

*A Behavioral Model of Unemployment, Fairness and the  
Political Economy of Trade Policy*

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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 (and globalization more generally), we think about wages; when everyone 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.<sup>1</sup> 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.<sup>2</sup> Thus, in this paper, 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 examine the implications of recent work in behavioral economics of unemployment for the design of optimal trade policies. Specifically, we will argue that, in addition to affecting individual well-being, 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 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

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<sup>1</sup> 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.

<sup>2</sup> 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 (Scheve and Slaughter 2001b, Hiscox 2006).

of job loss are non-trivial.<sup>3</sup> 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.<sup>4</sup> 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 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 “fairness”, or

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<sup>3</sup> See Jacobson, LaLonde and Sullivan (1993); or, with particular reference to job loss associated with international trade competition, see Kletzer (2001) or Davidson and Matusz (2004b). Recent work by Krishna and Senses (2009) finds that trade has a statistically and economically significant effect on lifetime income risk. While the focus in that paper is on income, the fact that much of this risk derives from “switching” industries, suggests that employment risk plays a part as in the work of Kletzer and Davidson and Matusz.

<sup>4</sup> These scarring effects relate to both future labor market performance (Arulampalam 2001, Gregg 2001, Gregory and Jukes 2001, Gregg and Tominey 2005) and to future “happiness” (Clark, et al. 2001, Lucas, et al. 2004).

“sociotropic”, concern and argue that this is the effect that most individuals are primarily concerned about when they refer to “fair trade.”<sup>5</sup> 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 adjustment assistance (e.g. Lawrence and Litan 1986) and recent 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 (Scheve and Slaughter 2001b, Mayda and Rodrik 2005, Hiscox 2006). 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.<sup>6</sup>

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 the determination of trade policy. We show that this framework provides a natural representation of the widely held notion that long-lasting jobs are in some sense “good jobs,” with the characterization of a job as “good” or “bad” tied

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<sup>5</sup> “Fairness” is self-explanatory. 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* well-being when casting their votes. The term was used in this context originally by Kinder and Kiewiet (Kinder and Kiewiet 1979, 1981) and studied extensively (e.g. Kiewiet 1983, Lewis-Beck 1988, Markus 1988, Kinder, et al. 1989, Cowden and Hartley 1992, MacKuen, et al. 1992, Markus 1992, Hibbs 1993, Lanoue 1994, Romero and Stambough 1996, Funk and Garcia-Monet 1997). Two particularly 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.

<sup>6</sup> It should be noted that, in this paper, we are concerned with fairness in this broad social context, and not with the kind of the fair wage concerns modeled by Akerlof and Yellen (1988, 1990).

to industry's job creation and job destruction rates. The model yields three key 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 will argue that there is, at least indirect, evidence consistent with each of these propositions.

In the next section, we provide context for our work by looking at recent research on trade policy preferences as reflected in opinion polls. Next, we introduce our behavioral model and explore its implications for optimal trade policy in the presence of scarring effects and fairness concerns tied to employment risk. The final substantive section examines the link between openness and welfare state effort.

This paper is, of course, not the first to deal with international trade and unemployment. Over thirty years ago, Brecher (1974) used a minimum wage to introduce unemployment into a standard trade model and Davidson and Matusz, along with a variety of co-authors, have developed general equilibrium models of trade with search generated unemployment since the mid-1980s.<sup>7</sup> In this vein, there are three papers that offer results on unemployment and optimal trade policy. Davidson, Martin and Matusz (1999) embed search frictions into a standard 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 determined by 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

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<sup>7</sup> Additional work on trade and unemployment includes, but is not limited to, Copeland (1989), Brecher (1992), Matusz (1994, 1996), and Davis and Harrigan (2008) who model unemployment as the result of efficiency wage concerns; Kreickemeier and Nelson (2006) and Egger and Kreickmeier (2008, 2009) who use models with fair wages constraints; Davis (1998) who assumes minimum wages; and Helpman and Itskhoki (2007) and Felbermayr, Schmerer and Prat (2008) who use general equilibrium search models.

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.

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 across sectors 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, Martin and Matusz (1994) develop an overlapping-generations model with search generated unemployment and show that changes in employment transfer income across generations and produce a social surplus. The size of the social surpluses vary across sectors, with job creation and job destruction rates playing key roles, and they briefly explore the implications of this fact for trade policy. It is worth noting that the results of Costinot (2009) and Davidson, Martin and Matusz (1994) identify optimal policy as a response to a distortion in traditional welfare-theoretic terms, while the current paper emphasizes political economic (i.e. non-economic) considerations.

In addition to work on the link between optimal trade policy and unemployment, there is a small body of work on the link between unemployment and the politics of trade.<sup>8</sup> To start with, macro tariff regressions consistently find a positive link between the unemployment rate and protection (e.g. Takacs 1981, Magee, Stephen P. and Young 1987,

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<sup>8</sup> 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.

Hall, H. K., et al. 1998).<sup>9</sup> A recent paper by Magee, Davidson and Matusz (2005) tests the predictions of Davidson, Martin and Matusz (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 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).<sup>10</sup> 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.<sup>11</sup>

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 paper, we argue that this focus may be misguided.

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<sup>9</sup> 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.

<sup>10</sup> 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.

<sup>11</sup> 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.

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 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 (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.<sup>12</sup> 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”.<sup>13</sup> One way of looking at these results is that people are “naturally” supporters

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<sup>12</sup> 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).

<sup>13</sup> See, for example, the discussion in Scheve and Slaughter (2001a). 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). A recent paper by Freund and Ozden (2008) develops a political economy model of trade policy determination based on precisely this

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.<sup>14</sup> Our position is that, on issues like trade 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.

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behavioral model of preferences. In our paper, we suggest an alternative behavioral account based on scarring and fairness.

<sup>14</sup> 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 (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. Even stronger evidence that citizens treat trade as a relatively unimportant issue, even in the context of some public trade politics, is found in a very recent paper by Guisinger (2009). Guisinger uses public opinion data from the period around the Central American Free Trade Association politics in the 2006 mid-term election to study the salience (knowledge and importance of issue) of trade, and finds that trade is the least salient issue of all issues considered in the study.

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.

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 understandings of academic specialists, the issue practically *really is* about the content in the frame.<sup>15</sup>

For all the reasons we discussed in the introduction to this paper, unemployment is a powerful valence issue.<sup>16</sup> 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

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<sup>15</sup> 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.

<sup>16</sup> Donald Stokes (1963, 1992) introduced valence issues as a central element of his critique of the spatial model. Stokes defines valence issues as “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.

