

# Social Mobility, Middle Class and Political Transitions

Bahar Leventođlu\*

Department of Political Science

Stony Brook University

Stony Brook, NY 11794

e-mail: bahar.leventoglu@stonybrook.edu

This version: September 1, 2003

## Abstract

I address the puzzling behavior of the middle class during political transitions. I develop a formal model of political transitions and incorporate social mobility as a key feature of the economy capturing the political attitudes toward redistribution. I show that political decisions depend, among other things, on social mobility; and the ruling class, facing similar economic conditions yet different rates of mobility, can make very different choices with respect to regime type. In particular, if the middle class expected their children to keep their middle class status, then they would keep semi-democracy or even allow a coup from above so that their children would enjoy lower redistribution rates. Otherwise, the middle class would enfranchise the lower class, so that their children would enjoy higher redistribution rates under democracy.

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\*I would like to thank Scott Basinger, Steve Brams, Jack Buckley, Ali Carkoglu, David Epstein, Scott Graves, Karen Remmer, Peter Rosendorff, Georg Vanberg and David Yang for their helpful comments.

# 1 Introduction

A major puzzle in democratization literature is the “ambivalent” behavior of the middle class during political transitions. The classical work by Moore (1966) associates democracy with middle class. While some scholarly work agrees with Moore’s assertions (Lipset 1960, Zak and Feng 1998, Rosendorff 2001), some others contest them. According to Therborn (1977, 1979) and Rueschemeyer, Stephens and Stephens (1992), it is the working class that primarily fuels democratization. Rueschemeyer, Stephens and Stephens (1992) stress that that it is the lower class that extracts concessions from reluctant upper class and thereby brings about democracy. They also recognize the crucial role of middle class during political transitions; however, they point out that the middle classes have often been ambivalent concerning democracy for lower classes and “first and foremost sought their own inclusion and formed the alliances necessary to achieve this end (168).” Collier (1999) provides various examples from earlier and recent democratization episodes where the middle classes have made allies with the lower classes to push for an inclusive democracy and where they have made allies with the upper classes and stayed content under a restricted democracy or even an autocracy. This “puzzling” middle class behavior has long been identified in the democratization literature; however, the roots of this behavior have so far been overlooked. The major goal of this paper is to explain the middle class behavior during political transitions.

My main argument is that social mobility can account for the puzzling behavior of the middle class during political transitions. The middle classes,

as they hold power, make political decisions to shift the balance of power in their favor. I emphasize that the middle class' political decisions are driven by, among other things, social mobility, that is, how the middle classes assess their prospects of mobility.

Some amount of work has been done so far in the political economy literature to study the relationship between social mobility, redistributive politics and political transitions. Benabou and Ök (2001) consider that people vote on the basis of their assessment of their prospects for social mobility (upward or downward) relative to the rest of the society. They show that there may be a range of incomes below average, where people that expect to be richer in future do not support high rates of redistribution. Ravallion and Lokshin (2000) similarly argue that, in 1990s Russia, support for further redistribution is the strongest among the currently well-off Russians who fear losing their jobs and wealth where as this support is weaker among the Russians with expectations of future welfare. Using individual level data from the US, Alesina and La Ferrara (2001) also show that social mobility negatively affects the individual support for redistributive politics. On the other hand, recent research on political transitions has demonstrated a strong link between political transitions, redistributive politics and social mobility (Acemoğlu and Robinson 2000, 2001, Rosendorff 2001 and Leventoğlu 2003). Both Acemoğlu and Robinson (2001) and Rosendorff (2001) argue that transition to democracy is more likely in societies whose income distribution is relatively egalitarian. Leventoglu (2003) formalizes the mobility process during political transitions and shows that social mobility facilitates democratization by reducing the conflict over redistribution between the rich and the poor.

Furthermore, social mobility facilitates democratic consolidation by reducing incentives for a coup under democracy. On the other hand, social mobility also helps to keep an authoritarian regime stable by reducing incentives for mass movements against the political elite.

