State Capacity, Redistributive Compensation, and the
Political Economy of Economic Policy Reform*

Sanjay Jain† Sumon Majumdar‡
Cambridge University Queen’s University

January 2015

Abstract

Large-scale economic reforms, such as trade liberalization, typically result in the creation of ‘winners’ and ‘losers’. If governments can compensate the losers by redistributing some of the winners’ gains, then any ‘potentially Pareto-improving’ reform should be implemented. However, in many developing economies, the capacity of the state to identify and tax winners is limited. We study the effect of such limitations in state capacity on the adoption and consequences of reforms. We show that for reforms where the distribution of winners and losers is exogenously given, higher state capacity is unambiguously good for the adoption of potentially Pareto-improving reforms. However, for reforms which require individual investment decisions by potential winners to realize gains, the effect of state capacity may be ambiguous. While better state capacity increases the feasibility of redistribution to losers, it also dampens investment incentives for potential winners, thereby reducing the size of the overall gains. Hence better state capacity may not translate into higher political support for reform.

Keywords: Political Economy, Redistribution, Compensation, State Capacity.
JEL classification: D72, F15, O20, P26, P16.

*For helpful comments and discussion, we are grateful to Jonathan Conning, Avinash Dixit, Christoph Esslinger, Guido Friebel, Gabe Fuentes, Bernd Hayo, the late Ken Koford, John McLaren, Roxana Radulescu, conference participants at ZEI Bonn, and NEUDC Yale University, and especially to Sharun Mukand. Jain thanks the Bankard Fund and Majumdar thanks SSHRC for financial support. All remaining errors are our own.

†Corresponding author. Faculty of Economics, University of Cambridge, Sidgwick Avenue, Cambridge CB3 9DD U.K. Tel: +44 (0) (1223) 335-264. Fax: +44 (0) (1223) 335-475. E-mail: sanjay.jain@econ.cam.ac.uk

‡Department of Economics, Queen’s University, Kingston, ON K7L 3Y2, Canada. Tel: +1 (613) 533-2274. E-mail: sumon@econ.queensu.ca
1 Introduction

While technological advances have indisputably been a major driver of the current epoch of globalization, another key aspect has been the series of reforms, most notably in trade integration, that have led to the ‘death of distance’ (Cairncross 2001). However, an inseparable element of globalization, and a root of much of its discontents, has been the non-uniform effect that it has had on the incomes and well-being of individual citizens, with some citizens benefiting, while others face dislocation and the loss of employment and wages. These effects are most clearly visible as the outcomes of policies related to trade integration in particular - precisely the sorts of reforms that have been a defining feature of globalization. Workers in sectors that produce goods which are relatively highly-valued in the global economy benefit, while other workers in ‘traditional’ sectors fear being hurt, especially if it is difficult for them to make a transition to the sector that is likely to benefit from trade. While this is especially true for developing countries, where systems of unemployment insurance and social security are scarce or absent, these distributional effects are also a concern for developed countries, where the ability of the state to cushion or ameliorate individual adverse shocks is presumably greater.\(^1\) While the traditional view has been that these reforms would eventually result in widespread benefits in the long run, as economies and workers adjust to the new economic environment, recent evidence suggests that these adjustments can be slow and painful, as Artuc, Chaudhuri and McLaren (2008, 2010), Artuc and McLaren (2012) have argued in a series of recent papers.

This recent debate has served to highlight, among other things, the importance of compensation, or other methods, to ease the adjustment of workers. One key question is whether governments can use, or put in place, adjustment mechanisms to redistribute some of the gains of the winners to compensate the losers. In analyzing the political exigencies of such redistributive mechanisms, a number of observers have argued that both the ability and the credibility of the government play a key role. While a number of papers have studied the issue of political credibility (Acemoglu (2003), Jain and Mukand (2003)), there has been much less focus on the importance of administrative competence of the state in determining whether or not reforms get adopted. In this paper, we study the

\(^1\)As Autor, Dorn and Hanson (2013) find, the impact of competition from Chinese imports on local US labour markets can be quite significant, both in terms of employment and output. Perhaps not surprisingly, increases in unemployment and layoffs are associated with a marked increase in unemployment transfers and other social insurance benefits. Even more unsurprisingly, perhaps, members of the US Congress are extremely politically sensitive to these concerns (Conconi, Facchini, and Zanardi, 2014), especially as elections approach. Finally, Lake and Millimet (2014) provide evidence that trade-related redistribution increases the political support for trade liberalization.
effect of state capacity on the adoption and consequences of reforms. Are countries with higher state capacity always more likely to adopt efficiency-improving reforms? For which type of reforms is state capacity more important? Are reforms more likely to succeed in environments where the state is more competent?

These issues - broadly speaking, the identification of circumstances under which large-scale economic policy changes are politically feasible - have been of abiding interest in fields such as international economics, transition and development (Hoff and Stiglitz (2001)). In an influential paper, Fernandez and Rodrik (1991) argue that even though the majority may benefit from a reform, individual-specific uncertainty may lead to a majority of the population opposing the reform. However, as Jain and Mukand (2003) point out, once the possibility of redistribution is considered in this context, then the question of how the government can credibly convince citizens that redistributive promises will be realized post-reform, becomes critical in building up political support for adoption of the reform in the first place. However, while clearly important, nevertheless the importance of credibility issues should not be exaggerated. Indeed, even in the absence of the problems described above, voters may resist the adoption of economic reform.2

In this paper, we provide a complementary explanation that we argue also deserves attention: the difficulty of identifying gains and losses and targeting the compensation accurately is a major problem in the actual implementation of redistribution. As emphasized by Besley and Persson (2009, 2011), and Besley, Ilzetzki and Persson (2013), the state in most developing countries has imperfect capacity to administer and implement such transfers. Not only do governments have less than perfect capability of identifying individual winners and losers, but, and even more so, the magnitude of their gains and losses. In this context we show that even if the government is perfectly credible (at least in terms of terms of its commitment to the implementation of announced policies and redistribution), imperfections in state capacity can play a major role in determining political support for or against the adoption of a welfare-improving reform. Particularly in the context of reforms where the impact of the reform in creating ‘winners’ and ‘losers’ is exogenously given, higher administrative capacity on the part of the state is more likely to lead to the adoption of efficient reforms. In states with low capacity, the inefficiency stems from the fact that the government’s inability to identify perfectly the ‘big winners’ restricts its ability to tax them to the fullest. Consequently, it is not able to do enough