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 the way that of unemployment and fairness preferences affect objective function of a welfare maximizing government.<sup>17</sup> In the next section we derive this objective function, and in the following section we solve for optimal policies in a world with unemployment and a government whose policies reflect citizen concerns with that unemployment.

### 3. Scarring, Fairness 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 fairness concerns about employment risk faced by others. After the model has been developed, we explore the implications of our behavioral assumptions for optimal 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  $s$  as long as they are unemployed. Moreover, agents care about the welfare of others, resulting in an additional welfare loss which is increasing in the unemployment rate ( $\mu$ ) that captures agents' concerns about fairness. However, the level of hardship associated with unemployment depends on the generosity of the welfare state. This generosity is measured by the level of income 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 concerns about fairness (i.e., the employment risk face by others) is therefore measured by  $\phi(\mu; b)$  with  $\phi_\mu > 0 > \phi_b$ . Finally, since a more generous welfare state may

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<sup>17</sup> Davidson, Matusz and Nelson (2006) provide a simple political economy model based on the same micro-foundations, though under conditions of full employment, that underlie this model. In that paper, the political mechanism was a single issue referendum on the tariff. Thus, "government" in the sense considered here was not relevant to that analysis. It should be clear that this objective function can be used in a Grossman-Helpman (1994) setup in place of the utility function used in the protection for sale model. This is precisely what we seek to do in companion paper to the current paper.

reduce the scarring from unemployment, we assume that  $s$  is also a decreasing function of  $b$ .<sup>18,19</sup> Formally, for an agent earning an income of  $\omega$  and facing a consumer price index of  $p$ , we assume that indirect utility is given by  $v(p)\omega - s(b)I - \phi(\mu; b)$  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 that the agent is risk neutral.

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 produced in this economy 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 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 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 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

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<sup>18</sup> 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 32 below, this ambiguity would be moderated somewhat if we were to assume that  $s$  was independent of  $b$  (or even increasing in  $b$ ).

<sup>19</sup> Empirical support for our assumptions about the impact of the welfare state on the utility losses from unemployment can be found in DiTella, MacCulloch and Oswald (2003), Gangl (2004), and somewhat more indirectly, Pacek and Radcliff (2008).

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 given 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 assumed to be a function of the number of unemployed 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  $M_i(U_i)$ .<sup>20</sup> 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

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

Note that the numerator of  $\pi_i$  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

$$(2) \quad rV_i^E = v(p)[p_i - \tau(b)] - \phi(\mu; b) - \delta_i(V_i^E - V_i^U)$$

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<sup>20</sup> Allowing agents to influence the probability of finding a partner by altering search effort would not change our results. See Davidson, Martin and Matusz (1994) for details.

$$(3) \quad rV_i^U = v(p)[b - \tau(b)] - s(b) - \phi(\mu; b) + \pi_i(U_i)(V_i^E - V_i^U)$$

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  $\delta_i$ , 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  $\pi_i$ , 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  $\phi(\mu; b)$  due to concerns about the employment risk suffered by others.

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

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

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

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- $i$  employment (and hence output) we have the following steady-state condition:

$$(6) \quad \pi_i(U_i)U_i = \delta_i X_i$$

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

$$(7) \quad L_i = X_i + U_i$$

$$(8) \quad \bar{L} = L_1 + L_2$$

And, for a balanced budget we need

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

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

$$(10) \quad V_1^U = V_2^U$$

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

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. 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

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

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

Equation (11), which comes from (10), is the Worker Indifference (WI) condition. Since  $\pi_i'(U_i) < 0$ , this condition is clearly upward sloping in  $(U_1, U_2)$  space. 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 and this requires an increase in  $U_2$ .

Equation (12) is the Labor Market Clearing (LMC) condition. It is downward sloping and strictly convex in  $(U_1, U_2)$  space (see Figure 1). The convexity of this curve 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 will shift the WI curve down (since  $\pi_i'(U_i) < 0$ ) causing sector 1 to expand and sector 2 to contract. We will examine the impact of changes in unemployment compensation below.

### Efficiency and Optimal Trade Policy in the Absence of Fairness Concerns

To begin our discussion of optimal 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

$$(13) \quad W = Welfare \equiv \sum_i \{X_i V_i^E + U_i V_i^U\} = \sum_l \{L_l V_l^U + X_l (V_l^E - V_l^U)\}$$

Substituting from (4)-(7) we obtain

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

Equation (14) illustrates how concerns about the scarring effects of unemployment and concerns about fairness 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 fairness 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,  $Y \equiv \sum_i \{v(p)p_i X_i - sU_i\}$ . Moreover, fairness concerns play no role in allocating resources. This is evident from the observation that the worker indifference condition (11) is independent of  $\phi(\mu; b)$ .<sup>21</sup> 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 we show that the allocation of resources that maximizes  $Y$  satisfies

$$(15) \quad \frac{2M'_1(U_1)v(p)p - s(0)(r + \delta_1)}{r + \delta_1 + 2M'_1(U_1)} = \frac{2M'_2(U_2)v(p)p - s(0)(r + \delta_2)}{r + \delta_2 + 2M'_2(U_2)}.$$

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 eq. 11); whereas (15) tells us that labor should be allocated based on the *marginal* job

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<sup>21</sup> This follows from the two facts – (a) fairness concerns enter into  $V_1^U$  and  $V_2^U$  in the same manner and therefore cancel out and (b) workers treat total unemployment as fixed, since they are small relative to the market.

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.<sup>22</sup> Thus, even if we ignore fairness 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). To be more precise, if fairness concerns are not present, the optimal tariff for a small country equates the marginal and average job acquisition rates in each sector. With a slight abuse of terminology, we refer to this tariff as the “Pigouvian tariff.”

Proposition 2: In the absence of fairness concerns, the optimal tariff for a small open economy is not zero due to the congestion externalities inherent in the search process.

The externalities from search and their implications for international trade have been explored at length elsewhere (e.g. Davidson, et al. 1987, 1988) and are well understood. And, since these externalities are not the focus of this paper, we will not explore how they distort the allocation of resources. Our main goal is to investigate how fairness concerns alter the optimal tariff. So, that is the next question to address.

### Fairness and Optimal Trade Policy

We now assume that the government has implemented the Pigouvian tariff and ask how concerns about fairness alter optimal trade policy. By definition, the Pigouvian tariff results in an allocation of labor such that  $Y$  is maximized. By the envelop theorem, small changes in the allocation of labor away from this point create only second order losses from this value. From (14), it follows that the government has an incentive to marginally reduce

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<sup>22</sup> 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.

total unemployment: doing so will have no impact on the first two terms in (14) but will increase welfare by reducing the fairness measure  $\phi(\mu; b)$ .