In this paper, I develop a formal framework for analyzing the behavior of middle classes as well as of upper and lower classes during political transitions. I consider an economy that consists of a continuum of agents. Each period, each agent belongs to a social class: upper class (the rich), middle class, or lower class (the poor). The upper class is a privileged, high income minority that have disproportionate access to the resources and power where as the lower class is an underprivileged, low income majority of the population. Finally, the middle class is an intermediate group between the high income minority and low income majority. Each period represents the life-span of a generation, that is, each agent lives only one period and has only one child that will be active next period (Piketty 1995, Bourguignon and Verdier 2000). Agents are altruistic in the sense that they care about their child's income in the following period and base their decisions not only upon their current income but also upon their child's future income (Benabou and Ök 2001). The demographics of society are subject to change through social mobility: The child of a lower class (middle class) agent may become a middle class (lower class) agent next period with some certain probability. The children of upper class agents do not go through the mobility process. This assumption is empirically supported by Dearden, Machin and Reed (1997) showing that, in Britain, the highest ratio of sons in the same quartile of the income distribution as their fathers is in the top of the income distribution.

That is, downward mobility from the top is empirically rare.

The government provides redistribution through taxation and transfers. The upper class controls the government under autocracy, the middle class under semi-democracy and the lower class under democracy. Each period, the state of the economy is realized: I assume that economically good times are often the case. Yet, the political regime may also face severe economic crises that lead to social unrest (revolution from below or coup from above) and in turn lead to political transitions. This assumption is in line with the literature stressing that political transitions almost always occur during economically bad times (Londregan and Poole 1990, 1996, Haggard and Kaufman 1995, Zak and Feng 1998, Geddes 1999).

I emphasize that, under autocracy, the upper class prefers no redistribution during economically good times since there is no revolutionary threat. In other words, as Geddes (2000) argues, an authoritarian regime stays stable as long as the political elite manage the economy well. Only during economically bad times, will the rich increase taxes to avoid a revolution. And, only anticipating that a revolution can not be prevented by a temporary tax increase, will the rich enfranchise the middle class and bring about semi-democracy. This is in line with Yashar's (1997) argument that democratic transitions do not occur as long as there is no social unrest that would push the rich to move the regime towards democracy.

Under democracy, the poor prefers redistribution during economically good times since there is no coup threat. Only during bad times, will the poor lower taxes to avoid a coup. However, even a zero tax rate may sometimes not prevent a coup (Gasiorowski 1995, Przeworski and Limongi 1997) and the

rich may attempt a coup in order to avoid higher redistribution rates in the future. For example, coups in Argentina in 1930, Brazil in 1964 and Chile in 1973 occurred to prevent further redistribution (Smith 1978, Stepan 1978). Only upon anticipating that a coup can not be prevented by a temporary tax decrease, will the poor prefer full redistribution. This result is supported by Kaufman and Stalling's (1991) argument that transitional democracies are more likely to have populist policies as they expect that there will eventually be a coup. I argue that if a coup is not inevitable (which means that lower taxes could prevent a coup), then transitional democracies are not able to implement populist policies as they face recessions, but instead they lower taxes to please the rich to avoid a coup. This is in line with Remmer's (1990) argument for Latin America that "political leaders are aware that the rise and fall of democracy in Latin America have corresponded less to the whims of the voting majority than to the concerted opposition of business and military leaders (335)."

Under semi-democracy, the regime choice by the middle classes depends, among other things, on their prospects of social mobility.<sup>1</sup> If the middle classes expected their children to keep their middle class status, then they may stay content under semi-democracy or may even allow for a coup from above so that their children would enjoy lower redistribution rates under

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<sup>1</sup>I do not necessarily consider semi-democracy as a regime where only upper class and middle class agents have voting rights. Lower class can have voting rights, but they can still be excluded in practice. If the political parties that represent lower class interests are banned from the electoral arena, the lower class is practically excluded from the political system. For example, in late 19th century Argentina, unrestricted suffrage for adult males prevailed, but the political system was so restricted that there did not exist any effective channels for demands from lower classes (Collier 1999). This interpretation makes the model even richer.

autocracy. Otherwise, the middle classes may enfranchise the lower classes so that their children could enjoy higher redistribution rates under democracy.