2For example, Mitchell and Moro (2006) cast their model in the context of the persistence of inefficient policies (see Coate and Morris, 1999) and suggest that even an *ex ante* commitment to compensate may be insufficient to achieve an efficiency improvement. However, that finding relies on the important assumptions that all voters are alike, while the aggregate impact of the reform is uncertain. The model presented here differs significantly in both these respects.
redistribution to the losers to overcome their expected losses. Anticipating this, those who stand to lose from the reform vote against adoption of the reform. Further, we find that state capacity plays a particularly important role in the case of more unequal reforms i.e. those in which the difference between different categories of winners and losers is large. The government’s administrative capacity in identifying the different levels of gains is crucial in this case to generate enough revenue to compensate the losers. Economies where the government is deficient on this dimension are unlikely to see such reforms being passed, even though they have the potential to raise aggregate income.

For many types of reforms, while adoption of the appropriate policies is important, it is perhaps equally important that individuals take advantage of, and respond to, the implemented policies in order for the reform to be a success. Thus, for example, in the case of reforms to promote exports, the impact of the reform will only be realized if individual investors and workers take the necessary initiative and incur the costs of equipping themselves to produce for a global market. For such types of reforms, the measure of ‘winners’ and ‘losers’ is not exogenously given, but is the result of deliberate action on their part. Analyzing the role of state capacity in such a context, we find that the impact of better administrative capacity on the part of the state has two countervailing effects. On the positive side, as before, it increases the level of possible compensatory redistribution. However, on the negative side, anticipation of a higher tax incidence lowers individual incentives to invest in being a winner, thereby decreasing the overall size of gains for the whole economy. Together, this can lead to non-monotonic effects of state capacity on the adoption of economically efficient reforms. As we show, this can lead to cases where efficient reforms are not adopted in countries with very high or very low state capacity, but may find political support in countries with moderate levels of capacity. In countries of the latter type, there is a moderate level of redistribution from the winners to the losers. At the same time, moderate levels of taxation induce individual investment in the reform to generate enough gains to compensate the losers and thereby overcome their political resistance to adoption of the reform. This aligns well with findings of the European Bank for Reconstruction and Development in their EBRD (1999) report on reforms in twenty transition economies over the period 1989-1999: the greatest progress of reforms was in countries with middling levels of governance (e.g. Poland and the Czech Republic), while it was much lower both in countries with high and low governance levels.

This paper directly relates to the literature on the politics of reform in developing countries (see Rodrik (1996, 2006) for two excellent surveys on this literature, and Kanbur (2003) for an overview of the development economics approach to compensation). Among important contributions in the area, Fernandez and Rodrik (1991) show that individual-specific uncertainty about being a winner or a loser can create a bias against welfare-
enhancing economic reforms, while Alesina and Drazen (1991) emphasize the politics of ‘wars of attrition’ between different groups and how that can lead to costly delay in the adoption of reforms. Other channels that may inhibit or delay reform have been investigated by several papers (e.g. Jain and Mukand (2003), Acemoglu and Robinson (2000)), while questions of continuation or reversal of reforms have been studied in Jain, Majumdar and Mukand (2014). What is distinctive about our analysis here is that we take the political power as given and constant (rather than consider its evolution as a result of the reform, which is important in many of the afore-mentioned papers), and instead focus on the effect of the state’s imperfect capacity on the adoption and outcome of reform. Such imperfections in the capacity of the state are widely recognized in a broad spectrum of developing countries. Accordingly, our paper is also related to the recently emerging literature on state capacity and the political economy of reform, initiated by Besley and Persson (2011, especially chapter 7).

This paper is also related to the literature on the political economy of reform in the context of transition economies (see the surveys by Roland (2002) and Tommasi and Velasco (1996)). Much of the focus of this literature has been on the design of economic reform in order to minimize political impediments to reform. Dewatripont and Roland (1992) study the importance of informational asymmetries of a kind similar to ours in arguing that gradualist reform may be politically feasible, where a big-bang reform need not be. In contrast, our paper considers a single reform in isolation and the only decision is whether or not to adopt the reform. We consider this case in order to focus on the impact of state capacity in the simplest possible case. While state capacity is likely to also play an important role in determining the optimal sequencing of reforms, as in much of the transition literature, we leave this for future work.

The rest of the paper is organized as follows. The basic framework is presented in section 2.1, while section 2.2 establishes the condition for adoption of the reform and the effect of state capacity. Section 3 analyses the model incorporating individuals’ investment decisions. Section 4 concludes.

2 A model of reform with redistribution

We begin by considering the possibility of the passage of reforms in a context characterized by individual-specific uncertainty. The model we use is a modification of the seminal one proposed by Fernandez and Rodrik (1991), who show that if a (large enough) number of voters are uncertain about how they personally will be affected by a proposed reform, then the reform may not pass, even though it is known ex ante that a majority will be winners. The essence of their model can be conveyed in a simple example. Suppose it
is known that a proposed reform, in a society of 100 individuals, will create 60 winners and 40 losers. Each winner gains $2, and each loser loses $2. But suppose there is some individual-specific uncertainty: of the 60 winners, only 30 are known in advance. Thus, it is commonly known that if the reform is adopted, it will result in an increase in overall income. The remaining 70 ‘unknown types’ do not know if they will be winners or losers, but only that they each have a 30 in 70 chance of being a winner, and a 40 in 70 chance of being a loser. As a simple calculation shows, the expected payoff from the reform to these 70 ‘unknown types’ is negative, and hence they would vote against the reform. Thus, even a reform that is known \textit{ex ante} to be efficiency-enhancing and majority benefiting might fail if put to a majority vote.

