Redistributive Promises and the Adoption of Economic Reform*

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Abstract

Does the likelihood of adoption of an economic reform increase with an increase in the efficiency benefits, and the number of winners, from that reform? We show that when there is individual-specific uncertainty about the impact of the reform, then there exists a non-monotonicity in that relationship. An increase in the number of beneficiaries from a reform may make its passage less likely. Reforms that result in an overwhelming majority of winners and a minority of winners are adopted. However, if reforms benefit a 'less than overwhelming' majority, then there is a 'status quo bias' and reforms are not adopted.

Keywords: Economic Reform, Redistribution, Compensation

JEL Classification: D72, O20, P16

Introduction

This paper analyzes the relationship between economic reform and the democratic process to ask the following question. Does the likelihood of adoption of an economic reform increase with an increase in the efficiency benefits from that reform? A priori we might expect that this likelihood should increase monotonically, for two reasons. First, economic reform results in an increase in the size of the national 'pie'. If the government has the ability to make compensatory tax-transfers, an increase in each citizen's income is possible. Second, a larger economic reform results in a greater number of 'winners'. This might also be expected to reinforce the political support for economic reform. So we should expect a reform with greater efficiency benefits to a larger population to have a greater chance of adoption by the government.

However, in this paper we show that this intuition is mistaken. In particular, we demonstrate that there exists a certain non-monotonicity between the distribution of winners from economic reform and the probability of its adoption. An increase in the number of winners may lower, rather than increase, the likelihood of adoption of economic reform. In particular, even though reforms that benefit a minority or an overwhelming majority are adopted, reforms that benefit a smaller majority are not adopted.

So the first puzzle is why majority-benefiting reforms are not adopted. In an influential paper, Raquel Fernandez and Dani Rodrik (1991) argued that in the presence of individual specific uncertainty about the identity of winners and losers from economic reform, there is a bias towards the 'status quo', so that even a reform that benefits a majority might get voted down. However, in their analysis the government, by assumption, is unable to tax the winners to compensate the losers from economic reform.[1] It is not clear whether such reforms would fail to be adopted if the government's hands were not tied in this manner. Unlike their paper, we allow the government to use the instruments of tax and transfers to compensate the losers.[2] However, as we show, these reforms still may not get enacted. Under individual specific uncertainty about the outcome of reform, the incumbent fears not only that it will turn out to be a loser, but that the new government will be drawn from the ranks of the winners, with no incentive to make compensatory transfers. Therefore, it is the inability to credibly promise compensation, in the face of individual specific uncertainty about the identity of winners from the reform, that results in reform getting voted down.

The fact that political economy considerations can stall even those reforms that are apparently the 'easiest' to implement should bode a greater degree of pessimism about the prospects for passage of reforms that carry fewer benefits. Somewhat surprisingly however, we show that reforms that result in a minority of winners get adopted in the same environment in which 'majoritarian' reforms fail. These 'minoritarian' reforms do not suffer from a status quo bias because, unlike majoritarian reforms, they do not jeopardize the existing electoral structure. A government whose economic interest is aligned with the losing sector is in a position to credibly promise to compensate the losers from economic reform, by redistributing

[1] While Fernandez and Rodrik did mention, without formally modeling, the problems of the time inconsistency of redistributive promises when a majority is a winner ex post, the consequences of endogenizing the compensation decision were not systematically explored.

[2] For discussions of the importance of compensation in the reform process in various countries, see Alan Angell and Carol Graham (1995), Sebastian Edwards and Daniel Lederman (1998), Stephan Haggard and Steven Webb (1994, pp 23-35) and Kurt Weyland (1998). Dani Rodrik (1996) and Mariano Tommasi and Andres Velasco (1996) provide excellent surveys on the political economy of economic reform.

the gains from the winners - so long as the winners remain in a political minority.[3] In most of the literature, the only way to generate the result that a reform with a *minority* of winners gets enacted is by invoking some kind of lobbying argument as in Mancur Olson (1965). In contrast, we show that by endogenizing the redistributive decision, the same outcome can be generated in a voting model without lobbying.

At the other extreme, we show that if the reform benefits an overwhelming majority, then it is adopted by the government. For these 'super-majoritarian' reforms, redistributive concerns are outweighed by the almost universal expectation of being a winner. It is in the intermediate range, where the number of beneficiaries is not overwhelmingly large, that reforms get blocked.

I. A Model of Policy Reform

We begin by outlining the basic structure of our model. The process of economic reform is typically long and painful and affects the returns to working in different sectors. For simplicity we assume that there are two sectors and that the effect of the reform is spread over two periods (or electoral cycles). The electoral process takes place in the representative democracy framework of Martin Osborne and Al Slivinski (1996) and Timothy Besley and Stephen Coate (1997).