These results are consistent with the empirical facts, in particular from Latin America and Southeast Asia: For example, in Mexico, during the seven decades of the PRI reign, the middle classes did not push for an inclusive democracy as long as they had positive perceptions of their economic status (Levy and Bruhn 1995). During the economic decline of 1980s and 1990s, the middle classes saw their personal assets and living standards declined (Cornelius 2002) and their hopes for their children to keep their middle class status faded away. This anticipation of downward mobility among the middle class, among other things, accounts for the enormous loss of confidence in the PRI regime and the transition to a democratic regime in 2000. In early 20th century Argentina, as they saw the increasing militant labor movement, the upper class was convinced to switch to semi-democracy so that the major decisions would still be made among the “gentlemen.” In 1930, as Argentine economy declined due to depression, the middle class allowed a coup from above to prevent further redistribution (Rock 1975). In 1946, Peron took over, promoted egalitarian values and ideas, and provided channels for social mobility to lower classes. The blurring class lines between the middle class and the lower class made the lower class adore the Peronist regime where as the middle class supported a coup from above to prevent further redistribution. As the authoritarian regime switched to semi-democracy in 1958, the Peronist party representing the lower classes was strictly excluded from politics. In 1976, the Argentine middle class once again allowed a coup from above to prevent further redistribution. However, despite experienc-

ing severe economic crises after its democratic transition in 1980s, Argentina has not had the high rates of redistribution that could have led to a democratic breakdown. Catterberg and Zayuelas (1992) argue that, despite poor economic conditions of 1980s, the people of Argentina strongly believed that they would have better living standards in future. Also, it may well be that the loss of belief in social mobility-accompanied by very poor economic conditions-triggered the social unrest against the political elite in Argentina in 2002. In Thailand, the military and bureaucracy have provided an “important ladder for social mobility” to middle and lower class children since the 19th century (Samudavanija 1995). In particular, the middle class children have enjoyed the opportunity of state-sponsored tertiary education to keep their middle class status. Hence, as long as the Thai middle class had the expectation that their children would keep their middle class status, they supported autocracy. Once the Thai middle class did not feel “economically secure” and anticipated downward mobility under an authoritarian government, they pressed for democracy in 1973, but later they supported the coup in 1976 and again in 1991 to prevent further redistribution and they opposed the extension of democratic rights to lower classes (Jones 1998). Also, in South Korea, as the middle classes held the expectation that their children would keep their middle class status, they voted to conserve the semi-democratic status quo (Steinberg 1995). Similarly, the Taiwanese middle classes have felt as the major beneficiary of the semi-democratic regime that they have been reluctant to go onto political stage to push for an inclusive democracy (Jones 1998). The middle classes in Indonesia and Malaysia have been obsessed with economical security, in particular with reproducing

their children into middle class status (Jones 1998) Hence, as long as they feel that the political regime is on their side, and they expect to reproduce their children into middle class status, the middle classes of Indonesia and Malaysia are more likely to maintain the semi-democratic regime.

The rest of the paper is organized as follows. Section 2 presents the model. Section 3 performs the equilibrium analysis, presents and interprets the results. Section 4 concludes and suggests future research agenda. All technical proofs are contained in the Appendix.

## 2 Model

I consider a discrete time, infinite horizon model. Each period, the economy consists of a continuum of agents. Each agent lives only one period, that is, each period represents the life-span of a generation. Each agent has exactly one child that will be active next period (Piketty 1995, Bourguignon and Verdier 2000). Each agent belongs to a social class each period: *upper*, *middle* or *lower* class, denoted by  $u$ ,  $m$  and  $l$  respectively. The ratio of  $c$ -class,  $c \in \{u, m, l\}$ , is  $\lambda_c$ . I assume that  $\lambda_u < \lambda_m < 1/2 < \lambda_l$ , so that lower class constitutes the majority of the population. This assumption allows the possibility of a semi-democratic regime, under which the middle class controls the government.<sup>2</sup> Note that  $\lambda_c > 0$  for each  $c$ , and  $\sum_c \lambda_c = 1$ .

The income of the country,  $w$ , is drawn independently and idiosyncratically from the following distribution each period:

$$w = \begin{cases} w^L & \text{with probability } \pi \\ w^H & \text{with probability } 1 - \pi \end{cases}$$

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<sup>2</sup>Acemoglu and Robinson (2001) show that, if the middle class constitutes the majority of the population, then income inequality plays a major role in political transitions.

where  $w^L < w^H$  and  $\pi < 1/2$ , that is, economically bad times are severe and less likely. I will refer  $e = H$  as a *good time* and  $e = L$  as a *bad time*.