Proposition 3: When the Pigouvian tariff is in place, the government can raise welfare by instituting policies that marginally reduce total unemployment.

In the Appendix, we show that the allocation of labor that minimizes total unemployment (and therefore minimizes  $\phi(\mu; b)$ ) satisfies

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

For low discount rates, (16) indicates that fairness 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  $E_\mu$  in Figures 2-4.

In order to determine how to reduce unemployment and therefore increase welfare, we need to compare  $E_\mu$  to the initial-steady-state equilibrium. There are two cases to consider, illustrated in Figures 2 and 3. In each figure, the initial steady-state equilibrium is represented by  $E_Y$ , where the subscript is a reminder that we are starting from an equilibrium that would emerge if the Pigouvian tariff were levied, thereby maximizing  $Y$ . The distribution of searchers across sectors simultaneously satisfies the Worker Indifference condition and the Labor Market Clearing condition at this point.

In Figure 2,  $E_\mu$  lies to the southeast of  $E_Y$ . Unemployment is monotonically decreasing in the movement along LMC from  $E_Y$  toward  $E_\mu$ . Since the government's goal is to marginally reduce unemployment, the optimal policy when fairness concerns matter must shift the WI down towards  $E_\mu$ . As noted above, protecting sector 1 shifts the WI curve and

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 production and consumption distortions. In other words, the policy-induced allocation of resources that maximizes total welfare will not minimize unemployment, but rather must lie between  $E_\mu$  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  $E_\mu$  and  $E_Y$ . Given the relative positions of  $E_\mu$  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

$$(17) \quad \frac{2M'_1(U_1^Y)}{r + \delta_1} > \frac{2M'_2(U_2^Y)}{r + \delta_2}$$

Thus, fairness concerns lead us to protect sector 1 whenever (17) holds in the initial steady-state equilibrium.

The second case, which is depicted in Figure 3, is analogous. In this situation,  $E_\mu$  lies to the northwest of  $E_Y$ . As above, the policy when fairness concerns matter must shift the WI curve towards  $E_\mu$ , meaning that we must expand sector 2 in this situation. Formally, we have  $2M'_1(U_1^Y) < 2M'_1(U_1^\mu)$  and  $2M'_2(U_2^Y) > 2M'_2(U_2^\mu)$ . Once again, using the definition of  $E_\mu$  we now find that at the initial steady-state

$$(18) \quad \frac{2M'_1(U_1^Y)}{r + \delta_1} < \frac{2M'_2(U_2^Y)}{r + \delta_2}$$

Thus, fairness concerns lead the government to institute policies designed to expand sector 2 whenever (18) holds. Both cases are summarized in Proposition 4.

Proposition 4: Suppose that the current allocation of labor maximizes the value of output net of the personal costs of unemployment. Then if fairness 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 4 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  $\delta_i$  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 are not the first to offer a rationale for a goods 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 in Acemoglu (2001) and Costinot (2009) where the distortions are generated by labor market frictions or Davis and Harrigan (2008) where efficiency wage considerations are present.<sup>23</sup> It is important to emphasize we are offering an explanation that is fundamentally different from this previous work. In our setting, the government has already internalized the congestion externalities by instituting the Pigouvian tariff – 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

### Gradualism

Our next result is related to how the implementation of new policies alters 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 fairness 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 more recently in Davidson and Matusz (2004a).<sup>24</sup> 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 steady-state equilibrium in which welfare is permanently higher. The benefit is that

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<sup>23</sup> A somewhat different rationale can be found in the overlapping generation model of Davidson, Martin and Matusz (1994) where “good jobs” transfer more resources across generations than “bad jobs.”

<sup>24</sup> See also the related work of Karp and Paul (1994, 1998, 2005) and Gaisford and Leger (2000).

by phasing in the new tariff the government can reduce the congestion externalities generated as sector 1 expands. Davidson and Matusz (2004a) 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 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.

In Cassing and Ochs (1978) and Davidson and Matusz (2004a) 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. When the new policy is phased in, unemployment is lower all along the transition path than it would be in the absence of gradualism. This implies that the total scarring effects from unemployment and the welfare losses associated with fairness concerns will always be lower with gradualism. Therefore, societies with stronger concerns about fairness should be more likely to gradually phase in new policies.

### Active Labor Market Policies

The preceding analysis suggests that policy should seek to transfer workers from bad jobs to good jobs (i.e. it should seek to reduce unemployment in the sector producing good jobs); and that policy should seek to make this transfer gradually. We see the 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 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.<sup>25</sup> 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). A major textbook treatment of unemployment even recommends ALMP as an appropriate policy for dealing with labor market adjustment (Layard, et al. 1991).<sup>26</sup> 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 to 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.

#### 4. 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 increased openness increases income risk

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<sup>25</sup> Not only is our approach strongly 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 Estavao’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 very closely related to our scarring effects. Gangl (2006) presents more systematic empirical support for this claim.

<sup>26</sup> ALMPs have been evaluated at length. An early and influential example is Calmfors (1994), while Heckman, Lalonde and Smith (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. Estavao 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.

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.<sup>27</sup> Most of this literature emphasizes econometric work relative to the above, essentially *ad hoc*, hypotheses.<sup>28</sup>

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 paper contains all of these elements. Thus, in this section, we examine the relationship between welfare state provision and optimal 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 sub-section 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.<sup>29</sup> We then want to investigate whether countries with larger welfare states (higher  $b$ ) will tend to be

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<sup>27</sup> For example, Rodrik's (1998) well-known 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 (Huber and Stephens 2001, Eichengreen 2006).

<sup>28</sup> There are, of course, exceptions. Adsera and Boix (2002) offer a simple game theoretic analysis; Davidson, Matusz and Nelson (2007) offer a simple general equilibrium analysis under a referendum; Rama and Tabellini (1998) consider a unionized economy with full-employment and a protection for sale (PFS) political economy; and Gaston and Nelson(2004b) examine a unionized economy with unemployment and a PFS political economy.

<sup>29</sup> 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.

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  $\phi$  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.<sup>30</sup>

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 towards the high unemployment sector, we would expect total unemployment to rise and when we take fairness concerns into account we will now tend to need a larger trade intervention to lower

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<sup>30</sup> 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".

total unemployment.<sup>31</sup> 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.<sup>32</sup> It 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 that, since the Pigouvian tariff is in place, 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

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

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

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

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.