[3] John Williamson and Stephan Haggard (1994) document that more often than not, it is governments with left-of-center political affiliations that have pushed through market-oriented market reform. See Alex Cukierman and Mariano Tommasi (1998) for a survey of the evidence, and an informational argument for the phenomenon - governments with private information are better able to win support for ideologically contrarian policies, since they can more credibly argue for the necessity of those policies. By contrast, we suggest that the government's ability to win electoral support for reform, by making redistributive promises, is greater when that government is (economically or ideologically) affiliated with the losing sector.

At the beginning of the first period, an election is held in which voters choose a winner from a set of self-declared worker-candidates, with the worker-candidate who gets the most votes being elected. The first-period government (hereafter the 'incumbent') decides whether to undertake the economic reform or to retain the status quo, and also chooses a first period tax-transfer scheme. If economic reform is enacted, then there are distributional effects in that, in the next period, the real returns to working in different sectors change. Workers employed in the sector adversely affected by economic reform (the 'losing' sector) might want to relocate and move to the 'winning' sector, albeit after incurring some (uncertain) adjustment costs. After this reallocation of the workforce, at the beginning of the second period, elections are held again. The elected representative then makes a second period tax-transfer decision which maximizes his utility.

A. The Economic Structure: Workers and Reform

We consider a small open economy with two goods-producing sectors, X and M. The entire labor force (L) consists of citizen-workers distributed across these two sectors. The labor force in sector j at the start of period t is given by L_{jt} where $j \in \{X, M\}$. We assume throughout that the initial labor allocation is given by history and that $L_{x1} < L_{m1}$. Each citizen-worker inelastically supplies one unit of labor and his output is a function of the productivity of a sector-specific public good G_{jt-1}, supplied by the government in the previous period $t-1$. Thus one unit of labor produces $G_{jt-1}q_j$ units of output if employed in sector j. We assume that technology is such that $q_x > q_m = 1$. We also normalize prices in both sectors so that $p_x = p_m = 1$. So the wage rate in sector X is given by $w_{xt} = G_{xt-1}q_x$ and in sector M is given by $w_{mt} = G_{mt-1}p_m q_m = G_{mt-1}$.

We consider a distorted economy where the government, which has a fixed amount G of resources, devotes an inefficiently large amount to the sector M specific public good. The inefficiency arises from the fact that, given identical prices across the two sectors and $q_x > q_m$, the marginal return to sector-specific provision of the public good is higher for sector X than sector M. As a benchmark case, we assume that the pre-reform provision of the sector specific public good is such that wages across the two sectors are equal, i.e., $w_{xt} = G_{xt-1}q_x = w_{mt} = G_{mt-1}$. We assume without loss of generality that $G_{x0} = 1$, and $G_{m0} = q_x$, so that $G = 1 + q_x$. Thus $w_{x1} = w_{m1} = q_x$.

In the first period, a reform of size μ_r becomes available to the government, which enacts a policy $\hat{\mu} \in \{\mu_r, \mu_s\}$ where μ_r is the implementation of the economic reform and μ_s is maintenance of the status quo. We model economic reform as a reduction in the amount of public expenditure on sector M, and a channeling of the resources thus saved into augmenting returns in (the relatively more efficient) sector X. An economic reform of size μ consists of the government reallocating μ dollars from sector M to sector X. (The status quo can be thought of as a 'reallocation' of zero dollars). Thus, $G'_{m1} = G_{m0} - \mu = q_x - \mu$ and $G'_{x1} = G_{x0} + \mu = 1 + \mu$, where G'_{j1} denotes post-reform public expenditures on sector j. This reform will cause a change in the relative returns to working across the two sectors. Post-reform wages are given by $w'_{m2} = G'_{m1} = q_x - \mu$ and $w'_{x2} = G'_{x1}q_x = (1 + \mu)q_x$ respectively. Since $w'_{x2} > w'_{m2}$, (some) workers will find it attractive to move from sector M to sector X. This move, however, carries an individual specific adjustment cost c_j. Workers in this sector are *ex ante* identical, so that an individual worker does not know his own individual specific cost in advance, and only learns it once the reform is enacted. Workers do know the underlying cost distribution $f(c)$ which, for simplicity, we assume to be a uniform distribution with support $[0, q_x(1+q_x)]$, where the upper bound of the distribution is the maximal inter-sectoral wage difference. $F(c)$ denotes the corresponding cumulative density function. Workers with individual specific adjustment cost c_i below some cutoff level $c'(\mu)$ relocate to the sector X. The proportion of M sector workers who relocate is thus given by $F(c'(\mu))$.

We impose an efficiency condition that ensures that a large value of μ is synonymous with greater efficiency benefits. We want to ensure that the national 'pie' does grow for all $\mu > 0$, and that it grows by more for larger values of μ, i.e., that: (a) $Y_r > Y_s$, where Y_r and Y_s are the national income under reform and under the status quo respectively; and (b) $\frac{dY_r}{d\mu} > 0$. In the Appendix, we show that a sufficient condition for both (a) and (b) to hold is that: $q_x > \frac{L_{m1}}{L_{x1}}$.[4]

Governments can choose a tax-transfer scheme to tax or compensate a worker i with wages w_{it} with a tax of τ_{it} in period t (a negative value denotes a transfer). We impose some restrictions on this vector: workers with identical wages cannot be taxed at different rates and a regressive tax on wages is ruled out. Finally, each worker makes his voting decisions to maximize his net income $w_{it} - \tau_{it}$, net of relocation costs (if any), over the two periods. There is no discounting.