$\theta_c$  represents the income share of  $c$ -class,  $c \in \{u, m, l\}$ . Hence, when the income realization is  $w^e$ , per capita income of a  $c$ -class agent is

$$x_c^s = \frac{\theta_c w^e}{\lambda_c}.$$

I assume that

$$\frac{\theta_u}{\lambda_u} > 1 > \frac{\theta_m}{\lambda_m} > \frac{\theta_l}{\lambda_l}$$

so that the per capita income is ranked along the class lines .

At the beginning, each agent's social class is determined by luck that is determined by his social origin, i.e. his parent's social class. Then, I introduce social mobility into the model as a key feature of the economy adopting Behrman's (2000) definition of relative (exchange) social mobility: "Holding total income and income distribution constant, after all, relative social mobility is greater if wealthier people more frequently change places with poorer people than if such exchanges occur less frequently. But the number of poorer people is the same whether there are more or fewer of such changes; they just are different people in different periods (p.74)." Hence, relative social mobility, rather than showing total income change in a society, shows relative social status within a society. Pastore (1982, p.5) argues that "[i]n the analysis of the social dynamics, studies of upward and downward movements are equally important. The two types of mobility coexist in dynamic societies and bear equal relevance to understanding social development." Following Behrman (2000) and Pastore (1982), I model social mobility as a Markov process as follows: The child of a lower class agent

will move upward and belong to middle class with probability  $\eta_l$ . The child of a middle class agent will move downward and belong to lower class with probability  $\eta_m$ . I assume that there is mobility only between middle class and lower class across generations where as the child of an upper class agent is always an upper class agent. This assumption is empirically supported by Dearden, Machin and Reed (1997) showing that, in Britain, the highest ratio of sons in the same quartile of the income distribution as their fathers is in the top of the income distribution. That is, downward mobility from the top is very rare.

Each Markov process yields a stationary distribution in the long-run. I perform my analysis at this stationary state of the society. At this state, transition probabilities satisfy the following:  $\lambda_l \eta_l = \lambda_m \eta_m$ , that is, the number of lower class agents that will move upward is equal to the number of middle class agents that will move downward. For the effect of the relative size of competing groups on political transitions, see Rosendorff (2001).<sup>3</sup>

Agents are altruistic. An agent obtains utility not only from his net income, but also from his child's expected net income. This latter assumption provides the dynamic link between periods. I assume the following risk-neutral utility function for each agent:

$$\text{an agent's utility} = \text{his net income} + \beta(\text{his child's expected net income}),$$

where  $\beta > 0$  is the weight of his child's expected net income in an agent's

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<sup>3</sup>Rosendorff (2001) argues that the relative sizes of competing groups matter for political transitions. The change in the relative size of competing groups in his model may be due to social mobility. However, his model does not exhibit a dynamic mobility process. Instead, he studies a static model in which only one transition from autocracy to democracy is possible. Therefore, his comparative statics on the relative size of groups does not reflect the effect of social mobility on transitions through the society's prospects towards mobility.

utility function.  $\beta$  is the same for each agent. Technically, one can obtain the same results regarding social mobility and its implications on middle class behavior in an overlapping generations model in which (i) each agent lives for two periods, (ii) each agent has a child that is born in the second half of the agent's life, and (iii) each agent's preferences are determined not (only) by altruism but (also) by the agent's expectations about himself. However, my model simplifies the exposition of the ideas.

The political state (regime) can be Autocracy ( $A$ ), Semi-democracy ( $SD$ ), Democracy ( $D$ ) or Revolution ( $R$ ). Redistribution occurs through taxation. Each period, the ruling class decides an anonymous tax and transfer scheme,  $(\tau, T)$ , in states  $A$ ,  $SD$  and  $D$ .  $C(\tau)w^e$  is the deadweight loss due to taxation (Acemoglu and Robinson 2001).  $C$  satisfies the following:  $C(0) = 0$ ,  $C' > 0$ ,  $C'' > 0$ ,  $C''(0) = 0$  and  $C'(1) = \infty$ . The last assumption allows us to work with interior solutions.