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<sup>31</sup> 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.

<sup>32</sup> 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 towards the high-unemployment sector when the welfare state expands. Thus, as we noted in footnote 18, this would reduce the ambiguity of our results by making it more likely that the direct effect would dominate.

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  $2M'_i(S_i) = \lambda\pi_i(S_i)$ , 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.

However, if (17) holds we have

$$(20) \quad \frac{\pi_1(U_1)}{\pi_2(U_2)} = \frac{2M'_1(U_1)}{2M'_2(U_2)} > \frac{r + \delta_1}{r + \delta_2},$$

so that, by (19) an increase in  $b$  causes the WI curve to shift up and to the left and away from  $E_\mu$ . Since this shift moves the economy away from  $E_\mu$ , unemployment is increasing and since it also moves the economy away from  $E_\gamma$  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 fairness measure  $\phi$ , causing  $E_W$  to move away from  $E_\mu$  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 (once again) from  $E_\mu$ .

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.

In closing this sub-section, we note that if we compare (19) with (16), the condition that defines  $E_\mu$ , 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 towards  $E_\mu$  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

towards  $E_\mu$ , 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 paper, even with explicit inclusion of fairness 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 (Huber and Stephens 2001) and Eichengreen (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.

## **5. Conclusions and Directions for Future Research**

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. Scheve and Slaughter 2001b, O'Rourke and Sinnott 2002, Mayda and Rodrik

2005); and theoretical and empirical work based on the Grossman-Helpman (1994) “protection for sale” 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 (Hainmueller and Hiscox 2006, Hiscox 2006, Guisinger 2009, 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 programme begun in this and our previous paper (Davidson, et al. 2006) is to analyze the full political economic equilibrium with lobbying.

## Appendix

We can generalize the welfare function in (14) to account for dynamic paths where income and employment change over time:

$$(A.1) \quad W = \sum_{i=1,2} \int_0^{\infty} e^{-rt} [v(p)p_i X_i(t) - s(L_i - X_i(t))] dt - \bar{L} \int_0^{\infty} e^{-rt} \phi(\mu(t)) dt$$

where  $W$  in (A.1) is the same as in (14) if  $X_i(t) = X_i$  and  $\mu_i(t) = \mu$  for all  $t$ .

Note that any change in  $L_i$ , the initial allocation of labor across sectors, changes the entire future paths of employment and output. We can therefore write welfare as a function of some initial allocation of labor and then solve for the allocation that maximizes welfare.

While it is straight forward to maximize  $W$  with respect to  $L_1$  (with  $L_2 = \bar{L} - L_1$ ), it is more illuminating to proceed in a two-step process where the allocation of labor is first chosen to maximize the value of output net of the personal cost of scarring and then chosen to minimize the unemployment rate.

To proceed with the first step, we follow Diamond (1980) and calculate the dynamic marginal product of labor. To do so, we first define  $Y_i(L_i)$  as the present discounted value of sector- $i$  output net of the personal scarring cost of unemployment:

$$(A.2) \quad Y_i(L_i) \equiv \int_0^{\infty} e^{-rt} [v(p)p_i X_i(t) - s(L_i - X_i(t))] dt$$

The present discounted value of net output is maximized when  $Y_1'(L_1) = Y_2'(L_2)$

To find  $Y_i'(L_i)$  we start by using the fundamental equation of dynamic programming:

$$(A.3) \quad rY_i(L_i) = v(p)p_i X_i - s(L_i - X_i) + \frac{\partial Y_i(L_i)}{\partial X_i} \dot{X}_i$$

We then substitute for  $\dot{X}_i(t) = 2M_i(L_i - X_i(t)) - \delta_i X_i(t)$  so that

$$(A.4) \quad rY_i(L_i) = v(p)p_i X_i - s(L_i - X_i) + \frac{\partial Y_i(L_i)}{\partial X_i} [2M_i(L_i - X_i) - \delta_i X_i]$$

Differentiate with respect to  $L_i$  to obtain

$$(A.5) \quad rY_i'(L_i) = -s + \frac{\partial Y_i(L_i)}{\partial X_i} 2M_i'(L_i - X_i)$$

Now, we must find  $\frac{\partial Y_i(L_i)}{\partial X_i}$ . To do so, rearrange (A.4) to obtain

$$(A.6) \quad \frac{\partial Y_i(L_i)}{\partial X_i} = \frac{rY_i(L_i) - v(p)p_iX_i + s(L_i - X_i)}{2M_i(L_i - X_i) - \delta_iX_i}$$

Both the numerator and denominator of the right-hand-side of (A.6) are zero when evaluated at the steady state. Thus, we use L'Hopital's Rule and differentiate both by  $X_i$  to obtain

$$(A.7) \quad \frac{\partial Y_i(L_i)}{\partial X_i} = \frac{r \frac{\partial Y_i(L_i)}{\partial X_i} - v(p)p_i - s}{-(2M_i'(U_i) + \delta_i)} \Rightarrow \frac{\partial Y_i(L_i)}{\partial X_i} = \frac{v(p)p_i + s}{2M_i'(U_i) + \delta_i + r}$$

Substituting the result of (A.7) into (A.5) generates our desired result:

$$(A.8) \quad rY_i'(L_i) = \frac{2M_i'(U_i)v(p)p_i - (r + \delta_i)s}{r + \delta_i + 2M_i'(U_i)}$$

Note that, as described in the text,  $rY_i(L_i)$  differs from  $rV_i^U$ .

Next, we want to know where the fairness measure,  $\phi(\mu)$ , is minimized – clearly, this is where the unemployment rate is also minimized. Define  $F(L_1)$  as the present discounted value of the fairness measure when  $L_1$  workers are allocated to sector 1. Then

$$F(L_1) \equiv \int_0^\infty e^{-rt} \phi[(\bar{L} - X_1(t) - X_2(t))/\bar{L}] dt \quad \text{with} \quad \dot{X}_1(t) = 2M_1(L_1 - X_1(t)) - \delta_1X_1(t) \quad \text{and} \\ \dot{X}_2(t) = 2M_2(\bar{L} - L_1 - X_2(t)) - \delta_2X_2(t). \quad \text{Our fairness measure is minimized when} \\ F'(L_1) = 0.$$

Following the same approach as above, we start with the fundamental equation of dynamic programming. We have

$$(A.9) \quad rF(L_1) = \phi[1 - ((X_1 + X_2)/\bar{L})] + \frac{\partial F(L_1)}{\partial X_1} \dot{X}_1 + \frac{\partial F(L_1)}{\partial X_2} \dot{X}_2$$