The implementation of the economic reform, and the resultant inter-sectoral reallocation of the labor force, might affect the probability of different types of workers being elected to lead the government in the second period. In order to examine the political implications of this reform, we turn next to describing the political structure of the model.

[4]Intuitively, this says that, if public expenditures on both sectors were equal, then the total output of the X sector would be greater than that of the M sector. A large enough q_x ensures that the increase in X sector output, due to the intersectoral resource reallocation, outweighs the fall in M sector output.

B. The Political Structure: Elections and Worker-Candidates

We analyze government policy choices in the context of a 'representative democracy', where the citizen who constitutes the government is drawn from the ranks of ordinary worker-candidates (see Besley and Coate (1997, 1998) for details). Elections are held at the beginning of each period and can be divided into two stages: in the first stage, each citizen decides whether or not to stand for election. In the second stage, each citizen rationally anticipates the likely policies that each candidate will adopt, and votes for the candidate who maximizes his expected lifetime utility.

The political process thus generates a probability distribution over *policy sequences.* A policy sequence is a pair $\{(\mu_1, \tau_1), \pi_2\}$ consisting of the government in period 1 choosing the policy μ_1 and the tax-transfer vector τ_1, which generates a probability distribution π_2 over second period policy choices τ_2. An equilibrium policy sequence $\{(\mu_1', \tau_1'), \pi_2'\}$ is a set of period 1 and period 2 policies that can arise in a *political equilibrium.* A political equilibrium is defined by a combination of period 1 equilibrium, (γ_1, α_1), and period 2 equilibrium, $(\gamma_2(a_{1,}\tau_1), \alpha_2(a_{1,}\tau_1))$, with the equilibrium in each period consisting of: one, a vector γ of entry decisions by each possible citizen-candidate; and two, a vector of voting decisions α which describes, for each citizen-voter, who the voter will choose to vote for, over every possible slate of candidates. To constitute an equilibrium, every element of each vector must be a best response to the other elements of that vector. The simple structure of our model means that the nature of the political equilibrium is also extremely simple.

LEMMA 1: *There exists a political equilibrium in each period such that a citizen-worker from the sector whose workers are in a majority is elected unopposed.*

We omit the proof, which is a straightforward application of Proposition 2 in Besley and Coate (1997). Essentially, the conditions, both of which are satisfied in our model, are that: the cost of running is low (in our case, zero), and there are no ‘ego rents’ from being in office, so that there does not exist a potential challenger who is both supported by a majority and also has an incentive to enter. Since political affinity in this model is determined by economic affiliation, each worker prefers a government constituted by a worker from the same sector.

We now study the conditions under which an equilibrium policy sequence involves reform.

II. The Adoption of Economic Reform

The citizen-worker who runs the government in the first period gets to make two decisions - about economic reform and the tax-transfer. Given our simplifying assumption that wages are equal across the sectors in the first period, the first period tax-transfer trivially equals zero. With regard to his economic reform decision, the incumbent faces two choices: either implement an economic reform of given magnitude $\mu_r \in (0, q_x]$, or maintain the status quo, μ_s (which is akin to a ‘reform’ of $\mu = 0$). Recalling that the proportion of M sector workers who relocate across sectors in response to a reform μ is given by $F(c'(\mu))$, the incumbent's two period expected utility from implementing an economic policy $\hat{\mu} \in \{\mu_r, \mu_s\}$ is:

$$Eu(\hat{\mu}, \tau_1) = \mathcal{P}(g_{m2}) \left[y_m(\tau_1, \hat{\mu}, g_{m1}) + (1 - F(c'(\hat{\mu}))).y_m(\tau_2, \hat{\mu}, g_{m2}) + F(c'(\hat{\mu})).y_x(\tau_2, \hat{\mu}, g_{m2}) \right]$$
$$+ (1 - \mathcal{P}(g_{m2})) \left[y_m(\tau_1, \hat{\mu}, g_{m1}) + (1 - F(c'(\hat{\mu}))).y_m(\tau_2, \hat{\mu}, g_{x2}) + F(c'(\hat{\mu})).y_x(\tau_2, \hat{\mu}, g_{x2}) \right] \quad (1)$$

Here $\mathcal{P}(g_{m2})$ is the probability that an M sector worker forms the period 2 government, and $y_i(\tau_t, \hat{\mu}, g_{kt})$ is the expected income, net of taxes/transfers and any relocation costs, of a sector i worker in period t, under a reform $\hat{\mu}$, when an incumbent of type k is in power, where $i, k \in \{m, x\}$ and $t \in \{1, 2\}$.