However, this example depends crucially on the assumption that redistributive promises are not possible, or that they are not credible. If the citizen-workers (or their government) could credibly promise to transfer $1.50, say, from each of the winners to compensate the losers once the reform is implemented, then the expected payoff net of redistribution to the 70 unknowns would become positive, the reform would pass, and after redistribution, a Pareto improvement would result.\footnote{Throughout the paper, we assume that if redistribution is carried out, then it is ‘uniform’, in the sense that all like losers are treated alike. Asheim, Claussen, and Nilssen (2006) show that in situations such as the ones we analyze here, the winners would compensate all losers, rather than only compensating just enough losers to create a non-maximal majority. For a related discussion in a similar vein, see Berglöf et al. (2012).}

The key question is then the feasibility and extent of these redistributive promises, whether made by individuals or by the government on their behalf, and their credibility. Jain and Mukand (2003) focus on the credibility of these promises as generated by the political process and study the impact of such credibility on the decision to adopt the reform or not. But even if these redistributive promises are credible, limitations on the part of the state to identify the gains and losses from reform can sharply inhibit the feasibility of redistribution post-reform. We show that even when redistribution is politically credible, the difficulty of identifying winners \textit{ex post} might be so great as to prevent the passage of an efficiency-enhancing, majority benefiting reform.

\subsection*{2.1 Model structure}

Consider an economy comprised of $N$ citizen-workers, each of whom inelastically supplies one unit of labor, which is the only factor of production. For simplicity, we begin with the situation where each worker earns the same wage $w_0$. This could be due to some pre-existing distortion, which equalizes wages across various sectors, or because all workers are initially employed in the same sector. In terms of the subsequent model of reform,
what matters is the gain or loss relative to this status quo, and assuming that all workers begin at the same starting point helps simplify the analysis.

This population of citizen-workers is to vote directly on whether to adopt an economic reform $R$. This reform can be thought of as a trade liberalization, or a more general macroeconomic integration in the form of an economic union. More generally, the model can also be applied to analyze a reform which reallocates government resources (for example, on infrastructure provision) away from some sectors and toward others. We model this reform simply in terms of the effect it will have on workers’ wages/incomes. The key assumption is that, due to some unobservable differences among the workers, this reallocation will affect different workers differently, with some emerging as winners while others lose. Specifically, we assume that if the reform $R$ is adopted, then a fraction $l$ of workers see a decrease of $-\lambda$ in their wages, while a fraction $s$ gain by $\sigma$ and the remaining fraction $b$ gain by $\beta$, where $\beta > \sigma$. Thus, the reform results, respectively, in a set of ‘losers’, ‘small winners’ and ‘big winners’ among the $N$ workers. We will refer to these workers as belonging to groups $L$, $S$ and $B$, respectively. If citizen-workers vote not to launch the reform, then they all continue to earn their status quo wage $w_0$.

We have limited the post-reform heterogeneity among workers by assuming that all losers are alike in the extent to which they are negatively affected, while winners can be of only two types, differentiated by the magnitude of their gains. This heterogeneity among workers will play an important role in determining the government’s tax and redistribution policy below; the greater is the degree of heterogeneity, the more severe will be the problem of identifying and targeting that the government faces. Here, we have opted for the simplest formulation possible, by choosing a minimal level of differentiation among the affected citizen-workers. Assuming greater heterogeneity will only make the results stronger.

At an individual worker level, the impact of the reform may depend on various factors including his/her education, wealth, current experience, propensity and ability to switch from one sector to another. But reforms are inherently an uncertain process and ex ante, individuals may or may not know their individual prospects from going ahead with the reform. In their seminal paper, Fernandez and Rodrik (1991) argue that the extent of this individual-specific uncertainty is important for determining public support for the initiation of reform. We too incorporate individual-specific uncertainty in our model by assuming that while all members of group $B$ know in advance that they would gain $\beta$ from the reform, the remaining $s + l$ workers, however, do not know ex ante whether they are going to be in group $S$ or group $L$.\footnote{For example, an individual worker may not know his own cost of relocating from the declining sectors to the growing sectors, but only has some sense of the distribution of costs in the population. These costs}
as belonging to the group \( \{S, L\} \). Here, as in Fernandez and Rodrik (1991), the aggregate outcome of the reform is commonly known in advance, but the specific identity of all the winners and losers is not known. Specifically, each worker in group \( \{S, L\} \) believes that with probability \( \frac{S}{S+L} \), he will be a winner with gain \( \sigma \) and with residual probability \( \frac{L}{S+L} \), will stand to lose \( \lambda \) from the reform. We assume that \( b < N/2 \) (or, equivalently, that \( s + l > b \)) to ensure that the ‘big winners’ (who know perfectly their gains from reform) are not able to carry the vote by themselves for adoption of the reform.

The efficiency condition which ensures that the reform results in an increase in national income is given by:

\[
\text{Social efficiency: } b\beta + s\sigma - l\lambda > 0 \tag{EC}
\]

In other words, the total increase in the incomes of the gainers exceeds the losses of those adversely affected. Under condition \( (EC) \) all workers/voters know that the reform is efficient, in the sense that the total income of the population will expand. For each worker in group \( \{S, L\} \), the expected gain from the reform, without any redistribution, is given by \( \frac{S}{S+L}(\sigma) + \frac{L}{S+L}(-\lambda) \). We make the following assumption that this individual-specific uncertainty is sufficiently great that, in the absence of any redistributive compensation, the expected value of the reform to each such worker is negative, so that they would vote against the reform.

\[
\text{Individual-specific uncertainty: } s\sigma - l\lambda < 0 \tag{ISU}
\]

The losers can of course potentially be compensated by means of a tax-transfer scheme. Unlike Fernandez and Rodrik (1991), we assume here that such redistribution is possible – the government can tax the winners and compensate the losers from the reform. Furthermore, unlike Jain and Mukand (2003) and Jain, Majumdar and Mukand (2014), we also assume here that the government’s promise to do so is in fact credible – in other words, the voters have no reason for concern that the government may renge on the promised post-reform redistribution. However, such compensatory redistribution is limited by the state’s capacity to identify the incidence of the gains and losses caused by the reform. While the specific gains and losses from reform are invariably difficult to determine, the degree to which they can be identified, and thus also the state’s capacity to efficiently implement its committed redistributive scheme, is possibly related to the state’s capacity to correctly measure individual income. The argument for the importance of this administrative capacity of the state to collect taxes has been made most comprehensively by
Besley and Persson (2011), who argue that this capacity can differ across countries, due to differences in incomes, institutions and histories.