Substitute for  $\dot{X}_i$  to obtain

$$(A.10) \quad rF(L_1) = \phi[1 - ((X_1 + X_2)/\bar{L})] + \frac{\partial F(L_1)}{\partial X_1} [2M_1(L_1 - X_1) - \delta_1X_1] + \\ \frac{\partial F(L_1)}{\partial X_2} [2M_2(\bar{L} - L_1 - X_2) - \delta_2X_2]$$

Now we differentiate with respect to  $L_1$  to get

$$(A.11) \quad rF'(L_1) = 2M_1'(L_1 - X_1) \frac{\partial F(L_1)}{\partial X_1} - 2M_2'(\bar{L} - L_1 - X_2) \frac{\partial F(L_1)}{\partial X_2}$$

To complete the derivation we must now find  $\frac{\partial F(L_1)}{\partial X_i}$ . To do so, follow Diamond (1980, p.

9) and differentiate (A10) with respect to  $X_1$  and  $X_2$  and then solve for  $\frac{\partial F(L_1)}{\partial X_i}$ . We obtain

$$(A.12) \quad \frac{\partial F(L_1)}{\partial X_i} = \frac{-\phi'(\mu)}{\bar{L}[r + \delta_i + 2M'_i(U_i)]}$$

Using (A.12) to substitute for  $\frac{\partial F(L_1)}{\partial X_i}$  in (A.11) we obtain

$$rF'(L_1) = \phi'(\mu) \left[ \frac{2M'_1(U_1)}{r + \delta_1 + 2M'_1(U_1)} - \frac{2M'_2(U_2)}{r + \delta_2 + 2M'_2(U_2)} \right]$$

It follows that the fairness measure is minimized when the term in brackets is zero – which occurs when (16) holds – which is what we wanted to show.