We define the first term in square brackets above as $Eu^R(\mu_r)$, which is the expected utility to the incumbent from implementing a reform under the *assumption* of full post-reform redistribution. Similarly, the second term in square brackets is $Eu^{NR}(\mu_r)$ which is expected utility to the incumbent from a reform, under the assumption that there is *no* redistribution in period 2. Therefore, expected total payoff from economic reform can be rewritten as:

$$Eu(\mu_r, \tau_1) = \mathcal{P}(g_{m2})[Eu^R(\mu_r)] + (1 - \mathcal{P}(g_{m2}))[Eu^{NR}(\mu_r)] \tag{1.1}$$

In Figure 1 we separately graph the Eu^R and Eu^{NR} curves. The issue of interest is whether it is the Eu^R or Eu^{NR} curve, or some convex combination of the two, which determines the incumbent's payoff from adopting a reform μ_r. To check this, we begin by defining μ_m as the public good reallocation which results in exactly half the total population working in sector X, i.e. $L_{x2} = L_{x1} + F(c'(\mu_m)).L_{m1} = L/2$. Now, recall from Lemma 1 that, in our political equilibrium, the government will be elected from the sector whose workers are in a majority. Therefore for $\mu_r > \mu_m$, the second-period government will be drawn from the X sector, since its workers will be in a majority. Hence, $\mathcal{P}(g_{m2}) = 0$ for $\mu_r > \mu_m$, and by a similar logic, $\mathcal{P}(g_{m2}) = 1$ for $\mu_r \leq \mu_m$. Thus, the incumbent's payoff from reform is given by the Eu^R curve for reforms in the range $\mu \leq \mu_m$, and by the Eu^{NR} curve for reforms in the range $\mu > \mu_m$.

On the other hand, if the incumbent maintains the status quo, then the sectoral composition of the labor force is unchanged, the incumbent is re-elected, and (being from the M sector) redistributes income fully in both periods. Hence, the expected payoff from the status quo is:

$$Eu(\mu_s, \tau_1) = \overline{w} + \overline{w} = 2(L_{x1}w_{x1} + L_{m1}w_{m1})/L \tag{2}$$

where $\overline{w}$ is the (pre-reform) average income of the population.

Insert Figure I around here.

Given the expected payoff functions to an incumbent from adopting reforms, and from maintaining the status quo, described above, observe in Figure 1 that the payoff from the status quo dominates that from adopting the reform over the range $\mu \in [\mu_m, \bar{\mu})$, while the reverse is true at the extremes of the distribution of μ. This leads to our main result.

PROPOSITION I. *For given $L_{x1}, L_{m1}, G_{m1}, G_{x1}, f(c)$ there exists a political equilibrium in which the equilibrium policy sequence is*

(i) $\{(\mu_r, \tau_1), \pi_2\}$ *if* $\mu_r \in (0, \mu_m]$ *('Minoritarian range': reform is adopted)*

(ii) $\{(\mu_s, \tau_1), \pi_2\}$ *if* $\mu_r \in (\mu_m, \bar{\mu}]$ *('Majoritarian range': the status quo is maintained)*

(iii) $\{(\mu_r, \tau_1), \pi_2\}$ *if* $\mu_r > \bar{\mu}$ *('Super-Majoritarian range': reform is adopted).*

Proof: See Appendix.

We proceed in three steps, each of which can be tracked in Figure 1. First, we consider minoritarian reforms, defined as those reforms that do not result in a shift in the 'balance of power' between the two sectors, and show that the incumbent's utility from reform is higher than that from maintaining the status quo. (In Figure 1, this is the range $0 < \mu \leq \mu_m$). Next, we consider those reforms which result in the movement of so many workers that $L_{m2} < L_{x2}$, and derive a sufficient condition to ensure that there exists a range of majoritarian reforms, $\mu_m < \mu \leq \overline{\mu}$, for which the payoff to the incumbent is below that from the status quo.[5]

[5] Essentially, the inter-sectoral productivity difference q_x should not be so large that the efficiency benefits of reform swamp the incumbent's electoral concerns. Otherwise all reforms would be politically attractive. Recall that the efficiency condition (see the discussion in footnote 4) imposes a lower bound on q_x.

Finally, we check that for sufficiently large ('super-majoritarian') μ, adoption of the reform is preferred to the status quo.

A. 'Minoritarian' Range

An economic reform in this range results in a reallocation of workers such that the M sector retains its majority, i.e., $L_{x2} \leq L_{m2}$. This implies that an M sector worker will be elected in the second period, regardless of whether the reform is carried out or not (Lemma 1). Since such an M sector worker will always redistribute, in Figure 1 the incumbent's payoff over this range is given by Eu^R. Clearly, since the payoff from adopting reform is greater than that from the status quo, an economic reform in this minoritarian range is always adopted. The key point here is that the sectoral affiliation of the second period government is completely *independent* of whether or not the incumbent carries out the reform. In other words, it is this absence of a political impact that enables compensation and allows the transformation of a reform in the minoritarian range into a Pareto improving reform.