We assume that while the government is successfully able to distinguish winners from losers, it is unable to discern the exact amounts gained or lost by those who are positively or negatively affected by the reform. More specifically, it is able to identify fraction $x \in (0, 1)$ of the winners from the $B$ group, but is unable to discern the remaining fraction $1 - x$ of ‘big winners’ from the ‘small winners’ i.e. between those from groups $B$ and $S$. Thus the parameter $x$ captures in a simple manner the idea of state capacity or competence in identifying the individual effects of reform. This could be related to the efficiency of the tax and legal system in the country and also to the degree of administrative efficiency or corruption in identifying income gains and losses that occur due to a change in policy.

It is useful to impose some restrictions on the amount that governments can reasonably tax and transfer by means of the tax-transfer vector $t$, whose elements $t_i$ denote the tax paid by a worker in group $i$, $i \in \{B, S, L\}$ (a negative value would indicate that that worker receives a transfer).\(^5\) Obviously, one restriction that any tax vector should have to satisfy is that it be (at least) budget-balancing, i.e., that its elements sum to (at least) zero. Further, the tax vector must be anonymous: workers with identifiable identical wages must be taxed at the same rate. Thus, all ‘losers’ are taxed $t_1$, all identified ‘big winners’ are taxed $t_B$, while all unidentified ‘big winners’ are lumped together with the ‘small winners’ and taxed $t_S$. Finally, taxation should not be regressive, i.e., workers with higher incomes should not end up, post-redistribution, worse off than those with lower incomes.\(^6\) For short, we will refer to any balanced-budget tax vector, $t$, that satisfies the anonymity property and this ‘order-preserving’ property, as a feasible tax-transfer scheme. Any such scheme must thus satisfy the following two conditions:

Non-regressivity: \[ \beta - t_B \geq \sigma - t_S \geq -\lambda - t_L \quad (NR) \]

Budget balance: \[ xbt_B + [(1 - x)b + s]t_S \geq -lt_L \quad (BB) \]

Post-reform, for the reasons discussed above, the government’s ability to distinguish between the different types of workers is limited to being able to distinguish between winners and losers, but not to observe the magnitude of the gains among the winners. This inability to distinguish between workers in groups $B$ and $S$ could be simply due to administrative inefficiency or because group $S$ workers can be thought of as being ‘just

\(^5\) For a discussion of possible restrictions on general tax-transfer schemes, see, for example, Besley and Coate (1997).

\(^6\) An alternative is to require that the amount taken from a winner not exceed the amount of her winnings. It is tedious but straightforward to show that the qualitative results of the analysis below are unchanged under this alternative assumption.
like’ workers in group $B$, but with higher unobserved adjustment costs, which may be in the form of the higher disutility they incur in adjusting to the new regime.\footnote{In section 3 below, we extend the benchmark model here to explicitly allow for an individual worker-specific cost that is not observable to the government.} If this disutility or effort cost is unobserved, as is often the case, then the government is restricted to taxing them only on the observed portion of their winnings, which may be the same across both groups.\footnote{This feature is also common to much of the public finance literature – taxation must be based on observed income, rather than utility, or income net of disutility costs. This formulation is also standard in the political economy literature, where ‘homo oeconomicus’ voters (Corneo and Grüner, 2002) maximize post-tax income rather than social objectives (see, for example, Dixit and Londregan, 1995).}

2.2 Adoption of reforms

Let us now examine the conditions under which reform $R$ is adopted and when it may not be in spite of its potential to raise overall income. For the reform to be voted in by a majority, it suffices to look at the voting decision of the $s + l$ ‘unknowns’, who are in a majority, and are \textit{ex ante} alike. Calculating their expected gains from the reform, they will agree to its adoption only if the following reform passage condition is satisfied:

$$\frac{s}{s + l}(\sigma - t_S) + \frac{l}{s + l}(-\lambda - t_L) \geq 0$$

(\textit{PC})

To determine adoption, we thus need to calculate the maximal level of redistribution that can be considered by the government, given its state capacity level $x$, and that it needs to satisfy the non-regressivity and budget-balance conditions ($NR$ and $BB$ respectively). By condition ($NR$), the maximal value for $\sigma - t_S = \beta - t_B$ i.e. the maximum amount that the ‘big winners’ can be taxed is an amount which equates their post-tax gains with that of the ‘small winners’. Now, the left-hand side of (\textit{PC}) is maximized by setting $-\lambda - t_L$ as large as possible. Together with the non-regressivity constraint, it implies that in this case, one must set $-\lambda - t_L = \sigma - t_S = \beta - t_B$. Substituting into the budget-balance condition ($BB$) yields the condition under which reform $R$ is adopted. This is given in the Proposition below.

\textbf{Proposition 1} Under state capacity $x$, reform $R$ is adopted only when the following condition is satisfied:

$$b\beta + s\sigma - t\lambda \geq b(1 - x)(\beta - \sigma)$$

(1)

\textbf{Proof:} As explained before, to check if the condition (\textit{PC}) is satisfied requires setting $-\lambda - t_L = \sigma - t_S = \beta - t_B$. Incorporating it into the budget-balance condition (\textit{BB}) gives:

$$\frac{b\lambda + b[b\beta x + \sigma(1 - x)] + s(\sigma + \lambda)}{b + s + l} \geq -t_L$$

\textit{Proof:} As explained before, to check if the condition (\textit{PC}) is satisfied requires setting $-\lambda - t_L = \sigma - t_S = \beta - t_B$. Incorporating it into the budget-balance condition (\textit{BB}) gives:

$$\frac{b\lambda + b[b\beta x + \sigma(1 - x)] + s(\sigma + \lambda)}{b + s + l} \geq -t_L$$

9
This gives the maximal feasible degree of transfer possible. In order for the reform not to pass, even with the maximal redistribution, the reform passage condition (PC) must fail. Using this maximal transfer in (PC) yields the condition (1) which is required to hold in order for the reform to be adopted.