Only one political transition may occur within a period. The initial political state is autocracy. Let  $r$  denote the regime type,  $r \in \{A, SD, D, R\}$ . The political state at the beginning of each period is one of  $\{A, SD, D, R\}$ , which is the prevailing regime at the end of the previous period. Then the state of the economy is realized. The state of the country is summarized by  $s = (r, e)$  where  $r \in \{R, A, SD, D\}$  and  $e \in \{H, L\}$ . After  $s$  is realized, the timing of the events and political transition within this period is given as follows:

Under autocracy, the upper class holds the power, and decides whether to extend franchise or not. The upper class can enfranchise the middle class only or both the middle and lower classes. If the upper class extends franchise to

middle class only, then the regime changes to semi-democracy and the middle class sets the tax rate. If the upper class extends franchise to both middle and lower class, then the regime changes to democracy and the lower class sets the tax rate.<sup>4</sup> Otherwise, the upper class sets the tax and transfer scheme,  $(\tau, T)$  and the lower class decides whether to revolt or not. If the lower class does not revolt, then autocracy prevails. If the lower class revolts, the upper class of that period loses everything, including their children, forever, and the regime changes to revolution. In order to avoid free-rider problem during a revolution, I assume that if a revolution is attempted, and a fraction  $\kappa < 1$  of the poor takes part in it, the revolution always succeeds. Following Acemoglu and Robinson (2001), the revolution is an absorbing political state. There is no class difference anymore and income is shared equally thereafter. Revolution is costly. During revolt,  $(1 - \delta_R^e)$  of the income realized in that period is destroyed, where  $e \in \{H, L\}$  and  $\delta_R^e \in [0, 1]$ . That is, the immediate cost of a revolution may depend on the state of the economy. In the following periods,  $(1 - \kappa)$  of  $w^e$  is lost,  $\kappa \in [0, 1]$ . This is the permanent cost of a revolution.<sup>5</sup> Upper class can always avoid a revolution by extending franchise. Increasing taxes can sometimes prevent a revolution.

Under semi-democracy, the middle class holds the power, and decides whether to extend franchise to the lower class or not. If the middle class enfranchises the lower class, then the regime changes to democracy and the lower class sets the tax rate. Otherwise, the middle class sets the tax and

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<sup>4</sup>Note that extending franchise to lower class only and extending franchise to both middle and lower classes generate the same payoffs. Thus, I will not consider the possibility of extending franchise only to lower class here.

<sup>5</sup>This may be, for example, due to the loss of human capital accumulated by the upper class as in Acemoglu and Robinson (2001).

transfer scheme,  $(\tau, T)$  and the upper class decides whether to attempt a coup or not. If the upper class attempts a coup, then the regime changes to autocracy. Coup is costly. During a coup,  $(1 - \delta_C^e)$  of the income realized in that period is destroyed, where  $e \in \{H, L\}$  and  $\delta_C^e \in [0, 1]$ . That is, the cost of a coup depends on the state of the economy. Middle class can always prevent a coup by extending franchise.

Under democracy, the lower class holds the power. The lower class sets the tax and transfer scheme,  $(\tau, T)$  and the upper class decides whether to attempt a coup or not. If the upper class does not attempt a coup, then democracy prevails. Otherwise, the regime changes back to autocracy. In order to avoid free-rider problem during a coup, I assume that if a coup is attempted, and a fraction  $\kappa < 1$  of the rich takes part in it, the coup always succeeds. Lowering taxes can sometimes prevent a coup.

I focus on symmetric strategies, that is, agents that belong to the same class adopt the same strategy. Hence, each class has a strategy. Thus, I can treat each social class as one agent. Moreover, I focus on stationary equilibrium with strategies that depend only on the current state.

The strategy of the upper class is denoted by  $\sigma_u(s) = (f_u(s), \tau_u(s), c(s))$ .  $f_u$  is the decision to extend franchise,  $\tau_u$  is the tax rate the upper class sets in state  $s$  if it decides not to extend franchise.  $f_u$  and  $\tau_u$  apply only in autocracy.  $c$  is the decision to mount a coup and it applies under semi-democracy and democracy.

The strategy of the middle class is denoted by  $\sigma_m(s) = (f_m(s), \tau_m(s))$ .  $f_m$  is the decision to extend franchise,  $\tau_m$  is the tax rate the middle class sets in state  $s$  if it decides not to extend franchise.  $f_m$  and  $\tau_m$  apply only under

semi-democracy.