On examining the actual experience of economic reform across countries, one of the striking observations is that market oriented reforms were often implemented by governments whose direct interests were not aligned with the beneficiaries. The above analysis suggests an explanation: promises of future compensation via redistribution are credible when 'minoritarian' reforms are implemented by governments whose own interests are clearly affiliated with the losing sector.[6]

[6] In this paper we have not explicitly modeled the role of ideology. However, following Avinash Dixit and John Londegran (1998), we can model citizen-candidates as caring not just about their own net income, but also about income inequality. In that case citizens will make their voting decisions based on both the sectoral affiliation of the candidate as well as his ideological concern for greater equality. We conjecture that in such

B. 'Majoritarian' Range

A majoritarian reform $\mu_r \in (\mu_m, \bar{\mu}]$, if implemented, would by definition result in a majority of the population ending up in the 'winning' X sector, i.e., $L_{x2} > L_{m2}$. Therefore, if reform is adopted, the second period government will be from the majority sector X - and will have no incentive to redistribute to compensate those in the losing sector. This implies that in Figure 1, the incumbent's payoff, if he chooses to go in for a reform $\mu > \mu_m$, is given by the Eu^{NR} curve. On the other hand, if the status quo policy is retained, then there is no sectoral reallocation of the labor force and no change in the political equilibrium. Observe that, over the interval $\mu \in (\mu_m, \bar{\mu}]$, $Eu(\mu_s)$ is greater than Eu^{NR}.

The first-period incumbent faces a trade-off: if his relocation cost is low enough, then he moves to the high wage X sector and retains political power. But if he turns out to be a loser from the reform, then not only does his wage decline, but he also loses political power in the second-period election and with it the ability to set taxes to equalize incomes.[7] As Fernandez and Rodrik (1991) argue, the presence of individual-specific uncertainty might be enough to block these reforms, even when they benefit a majority of the population. However, they assume that redistribution of post-reform income is impossible. But tilting economic considerations in favor of economic reform, by allowing redistribution, may *still* be insufficient to overcome the political considerations of incumbent governments.[8] This is

an extended model, when redistribution of gains is an issue, the candidate who is affiliated to the losing sector (M) and is more ideologically 'leftist' (willing to redistribute) is most likely to get elected.

[7] For another example where incumbents forego efficiency enhancing policies for fear of losing political power, see Daron Acemoglu and James A. Robinson (2000).

[8] Note that not all majoritarian reforms are majority-benefiting, although we can derive a sufficient condition to ensure that the majoritarian range includes majority-benefiting reforms. The derivation of that condition is omitted, and is available from the authors.

somewhat surprising, given that reforms that fall in the minoritarian range pass while reforms with greater efficiency benefits fail.

C. 'Super-Majoritarian' Range

If the efficiency benefits of the reform are great enough (i.e., for $\mu_r > \bar{\mu}$), all citizen-workers in the economy might be better off in expected terms. Once again, a reform of this magnitude changes the political equilibrium in the second period, so that in Figure 1, it is the Eu^{NR} curve that is the relevant one for $\mu > \bar{\mu}$. Observe that, over this range, the payoff from reform is greater than from retaining the status quo. Since the incumbent himself expects to become a winner with a high probability, he is less concerned by the prospective inability to compensate losers that is entailed by the loss of political control.

III. Conclusion

This paper shows how the credibility problems of governments' re-distributive promises, coupled with individual-specific uncertainty about the impact of the reforms, may result in a non-monotonic relationship between the efficiency benefits from a reform and the likelihood of its adoption. This also suggests that, if the 'scale' of the reform is a choice variable, then there may exist circumstances under which a smaller-scale (minoritarian) reform might be chosen for political reasons, even when an alternative reform that yields greater benefits to a larger number of voters is available.[9]

[9] In a companion paper (Sanjay Jain and Sharun W. Mukand, 2002), we use the above model to explore the dynamics of public opinion over the reform process. We show that a majority of voters might turn against reforms that were originally supported by a majority, even when the reforms are proceeding successfully - thus reform might run into a political impasse.

References

Acemoglu, Daron and Robinson, James A., "Political Losers as a Barrier to Economic Development", *American Economic Review AEA Papers and Proceedings*, May 2000, 90(2), 126-30.

Angell, Alan and Graham, Carol, "Can Social Sector Reform Make Adjustment Sustainable and Equitable?", *Journal of Latin American Studies*, 1995, 27, 189-219.

Besley, Timothy and Coate, Stephen, "An Economic Model of Representative Democracy", *Quarterly Journal of Economics,* February 1997, pp. 85-114.

Besley, Timothy and Coate, Stephen, "Sources of Inefficiency in a Representative Democracy: A Dynamic Analysis", *American Economic Review*, March 1998, 88(1):139-56.

Cukierman, Alex and Tommasi, Mariano, "When Does it takes a Nixon to Go to China?", *American Economic Review* , March 1998, 88(1): 180-97.