This proposition highlights the importance of state capacity in the ability of a society to realize the economic gains from the reform. Note that, from a social efficiency standpoint, the reform should be adopted whenever the overall gains from it are positive i.e. when (EC) is satisfied. Comparing it with (1) highlights the role of imperfect state capacity, and the redistributive constraints it imposes on the government, in the political decision to adopt the reform or not. Since \( x < 1 \), the right-hand side of (1) exceeds 0, and the lower is state capacity \( x \), the greater is the divergence between social efficiency on the one hand, and politically feasible reforms on the other. Hence many reforms are not adopted, even though the overall gains, \( b\beta + s\sigma - l\lambda \), are positive. The inefficiency stems from the fact that the government’s inability to identify perfectly the ‘big winners’ restricts its ability to tax them to the fullest. Consequently, it is not able to do enough redistribution to the losers to overcome their expected losses. Anticipating this, the majority group \( \{S, L\} \) of potential expected losers votes against adoption of the reform.

If the government could better distinguish workers in groups \( B \) and \( S \), all efficiency-enhancing reforms could pass with an accompanying redistributive promise. As has been pointed out frequently in the literature on developing countries in various market contexts (e.g. credit markets, agricultural investment), asymmetries in information and their adverse consequences are most significant in poor countries. A frequent policy recommendation is that governments should invest in developing the information infrastructure, and in reducing the transactions cost of acquiring information, for example, by creating credit registries. The analysis here suggests that similar informational gaps on the part of the government can also result in significant inefficiencies by inhibiting political support for the adoption of welfare-improving reforms. Thus, societies where the government has limited fiscal capacity to identify and tax outcomes, may be less able to reap the income-enhancing benefits of globalization, because crucial reforms may not win the political support necessary for their passage.

By studying (1), one can also better understand the type of reforms for which state capacity is more important, versus those in which it plays a minor role. Rewrite (1) in terms of the degree of state capacity \( x \) that is required to adopt efficient reforms:

\[
x \geq 1 - \frac{b\beta + s\sigma - l\lambda}{b(\beta - \sigma)} = x^c \text{ (say)}
\]

Economies with state capacity below this threshold \( x^c \) will thus fail to adopt efficiency-
enhancing reforms. Keeping the size of the overall gain $b\beta + s\sigma - l\lambda$ constant, one can analyze the parameters that affect this minimum state-capacity threshold. This is done in the corollary below.

**Corollary 1** Keeping $b\beta + s\sigma - l\lambda$ constant, a rise in $b$ or $\beta - \sigma$ increases the region of inefficiency $[0, x^c]$.

The corollary implies that state capacity plays an important role in the adoption of reforms which generate a significant degree of inequality i.e. where there are a larger number of ‘big winners’ or the income difference between the ‘big winners’ and ‘small winners’ is large. Put another way, countries with low state capacity will only be able to implement reforms that involve a modest number of big winners or in which there is not too much of a differential between the various categories of winners. Intuitively, the primary source of inefficiency here is the government’s inability to distinguish between the $S$ and $B$ winners. When the income difference between these two groups is large, this inefficiency has greater consequences, and hence in that case state capacity $x$ becomes more important. Interestingly, the difference in impact between the winners and losers (say, an increase in $\lambda$ together with a rise in $\sigma$, so as to keep $b\beta + s\sigma - l\lambda$ constant) or in their numerical distribution (i.e. changes in $s$ and $l$) has no impact on this condition. Thus, reforms with differences along these dimensions are unlikely to be treated differently across countries with different state capacities.

### 3 Reforms with individual investment decisions

So far the overall proportion of winners and losers generated by the reform process have been taken as exogenously given. However, while adoption of the appropriate policies is important, it is perhaps equally important that individuals take advantage of, and respond to, the implemented policies in order for the full gains of the reform to be realized. Thus, for example, if export-promoting policies are adopted, but individual investors and workers do not take the necessary initiative and incur the costs of equipping themselves to produce for a global market, the benefits of the reform are likely to be lower. In this section, we extend the benchmark model of the previous section, to incorporate such deliberate decisions by citizen-workers, and the impact of state capacity on the adoption of reforms and their impact in this case.

Suppose now that the citizens in group $B$ (who constitute a mass $b$ of the population) need to incur a cost $\tilde{c}$ in order to realize the gain $\beta$ in their income after initiation of the reform. They can choose not to incur this cost, in which case they remain in their status quo position, with no increase or decrease in their wages. This cost $\tilde{c}$ differs from
person to person, reflecting differences across individuals in their ability to adapt and change according to changing environments. It could incorporate the cost of upgrading or acquiring a new set of skills, the physical cost of relocating to areas favorably impacted by the reform (say, SEZs in the case of export-oriented reform) or even the ease of moving from one firm or sector to another depending on the flexibility of the labor market institutions in the country. Specifically, we assume that \( \tilde{c} \) is distributed over \([0, c_H]\) according to the cdf \( F(\tilde{c}) \). Thus, while some workers find it easy to relocate, for others it is very difficult. Each worker knows his own cost of relocation \( \tilde{c} \), but this is unobservable to the government.

The rest of the model is unchanged, with the \( s + l \) remaining citizens each having a probability \( \frac{s}{s + l} \) of gaining \( \sigma \), or losing \(-\lambda\) with the complementary probability \( \frac{l}{s + l} \). As before, this group is in the majority and thus enjoys electoral power over the decision of whether or not to adopt the reform. The government can credibly commit to tax and redistribute post-reform, subject to its non-regressivity and budget-balance conditions \((NR)\) and \((BB)\) respectively, and is constrained by its capacity to be able to identify only fraction \( x \) of the ‘big winners’ from the reform.