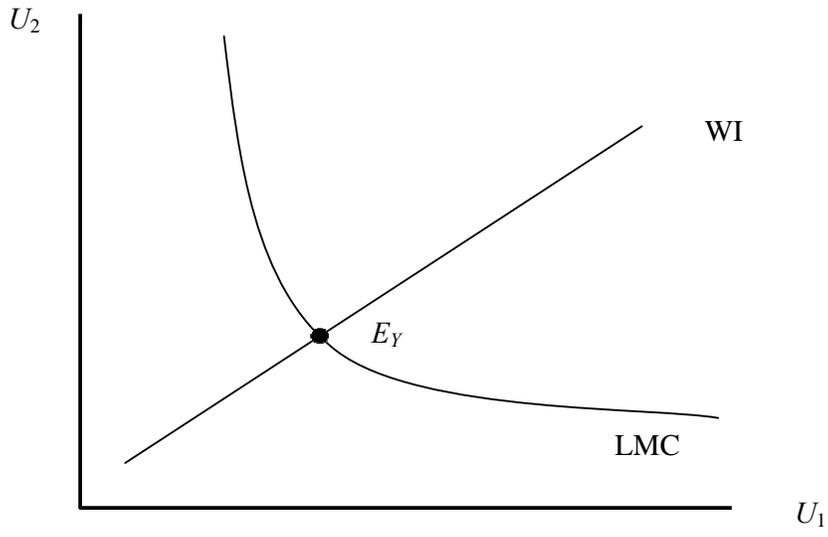


Figure 1

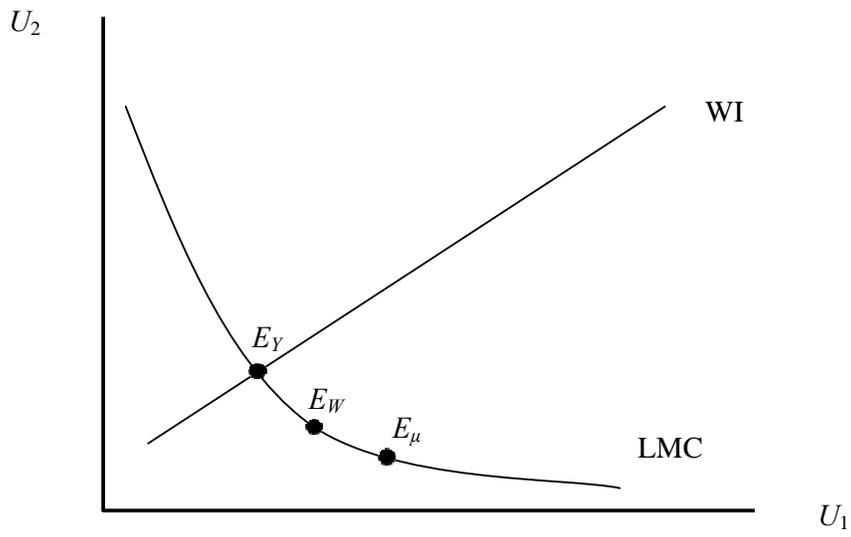


Figure 2

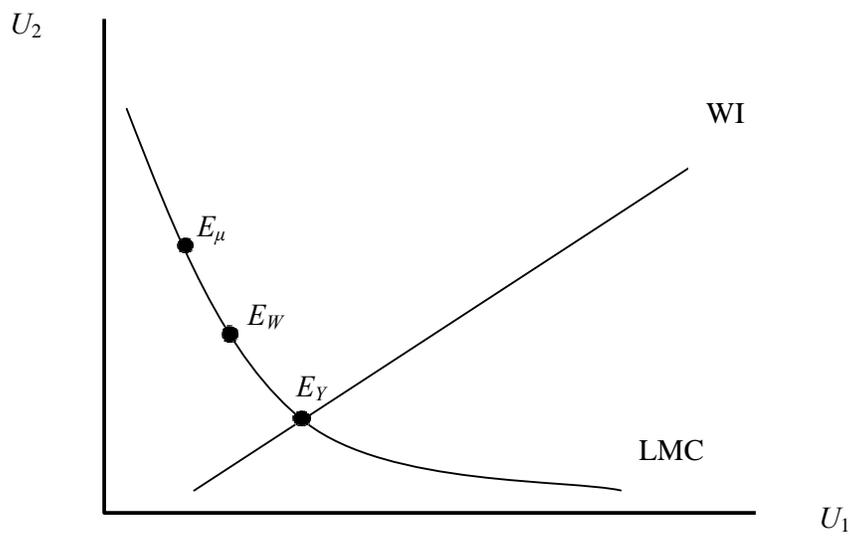


Figure 3

## References

- ACEMOGLU, D. (2001): "Good Jobs Versus Bad Jobs," *Journal of Labor Economics*, 19, 1-21.
- ADSERA, A., and C. BOIX (2002): "Trade, Democracy, and the Size of the Public Sector: The Political Underpinnings of Openness," *International Organization*, 56, 229-262.
- AKERLOF, G. A., and J. L. YELLEN (1988): "Fairness and Unemployment," *American Economic Review*, 78, 44-49.
- (1990): "The Fair Wage-Effort Hypothesis and Unemployment," *Quarterly Journal of Economics*, 105, 255-283.
- ALESINA, A., and E. L. GLAESER (2004): *Fighting Poverty in the Us and Europe: A World of Difference*. Oxford: Oxford University Press.
- ARULAMPALAM, W. (2001): "Is Unemployment Really Scarring? Effects of Unemployment Experiences on Wages," *Economic Journal*, 111, F585-F606.
- BRADFORD, S. (2003): "Protection and Jobs: Explaining the Structure of Trade Barriers across Industries," *Journal of International Economics*, 61, 19-39.
- (2006): "Protection and Unemployment," *Journal of International Economics*, 69, 257-271.
- BRECHER, R. (1974): "Minimum Wage Rates and the Pure Theory of International Trade," *Quarterly Journal of Economics*, 88, 98-116.
- (1992): "An Efficiency-Wage Model with Explicit Monitoring: Unemployment and Welfare in an Open Economy," *Journal of International Economics*, 32, 179-191.
- BULOW, J. I., and L. H. SUMMERS (1986): "A Theory of Dual Labor-Markets with Application to Industrial-Policy, Discrimination, and Keynesian Unemployment," *Journal of Labor Economics*, 4, 376-414.
- CALMFORS, L. (1994): "Active Labor Market Policy and Unemployment - a Framework for the Analysis of Crucial Design Features," *OECD Economic Studies*, No. 22, 7-47.
- CAMERON, D. R. (1978): "Expansion of the Public Economy - Comparative Analysis," *American Political Science Review*, 72, 1243-1261.
- CASSING, J., and J. OCHS (1978): "International Trade, Factor Market Distortions, and the Optimal Dynamic Subsidy: Comment," *American Economic Review*, 68, 950-955.
- CLARK, A. E., Y. GEORGELLIS, and P. SANFEY (2001): "Scarring: The Psychological Impact of Past Unemployment," *Economica*, 68, 221-241.
- COMMISSION, E. (2002): "Taking Stock of Five Years of the European Employment Strategy," Brussels: European Commission.

- (2004): "Growth, Competitiveness, Employment (White Paper)," Brussels: European Commission.
- CONOVER, P. J., S. FELDMAN, and K. KNIGHT (1986): "Judging Inflation and Unemployment - the Origins of Retrospective Evaluations," *Journal of Politics*, 48, 565-588.
- COPELAND, B. (1989): "Efficiency Wages in a Ricardian Model of International Trade," *Journal of International Economics*, 27, 221-244.
- COSTINOT, A. (2009): "Jobs, Jobs, Jobs: A "New" Perspective on Protectionism," *Journal of the European Economic Association*, 7, 1011-1041.
- COWDEN, J. A., and T. HARTLEY (1992): "Complex Measures and Sociotropic Voting," *Political Analysis*, 4, 75-95.
- DAVIDSON, C., L. MARTIN, and S. MATUSZ (1987): "Search, Unemployment, and the Production of Jobs," *Economic Journal*, 97, 857-876.
- (1988): "The Structure of Simple General Equilibrium-Models with Frictional Unemployment," *Journal of Political Economy*, 96, 1267-1293.
- (1994): "Jobs and Chocolate - Samuelsonian Surpluses in Dynamic-Models of Unemployment," *Review of Economic Studies*, 61, 173-192.
- (1999): "Trade and Search Generated Unemployment," *Journal of International Economics*, 48, 271-299.
- DAVIDSON, C., and S. MATUSZ (2004a): "An Overlapping-Generations Model of Escape Clause Protection," *Review of International Economics*, 12, 749-768.
- (2004b): "Should Policy Makers Be Concerned About Adjustment Costs?," in *The Political Economy of Trade, Aid and Foreign Investment*, ed. by D. Mitra, and A. Panagariya. Amsterdam: Elsevier, 31-68.
- DAVIDSON, C., S. MATUSZ, and D. NELSON (2006): "Fairness and the Political Economy of Trade," *World Economy*, 29, 989-1004.
- (2007): "Can Compensation Save Free Trade?," *Journal of International Economics*, 71, 167-186.
- DAVIS, D. (1998): "Does European Unemployment Prop up American Wages? National Labor Markets and Global Free Trade," *American Economic Review*, 88, 478-494.
- DAVIS, D., and J. HARRIGAN (2008): "Good Jobs, Bad Jobs, and Trade Liberalization," NBER Working Paper #13139.
- DI TELLA, R., R. J. MACCULLOCH, and A. J. OSWALD (2001): "Preferences over Inflation and Unemployment: Evidence from Surveys of Happiness," *American Economic Review*, 91, 335-341.

- (2003): "The Macroeconomics of Happiness," *Review of Economics and Statistics*, 85, 809-827.
- EGGER, H., and U. KREICKEMEIER (2008): "International Fragmentation: Boon or Bane for Domestic Employment?," *European Economic Review*, 52, 116-132.
- (2009): "Firm Heterogeneity and the Labor Market Effects of Trade Liberalization," *International Economic Review*, 50, 187-216.
- EICHENGREEN, B. (2006): *The European Economy since 1945: Coordinated Capitalism and Beyond*. Princeton, N.J.: Princeton University Press.
- ESTAVAO, M. (2007): "Labor Policies to Raise Employment," *IMF Staff Papers*, 54, 113-138.
- FELBERMAYR, G., J. PRAT, and H.-J. SCHMERER (2008): "Globalization and Labor Market Outcomes: Wage Bargaining, Search Frictions and Heterogeneous Firms," IZA.
- FREUND, C., and C. OZDEN (2008): "Trade Policy and Loss Aversion," *American Economic Review*, 98, 1675-1691.
- FUNK, C. L., and P. GARCIA-MONET (1997): "The Relationship between Personal and National Concerns in Public Perceptions About the Economy," *Political Research Quarterly*, 50, 317-342.
- GAISFORD, J., and L. LEGER (2000): "Terms-of-Trade Shocks, Labor-Market Adjustment, and Safeguard Measures," *Review of International Economics*, 8, 100-112.
- GANGL, M. (2004): "Welfare States and the Scar Effects of Unemployment: A Comparative Analysis of the United States and West Germany," *American Journal of Sociology*, 109, 1319-1364.
- (2006): "Scar Effects of Unemployment: An Assessment of Institutional Complementarities," *American Sociological Review*, 71, 986-1013.
- GARRETT, G. (1998): *Partisan Politics in the Global Economy*. Cambridge, UK ; New York: Cambridge University Press.
- GASTON, N., and D. NELSON (2004a): "Structural Change and the Labor-Market Effects of Globalization," *Review of International Economics*, 12-#5, 769-792.
- (2004b): "Structural Change and the Labor Market Effects of Globalization," *Review of International Economics*, 12, 769-792.
- GREENAWAY, D., and D. NELSON (2005): "The Politics of (Anti-) Globalization: What Do We Learn from Simple Models?."
- GREGG, P. (2001): "The Impact of Youth Unemployment on Adult Unemployment in the Ncds," *Economic Journal*, 111, F626-F653.