Dixit, Avinash and Londregan, John, "Ideology, Tactics and Efficiency in Redistributive Politics", *Quarterly Journal of Economics,* May 1998,113(2): 497-529.

Edwards, Sebastian and Lederman, Daniel, "The Political Economy of Unilateral Trade Liberalization: The Case of Chile", *NBER Working Paper No. 6510*, April 1998.

Fernandez, Raquel and Rodrik, Dani, "Resistance to Reform: Status Quo Bias in the Presence of Individual-Specific Uncertainty", *American Economic Review,* December 1991, 81(5): 1146-55.

Haggard, Stephan and Webb, Steven, *Voting for Reform: Democracy, Political Liberalization and Economic Adjustment*; 1994, Oxford University Press.

Jain, Sanjay and Mukand, Sharun W., "Public Opinion and the Dynamics of Reform", *mimeo,* University of Virginia, 2002.

Olson, Mancur, *The Logic of Collective Action: Public Goods and the Theory of Groups*, Harvard University Press, Cambridge, Mass., 1965.

Osborne, Martin J. and Slivinski, Al, "A Model of Political Competition with Citizen-Candidates", *Quarterly Journal of Economics*, August 1996, vol. 111, pp. 65-96.

Rodrik, Dani, "Understanding Economic Policy Reform", *Journal of Economic Literature* March 1996, vol.34, pp. 9-41.

Tommasi, Mariano and Velasco, Andres, "Where are We in the Political Economy of Reform?", *Journal of Policy Reform*, April 1996, 1:187-238.

Weyland, Kurt, "Swallowing the Bitter Pill: Sources of popular support for neoliberal reform in Latin America" *Comparative Political Studies*, October 1998.

Williamson, John and Haggard, Stephan, "The Political Conditions for Economic Reform", in John Williamson (ed.), 1994.

Williamson, John, *The Political Economy of Policy Reform*, 1994, Institute of International Economics, Washington D.C.

Appendix

Recall from the economic structure of the model the following. Initially, wages are equal across sectors, i.e., $w_{x1} = w_{m1} = q_x$, so that the average wage pre-reform (and under the status quo) is $\overline{w} = q_x$. The post-reform wages in the two sectors are $w'_{x2} = G'_{x2}.q_x = (1+\mu)q_x$, and $w'_{m2} = G'_{m2}.1 = q_x - \mu$. The relocation cost c is uniformly distributed over the interval $[0, q_x(1+q_x)]$, and the relocation cost of the marginal relocating worker is given by $c'(\mu) = w'_{x2} - w'_{m2} = \mu(q_x+1)$, so that the average adjustment cost incurred by relocating workers is $c_{avg} = \frac{c'}{2} = \frac{w'_{x2}-w'_{m2}}{2} = \frac{\mu(q_x+1)}{2}$. The proportion of M sector workers who relocate across sectors is thus given by $F(c'(\mu)) = \frac{\mu(1+q_x)}{q_x(1+q_x)} = \frac{\mu}{q_x}$, so that $1-F(c'(\mu)) = \frac{q_x-\mu}{q_x}$. Define $l_{jt} = \frac{L_{jt}}{L}$ as the proportion of workers in sector j at the beginning of time t. To compute the post-reform average wage, $\overline{w}'$, note that the first-period X sector workers are joined, post-reform, by a proportion $F(c')$ of first-period M sector workers who relocate. These workers earn w'_{x2} post-reform. The remaining workers, who comprise a proportion $1 - F(c')$ of first-period M sector workers, earn w'_{m2}. Hence, $\overline{w}' = [l_{x1} + l_{m1}.F(c'(\mu))].w'_{x2} + l_{m1}.(1 - F(c'(\mu))).w'_{m2} = [(1-l_{m1}) + l_{m1}.\frac{\mu}{q_x}](1+\mu)q_x + l_{m1}.\frac{q_x-\mu}{q_x}(q_x-\mu) = q_x + [(1-l_{m1})q_x - l_{m1}]\mu + \mu^2 l_{m1}(\frac{q_x+1}{q_x})$.
Finally, note that $Eu(\mu_s) = \overline{w} + \overline{w} = q_x + q_x$.

Efficient reform: An efficient reform is one in which $Y_r/L \geq Y_s/L$, i.e., the post-reform two-period average national income, (net of relocation costs), exceeds the corresponding no-reform income. The status quo income is the same as the first period income $\overline{w}$, while the second-period post-reform average income net of relocation costs is $\overline{w}' - l_{m1}.F(c')c_{avg}$. Hence, $Y_r/L \geq Y_s/L \Leftrightarrow \overline{w} + \overline{w}' - l_{m1}F(c')c_{avg} \geq \overline{w} + \overline{w} \Leftrightarrow q_x + [(1-l_{m1})q_x - l_{m1}]\mu + \mu^2 l_{m1}(\frac{q_x+1}{q_x}) - l_{m1}\frac{\mu}{q_x}\frac{\mu(q_x+1)}{2} \geq q_x \Leftrightarrow [(1-l_{m1})q_x - l_{m1}]\mu + \frac{\mu^2}{2} l_{m1}(\frac{q_x+1}{q_x}) \geq 0$. A sufficient condition to ensure that this is positive and rising in μ is that the first term be positive, i.e.,

