship associated with unemployment have been reduced. The net effect for protection is ambiguous.

It is worth noting that if we compare (19) with (16), the condition that defines E_μ, it is clear that things will not always work out exactly as our intuition or this example suggests. A complication arises because, from (19), it is the *average* job creation rate that dictates whether the WI curve will shift up or down while, as (16) indicates, it is the *marginal* job creation rates that determine where total unemployment is minimized. This makes it difficult to tell how total unemployment will change when the welfare state expands – that is, it is not clear whether an increase in b causes the steady-state equilibrium to move toward E_μ or away from it. Our specific example allows us to avoid this issue, because the ratio of marginal job creation rates equals the ratio of average job creation rates – but this will not always be the case.

However, for more general matching functions, the additional case that arises actually leads to cleaner results. This case arises when an increase in b causes the WI curve to shift toward E_μ, thereby lowering unemployment. This could happen, for example, if the low-unemployment sector is relatively large. In that case, an increase in b would reallocate resources toward the high-unemployment sector and the subsequent reduction in congestion in the low-unemployment sector would lower that sector's unemployment rate. Since the economy-wide unemployment rate is a convex combination of the sectoral rates and since the low-unemployment sector is relatively large, this could lead to a reduction in the economy-wide rate of unemployment. In such a case, the direct and indirect effects work in the same direction – they both imply that economies with a larger welfare state should be more open.

We have seen that, in the general equilibrium model developed in this article, even with explicit inclusion of sociotropic concerns, the link between welfare state provision and trade openness is ambiguous due to the simultaneous occurrence of the direct and indirect effects. This is weakly consistent with the ambiguous results in the empirical literature on this relationship. At a minimum, this sort of general equilibrium relationship, which seems quite appropriate given the broadly macroeconomic impact of both openness and welfare state provision, suggests greater care in econometric modeling of this relationship. Stronger evidence of the causal forces we identify might exploit the break in the relationship identified by Huber and Stephens (2001) and Eichengreen (2006) as occurring some time after the post-War "golden age" of welfare state capitalism. That is, our framework suggests that one might look for factors that either weaken the direct effect or strengthen the indirect effect over the post-War period.

In closing this subsection, is worth noting that the ambiguity of our results highlights the need for a more careful examination of optimal social insurance programs in open economies. The welfare state in our model simply provides unemployment

insurance. Perhaps a program that combines wage or training subsidies with an unemployment insurance program might be superior and might have different implications for the indirect effect. Although we are always quick to point out that those harmed by trade can be compensated without exhausting the gains from trade, surprisingly little work has focused on how this might be accomplished with politically feasible labor market programs. And, while there has been significant work in macroeconomics on optimal social insurance programs, the same cannot be said for the field of international economics. The insights derived in the macro literature, which are based on closed economy models, may not generalize to open economy setting in which labor market policies, labor market structure and the pattern of trade are likely to be linked. We would argue that it is now time for trade economists to start to think seriously about how to design programs aimed at compensating trade displaced workers in a manner that makes increased openness easier to attain.

4. CONCLUSIONS AND DIRECTIONS FOR FUTURE RESEARCH

In this article, we have focused on how the scarring effects from unemployment and sociotropic concerns about the employment risk faced by others are likely to shape trade policy. Of course, these concerns also have implications for industrial policy, an issue that we have not addressed here. The main reason for this is that in many countries (including the United States) it is common for politicians to call for trade policy to combat pockets of high unemployment. Sometimes the calls are for freer trade, aimed at expanding exports markets and creating new domestic jobs; while at other times the calls are for barriers to trade aimed at protecting domestic jobs in a particular sector. It far more rare for politicians to push for domestic policies with similar objectives, perhaps because such policies are viewed as "zero-sum" with new domestic jobs in one sector coming at the expense of domestic jobs in another sector; whereas trade policy is viewed as producing or protecting domestic jobs at the expense of foreigners. This is, of course, very much at odds with the way trade economists view the world but it is consistent with other views that seem to be held by the public. As Paul Krugman and others have pointed out, the public seems to think that trade is all about exports, since they generate jobs, while imports are considered a necessary evil. Given that the public and our political leaders hold such views, it seems reasonable to ask how concerns about unemployment are likely to affect trade policy.

Finally, we close by pointing out that the analysis presented here suggests a new way of interpreting the relationship between two bodies of research on the political economy of international trade policy that seem to coexist somewhat awkwardly at present: empirical research based on public opinion data (e.g., Mayda and Rodrik, 2005; O'Rourke and Sinnott, 2002; Scheve and Slaughter, 2001a, 2001b); and theoretical and empirical work based on the Grossman and Helpman's (1994) "PFS" model. The former are often presented as providing information with respect to individual preferences on trade policy that are presumed, somehow, to be translated into policy – either via the lobbying channel or via the political decision-maker's concern with aggregate welfare. However, as we argue above, there are serious problems with this interpretation. From the point of view of aggregation, it is not clear how we are supposed to get from this information to trade policy: on the one hand, there have virtually never been referenda on trade, and only very rarely have there been elections in recent times that turned on trade; while, on the other, citizens rarely participate in

lobbying. Perhaps more importantly, there is, in fact, little evidence that citizens understand trade in the way that our models presume they do (Guisinger, 2009; Hainmueller and Hiscox, 2006; Hiscox, 2006; Mansfield and Mutz, 2009). This latter fact does not render citizen opinion unimportant, but it does mean that we need to theorize the relationship with some care. We have argued that citizen preferences, such as they are, act as a constraint on governmental policy choice very much in the way that the aggregate welfare constraint is modeled by Grossman and Helpman. However, we have also argued that there is considerable evidence that, when citizens think about trade policy, unemployment plays a major role in their calculation and that this calculation contains a major sociotropic element. The political decision-maker must obviously take these elements into account. Our analysis draws these elements together. The next step in the program begun in this and our previous paper (Davidson et al., 2006) is to analyze the full political economic equilibrium with lobbying.

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