- GREGG, P., and E. TOMINEY (2005): "The Wage Scar from Male Youth Unemployment," *Labour Economics*, 12, 487-509.
- GREGORY, M., and R. JUKES (2001): "Unemployment and Subsequent Earnings: Estimating Scarring among British Men 1984-94," *Economic Journal*, 111, F607-F625.
- GROSSMAN, G., and E. HELPMAN (1994): "Protection for Sale," *American Economic Review*, 84, 833-850.
- GUISINGER, A. (2009): "Determining Trade Policy: Do Voters Hold Politicians Accountable?," *International Organization*, 63, 533-557.
- HAINMUELLER, J., and M. HISCOX (2006): "Learning to Love Globalization: Education and Individual Attitudes toward International Trade," *International Organization*, 60, 469-498.
- HALL, H. K., C. KAO, and D. NELSON (1998): "Women and Tariffs: Testing the Gender Gap Hypothesis in a Downs-Mayer Political-Economy Model," *Economic Inquiry*, 36, 320-332.
- HALL, H. K., and D. NELSON (2004): "The Peculiar Political Economy of Nafta: Complexity, Uncertainty and Footloose Policy Preferences," in *The Political Economy of Trade and Foreign Investment Policies*, ed. by A. Panagariya, and D. Mitra. Amsterdam: Elsevier, 91-109.
- HECKMAN, J. J., R. J. LALONDE, and J. A. SMITH (1999): "The Economics and Econometrics of Active Labor Market Programs," in *Handbook of Labor Economics*, ed. by O. Ashenfelter, and D. Card. Amsterdam: North-Holland.
- HELLIWELL, J. F. (2003): "How's Life? Combining Individual and National Variables to Explain Subjective Well-Being," *Economic Modelling*, 20, 331-360.
- HELPMAN, E., and O. ITSKHOKI (2007): "Labor Market Rigidities, Trade and Unemployment," NBER.
- HIBBS, D. A. (1993): *Solidarity or Egoism? The Economics of Sociotropic and Egocentric Influences on Political Behavior: Denmark in International and Theoretical Perspective*. Aarhus: Aarhus University Press.
- HICKS, A. M. (1999): *Social Democracy and Welfare Capitalism: A Century of Income Security Politics*. Ithaca, NY: Cornell University Press.
- HISCOX, M. (2006): "Through a Glass Darkly: Framing Effects and Individuals' Attitudes toward Trade," *International Organization*, 60, 755-780.
- HUBER, E., and J. D. STEPHENS (2001): *Development and Crisis of the Welfare State: Parties and Policies in Global Markets*. Chicago: University of Chicago Press.
- IVERSEN, T., and T. R. CUSACK (2000): "The Causes of Welfare State Expansion - Deindustrialization or Globalization?," *World Politics*, 52, 313-349.

- JACOBSON, L. S., R. J. LALONDE, and D. G. SULLIVAN (1993): "Earnings Losses of Displaced Workers," *American Economic Review*, 83, 685-709.
- KAHNEMANN, D., and A. TVERSKY (1979): "Prospect Theory: An Analysis of Decisions under Risk," *Econometrica*, 47, 313-327.
- KARP, L., and T. PAUL (1994): "Phasing in and Phasing out Protectionism with Costly Adjustment of Labor," *Economic Journal*, 104, 1379-1392.
- (1998): "Labor Adjustment and Gradual Reform: When Is Commitment Important?," *Journal of International Economics*, 46, 333-362.
- (2005): "Intersectoral Adjustment and Policy Intervention: The Importance of General Equilibrium Effects," *Review of International Economics*, 13, 330-355.
- KATZENSTEIN, P. J. (1984): *Corporatism and Change: Austria, Switzerland, and the Politics of Industry*. Ithaca N.Y.: Cornell University Press.
- (1985): *Small States in World Markets: Industrial Policy in Europe*. Ithaca, N.Y.: Cornell University Press.
- KIEWIET, D. R. (1983): *Macroeconomics and Micropolitics: The Electoral Effects of Economic Issues*. Chicago: University of Chicago Press.
- KINDER, D. R., G. S. ADAMS, and P. W. GRONKE (1989): "Economics and Politics in the 1984 American Presidential Election," *American Journal of Political Science*, 33, 491-515.
- KINDER, D. R., and D. R. KIEWIET (1979): "Economic Discontent and Political Behavior: The Role of Personal Grievances and Collective Economic Judgements in Congressional Voting," *American Journal of Political Science*, 23, 495-527.
- (1981): "Sociotropic Politics - the American Case," *British Journal of Political Science*, 11, 129-161.
- KLETZER, L. (2001): *Job Loss from Imports: Measuring the Costs*. Washington, DC: Institute for International Economics.
- KLETZER, L., and R. LITAN (2001): "A Prescription to Relieve Worker Anxiety," Washington, DC: Institute for International Economics.
- KREICKEMEIER, U., and D. NELSON (2006): "Fair Wages, Unemployment and Technological Change in a Global Economy " *Journal of International Economics*, 70, 451-469.
- KRISHNA, P., and M. Z. SENSES (2009): "International Trade and Labor Income Risk in the United States," NBER Working Paper: #14992.
- LANOUE, D. J. (1994): "Retrospective and Prospective Voting in Presidential Year Elections," *Political Research Quarterly*, 47, 193-205.