$$l_{m1} \leq \frac{q_x}{q_x+1} \qquad (\textbf{Eff})$$

Proof of Proposition I: Recall that the political equilibrium entails no redistribution in the second period if a reform of $\mu_r > \mu_m$ is implemented, and full redistribution if $\mu_r \leq \mu_m$. Hence, the incumbent compares $Eu^R(\mu_r)$ against $Eu(\mu_s)$ for $\mu_r \leq \mu_m$, and $Eu^{NR}(\mu_r)$ against $Eu(\mu_s)$ for $\mu_r > \mu_m$. The proof, whose steps can be tracked in Figure 1, derives a sufficient condition that ensures that the following claims are true, and establishes that there exist values of the parameters q_x and l_{m1} that satisfy both the efficiency condition (**Eff**) and the sufficiency condition.

1) $\frac{dEu^R(\mu_r)}{d\mu_r} > 0$, and $Eu^R(\mu_r) = Eu(\mu_s)$ for $\mu_r = 0$. Hence, $Eu^R(\mu_r) \geq Eu(\mu_s) \forall \mu_r$, and in particular, for $\mu_r \leq \mu_m$. Hence all minoritarian reforms pass.

2) $Eu^{NR}(\mu_r) = Eu(\mu_s)$ for $\mu_r = 0$. $\exists$ a $\overline{\mu} > 0$ such that $Eu^{NR}(\overline{\mu}) = Eu(\mu_s)$. Since $Eu^{NR}(\mu_r)$ is a quadratic function of μ, with a positive coefficient on the μ^2 term, it is an upward-opening parabola. Hence, $Eu^{NR}(\mu_r) \gtrless Eu(\mu_s)$ as $\mu_r \gtrless \overline{\mu}$, $\forall \mu_r > 0$.

3) Further, $\overline{\mu} > \mu_m$. In other words, there exists a majoritarian range $(\mu_m, \overline{\mu}]$, for which $Eu^{NR}(\mu_r) \leq Eu(\mu_s)$ and reform is not adopted.

4) $\overline{\mu} < q_x$, where q_x is the maximal possible reform. In other words, there exists a super-majoritarian range $(\overline{\mu}, q_x]$, for which $Eu^{NR}(\mu_r) > Eu(\mu_s)$ and reform is adopted.

1) We begin by computing $Eu^R(\mu_r)$, the payoff to the incumbent from enacting reform, under the assumption that the second-period government redistributes income. In that case, his first period income is $\overline{w}$, and his second-period income is the average post-reform income $\overline{w}'$, net of his expected relocation costs, c_{avg}, if he relocates, which happens with probability

$F(c')$. In other words, $Eu^R(\mu_r) = \overline{w} + \overline{w}' - F(c').c_{avg} = q_x + q_x + [(1-l_{m1})q_x - l_{m1}]\mu + \mu^2 l_{m1}(\frac{q_x+1}{q_x}) - \frac{\mu}{q_x}\frac{\mu(q_x+1)}{2} = 2q_x + [(1-l_{m1})q_x - l_{m1}]\mu + \mu^2(l_{m1}-\frac{1}{2})(\frac{q_x+1}{q_x})$. Thus, $\frac{dEu^R(\mu_r)}{d\mu_r} = [(1-l_{m1})q_x - l_{m1}] + 2\mu(l_{m1}-\frac{1}{2})\frac{(q_x+1)}{q_x}$. Since $l_{m1} > \frac{1}{2}$, and since $[(1-l_{m1}).q_x - l_{m1}] > 0$ (by the efficiency condition (**Eff**) derived above), hence this expression is positive. Further, when $\mu_r = 0$, then $Eu^R(0) = 2q_x = \overline{w} + \overline{w} = Eu(\mu_s)$.

2)$Eu^{NR}(\mu_r) = \overline{w} + F(c')[w'_x - c_{avg}] + (1-F(c'))w'_m = 2q_x + \frac{\mu^2}{2} + \frac{\mu^2}{2q_x} - \mu$.

When $\mu = 0$, then $Eu^{NR}(\mu_r) = 2q_x = \overline{w} + \overline{w} = Eu(\mu_s)$.