In this case, social efficiency requires that any individual with adjustment cost \( \tilde{c} \) less than the gain \( \beta \) should in fact do so. Thus, socially efficient decision-making means that a fraction \( F(\beta) \) of individuals from group \( B \) should invest, and the reform should be adopted if the overall gains from it are positive i.e.

\[
b \int_0^\beta (\beta - \tilde{c}) dF(\tilde{c}) + s\sigma - l\lambda \geq 0
\]

In the case where \( F \) is a uniform distribution over \([0, c_H]\), this condition becomes:

\[
\frac{b\beta^2}{2c_H} + s\sigma - l\lambda \geq 0
\]

Now, as before, workers in group \( B \) will weigh the post-tax benefits from the reform against their cost \( \tilde{c} \) of investing, taking into account the political possibility of post-reform redistribution. They anticipate that with probability \( x \), they will be identified as ‘big winners’ and be taxed \( t_B \), while with probability \( 1 - x \), they will be lumped with the ‘small winners’ and be taxed only \( t_S \). The underlying assumption here is that the personal costs of adjustment \( \tilde{c} \) cannot be observed by the government, and thus tax and/or redistribution cannot be conditioned on it. This is a reasonable assumption for many contexts in which the process of transition from one job or sector to another may involve several factors (e.g. individual aptitude, connections or even psychological costs) that can be private and difficult to observe and measure. Thus, taxes can only be conditioned on “observables” i.e. identifiable income here. An individual from group \( B \)
will choose to invest only when:

\[ x(\beta - t_B) + (1 - x)(\beta - t_S) \geq \tilde{c} \]

In other words, only those with cost \( \tilde{c} \) lower than \( \beta - (x t_B + (1 - x) t_S) \) will choose to incur the personal cost of changing sectors, implying that a fraction \( F(\beta - (x t_B + (1 - x) t_S)) \) of group \( B \) will invest. Since the tax on the ‘big winners’, \( t_B \), will exceed that on the ‘small winners’, \( t_S \), this means that, as state capacity \( x \) increases, the expected tax on a potential ‘big winner’ is likely to be higher, thereby reducing his incentive to invest in the first place.

This will be the main new element at play here. Once individual adjustment costs and investment decisions are taken into account, greater state capacity may serve to lower investment in the reform. Of course, the taxes \( t_B \) and \( t_S \) themselves will adjust to the expected number of big and small winners and will need to be determined in equilibrium. We turn to this next.

Let us denote by \( y = F(\beta - (x t_B + (1 - x) t_S)) \) the fraction of group \( B \) that invests, implying that the overall number of ‘big winners’ is given by \( y \). Given this, the government’s budget-balance condition is now given by:

\[ xbyt_B + [(1 - x)by + s]t_S \geq -Lt_L \]

As before, to determine conditions under which the reform would be adopted, we need to determine the maximal value of the left-hand side of \( (PC) \). Given the non-regressivity constraints, this is achieved when \( -\lambda - t_L = \sigma - t_S = \beta - t_B \). Substituting into the modified budget-balance condition above gives:

\[ -t_L \leq \frac{by\{\lambda + \beta x + \sigma(1 - x)\} + s(\sigma + \lambda)}{by + s + l} = -t_L(y) \text{ (say)} \]

This is the maximal degree of redistribution that the losers from the reform can expect, \( \text{given} \) that the fraction of group \( B \) investing is \( y \). As before, this is increasing in the level of state capacity \( x \). It is also increasing in the fraction of ‘big winners’ \( y \) as can be seen from:

\[ \frac{d(-t_L(y))}{d(by)} = \frac{(s + l)\{\beta x + \sigma(1 - x)\} - (s\sigma - l\lambda)}{(by + s + l)^2} > 0 \]

since \( s\sigma - l\lambda < 0 \) by assumption (ISU). However as discussed in the previous paragraph, this fraction \( y \) is adversely affected by an increase in state capacity \( x \). Thus, there emerge two countervailing effects of an improvement in state capacity: one, it raises the level of possible compensatory redistribution, but two, it lowers individual incentives to invest in
being a winner. Together, this can lead to non-monotonic effects of state capacity on the adoption of economically efficient reforms i.e. it may not be the case that it is economies with greater state capacity which are more likely to adopt efficient reforms.

To determine the equilibrium in this model, we note that \( \tau(\varphi) \) gives the maximal tax and redistribution levels for a given level of investment \( \varphi \). The fraction \( \varphi \) is determined by the marginal investor from group \( G \), who takes into account the anticipated tax levels \( \tau_B, \tau_S \) and \( \tau \). Substituting \( \tau_B = \beta + \lambda - t_B(y) \) and \( t_S = \sigma + \lambda - t_L(y) \) into the expected net-of-tax payoff function \( \beta - (xt_B + (1-x)t_S) \) of the marginal investor gives the equilibrium condition as:

\[
y = F \left( \frac{\beta y + s \sigma - l \lambda + (\beta - \sigma)(1-x)(s+l)}{by + s + l} \right)
\]

Both sides of this equation are increasing in \( y \). However, under suitable conditions on the end-points \( y = 0 \) and \( y = 1 \), one can ensure that a solution to the above equilibrium condition holds. Suppose the taxes \( t_B \) and \( t_S \) at \( y = 0 \) is low enough so that the lowest cost investors invest i.e.

\[
s \sigma - l \lambda + (\beta - \sigma)(1-x)(s+l) > 0
\]

while the taxes \( t_B \) and \( t_S \) at the other end \( y = 1 \) are so high that the highest cost investors choose not to invest i.e.

\[
\frac{\beta b + s \sigma - l \lambda + (\beta - \sigma)(1-x)(s+l)}{b + s + l} < c_H
\]

Then, as is shown in the following proposition, a solution to the equilibrium condition (3) always exists. The proposition also identifies the effect of state capacity on the equilibrium level of investment and establishes conditions for adoption of reforms in this case.

**Proposition 2** Under conditions (4) and (5), at least one solution \( \varphi^*(x) \in (0,1) \) to the equilibrium condition (3) exists and gives the fraction of group \( G \) who invest in case the reform is adopted. In case of multiple solutions, consider the largest \( y \) that solves the equation. This fraction decreases as state capacity \( x \) improves.

With individual adjustment costs, reform \( R \) is adopted if the following condition holds:

\[
y^*(x) \{ \beta x + \sigma (1-x) \} + s \sigma - l \lambda \geq 0
\]

**Proof.** Under condition (4), \( F \left[ \frac{s \sigma - l \lambda + (\beta - \sigma)(1-x)(s+l)}{by + s + l} \right] > 0 \), meaning that the right-hand side of (3) exceeds the left-hand side at \( y = 0 \). On the other hand, under condition (5), \( F \left[ \frac{\beta b + s \sigma - l \lambda + (\beta - \sigma)(1-x)(s+l)}{b + s + l} \right] < 1 \), meaning that the right-hand side of (3) is less than the
left-hand side at \( y = 1 \). Since both sides of (3) are continuous in \( y \), hence, by Brouwer’s fixed point theorem, there exists a fixed point \( y^* \in (0, 1) \).