- LAWRENCE, R., and R. LITAN (1986): *Saving Free Trade: A Pragmatic Approach*. Washington, DC: Brookings.
- LAYARD, R. (2005): *Happiness: Lessons from a New Science*. New York: Penguin.
- LAYARD, R., S. J. NICKELL, and R. JACKMAN (1991): *Unemployment: Macroeconomic Performance and the Labour Market*. Oxford England ; New York: Oxford University Press.
- LEWIS-BECK, M. S. (1988): *Economics and Elections: The Major Western Democracies*. Ann Arbor: University of Michigan Press.
- LUCAS, R. E., A. E. CLARK, Y. GEORGELLIS, and E. DIENER (2004): "Unemployment Alters the Set Point for Life Satisfaction," *Psychological Science*, 15, 8-13.
- MACKUEEN, M. B., R. S. ERIKSON, and J. A. STIMSON (1992): "Peasants or Bankers? The American Electorate and the U.S. Economy," *American Political Science Review*, 86, 597-611.
- MAGEE, C., C. DAVIDSON, and S. MATUSZ (2005): "Trade, Turnover, and Tithing," *Journal of International Economics*, 66, 157-176.
- MAGEE, S. P., and L. YOUNG (1987): "Endogenous Protection in the United States, 1900-1984," in *U.S. Trade Policies in a Changing World Economy*, ed. by R. Stern. Cambridge: MIT Press, 145-195.
- MANSFIELD, E. D., and D. C. MUTZ (2009): "Support for Free Trade: Self-Interest, Sociotropic Politics, and out-Group Anxiety," *International Organization*, 63, 425-457.
- MARKUS, G. B. (1988): "The Impact of Personal and National Economic Conditions on the Presidential Vote: A Pooled Cross-Sectional Analysis," *American Journal of Political Science*, 32, 137-154.
- (1992): "The Impact of Personal and National Economic Conditions on Presidential Voting: 1956-1988," *American Journal of Political Science*, 36, 829-834.
- MATSCHKE, X., and S. M. SHERLUND (2006): "Do Labor Issues Matter in the Determination of U.S. Trade Policy? An Empirical Reevaluation," *American Economic Review*, 96, 405-421.
- MATUSZ, S. (1994): "International Trade Policy in a Model of Unemployment and Wage Differentials," *Canadian Journal of Economics*, 27, 939-949.
- (1996): "International Trade, the Division of Labor, and Unemployment," *International Economic Review*, 37, 71-84.
- MAYDA, A. M., and D. RODRIK (2005): "Why Are Some People (and Countries) More Protectionist Than Others?," *European Economic Review*, 49, 1393-1430.

- MUTZ, D. C., and J. J. MONDAK (1997): "Dimensions of Sociotropic Behavior: Group-Based Judgments of Fairness and Well-Being," *American Journal of Political Science*, 41, 284-308.
- NELSON, D. (1998): "Social Complexity, Learning and International Political Economy: With Illustrations from the Political Economy of Trade," Murphy Institute.
- O'ROURKE, K., and R. SINNOTT (2002): "The Determinants of Individual Trade Policy Preference: International Survey Evidence," in *Brookings Trade Forum*, ed. by S. Collins, and D. Rodrik. Washington, DC: Brookings, 157-206.
- OECD (1990): *Labour Market Policies for the 1990s*. Paris: Organization for Economic Cooperation and Development.
- (1991): *Evaluating Labour Market and Social Programmes*. Paris: Organization for Economic Cooperation and Development.
- (1994): *The Oecd Jobs Study: Facts, Analysis, Strategies*. Paris: Organization for Economic Cooperation and Development.
- (2006): *Oecd Employment Outlook--2006*. Paris: Organization for Economic Cooperation and Development.
- OSWALD, A. J. (2003): "How Much Do External Factors Affect Well-Being?," *Psychologist*, 16, 140-141.
- PACEK, A., and B. RADCLIFF (2008): "Assessing the Welfare State: The Politics of Happiness," *Perspectives on Politics*, 6, 267-277.
- POLANYI, K. (1944): *The Great Transformation: The Political and Economic Origins of Our Time*. New York, Toronto,: Farrar & Rinehart.
- PONTUSSON, J. (2005): *Inequality and Prosperity: Social Europe Vs. Liberal America*. Ithaca, N.Y.: Cornell University Press.
- RAMA, M., and G. TABELLINI (1998): "Lobbying by Capital and Labor over Trade and Labor Market Policies," *European Economic Review*, 42, 1295-1316.
- RIKER, W. H. (1986): *The Art of Political Manipulation*. New Haven: Yale University Press.
- RODRIK, D. (1998): "Why Do More Open Economies Have Bigger Governments?," *Journal of Political Economy*, 106, 997-1032.
- ROMERO, D. W., and S. J. STAMBOUGH (1996): "Personal Economic Well-Being and the Individual Vote for Congress: A Pooled Analysis, 1980-1990," *Political Research Quarterly*, 49, 607-616.
- SCHATTSCHEIDER, E. E. (1960): *The Semisovereign People : A Realist's View of Democracy in America*. New York: Holt.

- SCHEVE, K., and M. SLAUGHTER (2001a): *Globalization and the Perceptions of American Workers*. Washington, DC: Institute for International Economics.
- (2001b): "What Determines Individual Trade-Policy Preferences?," *Journal of International Economics*, 54, 267-292.
- SLAUGHTER, M. (2000): "What Are the Results of Product-Price Studies and What Can We Learn from Their Differences?," in *The Impact of International Trade on Wages*, ed. by R. Feenstra. Chicago: University of Chicago Press, 129-165.
- STIGLITZ, J. E., and A. CHARLTON (2005): *Fair Trade for All: How Trade Can Promote Development*. Oxford: Oxford University Press.
- STOKES, D. (1963): "Spatial Models of Party Competition," *American Political Science Review*, 57, 368-377.
- (1992): "Valence Politics," in *Electoral Politics*, ed. by D. Kavanagh. Oxford: Oxford University Press (Clarendon), 141-164.
- SWANK, D. (2002): *Global Capital, Political Institutions, and Policy Change in Developed Welfare States*. Cambridge: Cambridge University Press.
- TAKACS, W. E. (1981): "Pressures for Protectionism - an Empirical-Analysis," *Economic Inquiry*, 19, 687-693.
- WALLERSTEIN, M. (1987): "Unemployment, Collective-Bargaining, and the Demand for Protection," *American Journal of Political Science*, 31, 729-752.
- WINKELMANN, L., and R. WINKELMANN (1998): "Why Are the Unemployed So Unhappy? Evidence from Panel Data," *Economica*, 65, 1-15.