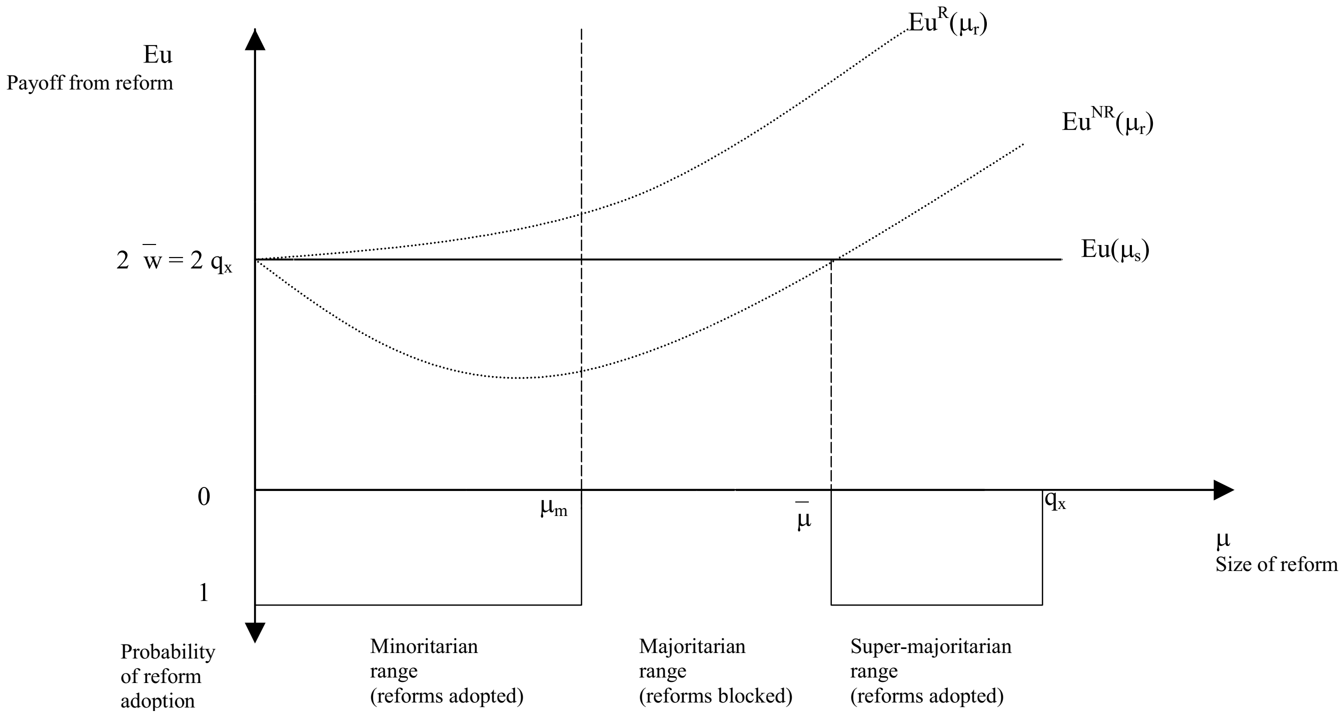
For $\mu > 0$, $Eu^{NR}(\overline{\mu}) = Eu(\mu_s) \iff 2q_x + \frac{\overline{\mu}^2}{2} + \frac{\overline{\mu}^2}{2q_x} - \overline{\mu} = 2q_x \iff \overline{\mu} = 2(\frac{q_x}{q_x+1})$.

3) $\overline{\mu} > \mu_m \iff 2\frac{q_x}{1+q_x} > \frac{q_x}{l_{m1}}(l_{m1}-\frac{1}{2}) \iff 2l_{m1} > (l_{m1}-\frac{1}{2})(1+q_x) \iff \frac{1}{2}(1+q_x) > q_x l_{m1} - l_{m1}$

$\iff l_{m1} < \frac{q_x+1}{2(q_x-1)}$ (**Suff**)

4) $\overline{\mu} < q_x \iff 2\frac{q_x}{1+q_x} < q_x \iff 2q_x < (1+q_x)q_x$, which is always true, since $q_x > 1$.

Finally, putting (1)-(4) together, it remains to be checked that there exist values of $\frac{1}{2} < l_{m1} < 1$ for which both conditions (**Suff**) and (**Eff**) are satisfied, i.e., $l_{m1} < \min\{\frac{q_x}{(q_x+1)}, \frac{q_x+1}{2(q_x-1)}\}$. Since $\frac{q_x}{(q_x+1)}$ is increasing, and $\frac{q_x+1}{2(q_x-1)}$ is decreasing in q_x, the permissible range for l_{m1} is greatest when q_x is not 'too small' (i.e. q_x is significantly greater than 1) nor 'too large'. It is tedious but straightforward to check that $\frac{q_x}{(q_x+1)} \gtrless \frac{q_x+1}{2(q_x-1)}$ according as $q_x \gtrless 2+\sqrt{5}$. Therefore the maximal valid range for l_{m1} is $0.5 < l_{m1} < 0.809$, when $q_x = 2+\sqrt{5}$. ■



Eu
Payoff from reform
$Eu^R(\mu_r)$
$Eu^{NR}(\mu_r)$
$Eu(\mu_s)$
$2\ \bar{w} = 2\ q_x$
0
μ_m
$\bar{\mu}$
q_x
μ
Size of reform
1
Probability of reform adoption
Minoritarian range (reforms adopted)
Majoritarian range (reforms blocked)
Super-majoritarian range (reforms adopted)

Figure 1