This is also shown in figure 1. As \( x \) increases, the right-hand side of (3) decreases, while there is no effect on the left-hand side. Thus, as can be seen from figure 1, \( y^* \) decreases.

To determine if the reform is adopted or not, we need to determine if \((PC)\) is satisfied at the maximal level of redistribution \(-t_L(y)\). Incorporating \(-t_L(y)\) from (2) into \((PC)\) yields (6) as the necessary condition for the adoption of the reform.

The proposition thus establishes the existence of equilibrium in this model with adjustment costs, and shows that, in equilibrium, the fraction of individuals choosing to invest in the reform, \( y \), diminishes with an increase in the state capacity \( x \). Intuitively, as the state’s capacity to identify and tax (heavily) ‘big winners’ increases, their net benefit from reform decreases and therefore diminishes their incentive to invest.

How does this translate into the electoral decision of whether or not to adopt the reform in the first place? Greater state capacity means that the state’s ability to tax winners and compensate the losers is bigger, thereby making the adoption of reforms more attractive for those who are expected losers from the process (i.e. those in groups \( S \) and \( L \)). However, increased state capacity means that fewer among the group \( B \) will invest if the reform is adopted, thereby shrinking the size of the overall pie to be redistributed and thus making the reform less attractive overall. These two effects can be seen in the reform adoption condition (6) above. A rise in \( x \) lowers \( y^*(x) \), while it raises \( \beta x + \sigma (1 - x) \) (since \( \beta > \sigma \)).
thereby making the overall impact of $x$ on the adoption of reform ambiguous. Thus, the same efficient reform might be adopted in a country with a lower state capacity $x$, while it is voted against in another country with a higher state capacity - or the opposite may happen. We demonstrate this by means of an example below.

Consider a reform where the three groups $B$, $S$ and $L$ are an equal proportion of $\frac{1}{3}$ in the population. The potential gains for the ‘big winners’ is $\beta = 10$, while that for the ‘small winners’ is $\sigma = 1$, and the loss for the ‘losers’ is $\lambda = 5$. Thus, without any compensation from the ‘big winners’, members of group $\{S, L\}$ (who are in the majority) face an expected loss $\frac{1}{3}(1) + \frac{1}{3}(-5) = -2$ from the reform and would not vote to adopt it.

Let us now consider adjustment costs that group $B$ individuals have to incur in order to realize the gain $\beta$ from the reform. Suppose that there are three types of individuals in group $B$: $\frac{1}{3}$ of them have low adjustment costs $c_L = 0$, while another $\frac{1}{3}$ have moderate costs $c_M = 2$ and the remaining $\frac{1}{3}$ have high costs $c_H = 6$. Thus, the first type will always invest in the reform, while the other two will take into account their net (post tax) gains before undertaking the investment. This is thus a discrete version of the continuous model analyzed above, but helps make the point in a simple way. The formula for determining the maximal level of redistribution $-t_L(y)$ can still be used here, with the only change being that the equilibrium condition (3) will have to be adjusted to take into account the discreteness in the distribution of $\tilde{c}$. Here, the socially efficient decision is for all three types of group $B$ citizens to invest, since the gain from the reform $\beta = 10$ exceeds even the highest cost of adjustment $c_H = 6$, and the reform should be adopted as the total societal gains $\frac{1}{3}[\frac{1}{3}(10 - 0) + \frac{1}{3}(10 - 2) + \frac{1}{3}(10 - 6)] + \frac{1}{3}(1) - \frac{1}{3}(5) = \frac{10}{3}$ are positive.

We now consider the equilibrium decisions under three regimes of state capacity — low, medium and high.

**Low state capacity.** Let us begin by studying the reform adoption decision in the case of a country with a low degree of state capacity, namely $x_{Low} = 0$. In this case, all three types in group $B$ invest. This can be shown by calculating the gains for a group $B$ investor even after the maximal redistribution $-t_L(y)$, with $y = 1$. This is given by:

$$\frac{\beta b + s\sigma - l\lambda + (\beta - \sigma)(1 - x_{Low})(s + l)}{b + s + l} = 8$$

which exceeds the investment cost $c_H = 6$ of even the highest type and thereby justifies the investment decision of all three types of group $B$.

To see if the reform is adopted in this case, consider the expected gains for any member of the $\{S, L\}$ group: $by^*(x_{Low})\{\beta x_{Low} + \sigma(1 - x_{Low})\} + s\sigma - l\lambda = -1 < 0$. Thus, in this case, the reform is not adopted. Although there is anticipated to be a significant amount of investment once the reform is adopted, members of group $\{S, L\}$ know that they will
receive little compensation for their expected losses, due to the state’s low capacity to identify and tax the ‘big winners’. Hence they vote against adoption of the reform.

Although we have considered the extreme case of \( x_{Low} = 0 \) i.e. a complete inability of the state in identifying big winners, due to continuity, a similar conclusion will also hold for other values of low, but not necessarily zero, state capacity.

Medium state capacity: Consider now the case of an economy with medium state capacity, \( x_{Med} = \frac{3}{4} \). In this case, only the two lowest types in group \( B \) invest. To see this, let us calculate the gains to any group \( B \) investor (with \( y = \frac{2}{3} \)):

\[
\frac{\beta y + s\sigma - l\lambda + (\beta - \sigma)(1 - x_{Med})(s + l)}{by + s + l} = \frac{43}{16}
\]

This exceeds \( c_M \) and \( c_L \), but is less than \( c_H \), implying that only the two lowest types of group \( B \) will invest i.e. \( y^*(x_{Med}) = \frac{2}{3} \). For the reform adoption decision, calculating the overall expected gains for group \( \{S, L\} \) and checking if that is positive: \( by^*(x_{Med})\{\beta x_{Med} + \sigma(1 - x_{Med})\} + s\sigma - l\lambda = \frac{7}{18} > 0 \). Hence, in this case, the reform is adopted - although the anticipated level of investment is lower than in the case of low state capacity, so that the increase in the national pie is not as great, nevertheless, the state’s greater capacity to identify and tax the ‘big winners’ means that the losers will now receive a bigger share of the (smaller) pie, and this is enough to compensate them for their expected losses from the reform.

High state capacity: Finally, consider the case of an economy with a high state capacity of \( x_{High} = 0.9 \). In this case, only the very lowest types in group \( B \) invest. As before, calculating the gains for a potential investor from group \( B \), (with \( y = \frac{1}{3} \)):

\[
\frac{\beta y + s\sigma - l\lambda + (\beta - \sigma)(1 - x_{High})(s + l)}{by + s + l} = \frac{17}{35}
\]

This is less than both \( c_M \) and \( c_H \), implying that only those with cost \( c_L = 0 \) invest i.e. \( y^*(x_{High}) = \frac{1}{3} \). Calculating the maximal expected gains for the group \( \{S, L\} \), it is given by: \( by^*(x_{High})\{\beta x_{High} + \sigma(1 - x_{High})\} + s\sigma - l\lambda = -\frac{29}{90} < 0 \). In this case, although the government is well able to identify the ‘big winners’ and tax them significantly to compensate the losers, it is precisely the fear of these high taxes that inhibit the group \( B \) from investing. It is anticipated that too few of them will invest in case the reform is adopted, meaning that the overall gains will not be enough to overcome the losses for the losers. Hence the voters from group \( \{S, L\} \) vote not to proceed with the reform.

This example shows that once adjustment costs and investment decisions by potential winners from the reform are accounted for, the effect of state capacity can be non-monotonic. While the economy with the medium state capacity would see political support
for adoption of the welfare-improving reform, it would be voted against in both the low and high state capacity economies. Interestingly, the reasons for the absence of support in the two latter cases are rather different. In the low-state capacity case, potential losers fear that due to the state’s limited ability at identifying and taxing winners, they will not receive enough compensation in the future in return for bearing the losses from the reform. On the other hand, in the high state-capacity case, while this fear is assuaged due to the state’s competence at taxing winners, it reduces the incentive of potential winners to actually invest. It thus results in an environment where too few invest, thus making the gains from reform too low in comparison to the losses. Hence, in the case of reforms such as increasing a country’s export orientation, where success requires individual investment in export-oriented sectors, better state capacity need not always translate into higher support for adoption of the reform.

Interestingly, the EBRD (1999) report on reforms in twenty transition economies over the ten year period 1989-1999 finds a non-monotonic relationship between governance indicators and the progress of reforms. The report constructs a governance index (ranging from a low of 0 to a high of 3) using various indicators on the performance of the state. In the context of our model, this can perhaps be considered as a proxy for the state’s administrative capacity. They also construct transition indicators to measure the progress of reforms across these countries, which ranges from 1 (little progress) to 4 (substantial progress). Looking at the relation between the two indices, one finds that higher measures of governance do not always translate into greater progress on reforms. For example, Poland and the Czech Republic score among the highest on the measure of reforms, but are middling in the governance index or state capacity. Countries like Armenia and Uzbekistan rate higher on the state capacity dimension, but have shown much less progress on reforms. On the other side, countries like Romania, Russia and Ukraine have lower governance indices than Poland and the Czech Republic and also score lower on reforms. Hence, the findings in the EBRD (1999) report are consistent with our argument that better state capacity need not always translate into more reform.

4 Conclusion

In this paper we have used a simple model of reform to throw light on the effects of state capacity on the adoption and consequences of economic reform. Specifically, we look at the ability of the state in identifying and taxing winners from the reform, to redistribute and compensate the losers. We show that in the case of reforms where the economic benefits from reform are exogenously given, higher state capacity is unambiguously good in the adoption of welfare-improving reforms. Thus, countries with better state capacity
are less likely to face political opposition from potential losers in the implementation of such reforms. In such countries, citizens believe in the state’s ability to identify and tax winners and use the gains to compensate for the losses, and hence support such reforms. The model highlights also the importance of state capacity specially in the case of reforms which have the potential to be very unequal in terms of the distribution of gains and losses it generates. For such reforms to be passed, it is essential that the capacity of the state be significantly high.

However, many reforms require some initiative and investment on the part of potential winners to actually realize their gains. We show that in such cases, state capacity can have two effects. One, as before, better capacity assuages the fears of potential losers that they may not be compensated. However, at the same time, it also increases the incidence of taxes on winners and thereby reduces their ex ante incentive to invest in the first place. Thus, the overall impact of better state capacity may not always translate into greater adoption of welfare-improving reforms when such investment is important.

The model presented here has been restricted along a number of dimensions to keep the analysis simple. Several features of the model are worthy of exploration in the future. Here, we have limited ourselves on the political dimension by assuming that one group (which includes the losers) is always in the majority, thereby simplifying the taxation and redistribution once the reform is enacted. Once uncertainty is incorporated about the total number of winners and losers from the reform, there will also be uncertainty about the post-reform politics and correspondingly, in the degree of future redistribution. Investigating the impact of such political uncertainty on the decision of whether or not to adopt reforms in the first place, and what type of reforms to adopt, would be a fruitful exercise. We have also limited our discussion of state capacity to encompass the ability of the state to collect taxes and redistribute - a richer description of state capacity would include the ability of the state to provide public goods (Besley, Izetkzi and Persson (2013)). Further, we have restricted the government’s taxation ability by not allowing it to conduct (possibly costly) audits of the winners’ incomes.\textsuperscript{9} While the possibility of audits might reverse the impassability of reform for the most unappealing cases (for example, when big winners form a large proportion of the winners), nevertheless, for non-trivial audit costs, there will always exist majority-benefiting and efficiency improving reforms whose passage cannot be assured even by credible promises of redistribution. However, one could also consider the incentives for government officials to conduct such audits.

\textsuperscript{9}See, for example, the literature on costly state verification, starting with the seminal paper by Townsend (1979). However, note that even an audit is unlikely to uncover non-monetary psychological costs (see Lewis (1954) for an early discussion). Hence, to the extent that heterogeneity among winners stems from their differential disutility of adjustment, the efficacy of auditing mechanisms will be limited.
Incorporating such a feature could help connect the present model on reforms with the large literature on corruption in developing countries, and the role such factors may play on the reform adoption decision.
References