The strategy of the lower class is denoted by  $\sigma_l(s) = (\tau_l(s), rev(s))$ .  $\tau_l$  is the tax rate the lower class sets in state  $s$  and it applies only under democracy.  $rev$  is the decision to revolt and it applies only under autocracy

Expectations about the income of a  $c$ -class agent at the beginning of a period under regime  $r$  is denoted by  $\bar{x}_c(r)$ . Note that  $\bar{x}_c(r)$  is calculated before the realization of the state of the economy. I assume that agents form *rational expectations*. That is, each agent perfectly forecasts the outcome (or the equilibrium) of the following period, then rationally forms his expectations by calculating the expected income of each  $c$ -class agent according to the outcome of the following period. Thus, each agent in the population holds the same expectations.

A strategy profile  $(\sigma_u, \sigma_m, \sigma_l)$  and expectations  $(\bar{x}_u, \bar{x}_m, \bar{x}_l)$  form a *stationary sub-game perfect Nash equilibrium with rational expectations*, if

1. Generations adopt the same strategies across time;
2. Given the timing and the strategies of other classes and the expectations, for each  $c$ -class, at each state  $s$ ,  $\sigma_c(s)$  is optimal at each node of the game;
3. Expectations are formed by calculating the equilibrium of the following period.

The first of these three is a selection criterion. As we will see, this equilibrium definition will demonstrate the effect of social mobility on the regime change by abstracting from technical details that non-stationarity brings.

Besides being practical, this equilibrium notion embodies an important philosophical consideration: These strategies suggest the simplest form of behavior that is consistent with rationality. That is, these strategies make behavior in any period depend only on the current state of the world rather than the entire history of the game. Moreover, it is straightforward to calculate the rational expectations.<sup>6</sup>

### 3 Equilibrium Analysis

#### 3.1 Preliminaries

One of the following five stochastic transition patterns will sustain in equilibrium:

1.  $A \rightarrow A \rightarrow A \rightarrow \dots$

The regime remains autocratic forever.

2.  $A \rightarrow SD \rightarrow A \rightarrow SD \rightarrow A \rightarrow \dots$

The regime fluctuates between autocracy and semi-democracy.

3.  $A \rightarrow SD \rightarrow SD \rightarrow SD \rightarrow \dots$

The regime switches to semi-democracy and stays semi-democratic forever.

4.  $A \rightarrow SD \rightarrow D \rightarrow D \rightarrow D \rightarrow \dots$

The regime democratizes gradually, it first switches to semi-democracy, then to democracy; and it stays democratic forever.

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<sup>6</sup>For a similar discussion on Markov strategies, see Maskin and Tirole (2001).

5.  $A \rightarrow SD \rightarrow D \rightarrow A \rightarrow SD \rightarrow D \rightarrow A \rightarrow \dots$

The regime switches from autocracy to semi-democracy, from semi-democracy to democracy, from democracy back to autocracy.

Certain parameter values yield certain transition patterns in equilibrium. For each pattern, I will find the set of parameter values that yield this pattern in equilibrium.

Under autocracy, the upper class sets a zero tax rate if there is no revolutionary threat. Under semi-democracy, if there is no coup threat, the middle class sets a tax rate to maximize the weighted sum of middle class net income and middle class children's expected net income:

$$\max_{\tau} (1-\tau)x_m^e + (\tau - C(\tau))w^e + \beta \{ \text{middle class children's expected net income} \}.$$

The decision of the middle class does not affect the expected net income of middle class children, so that the tax rate that solves this maximization problem is given by

$$C'(\hat{\tau}_m) = 1 - \frac{\theta_m}{\lambda_m}.$$

Similarly, under democracy, if there is no coup threat, the lower class sets a tax rate to maximize the weighted sum of lower class net income and lower class children's expected net income:

$$\max_{\tau} (1-\tau)x_l^e + (\tau - C(\tau))w^e + \beta \{ \text{lower class children's expected net income} \}.$$

The decision of the lower class does not affect the expected net income of lower class children, so that the tax rate that solves this maximization problem is given by

$$C'(\hat{\tau}_l) = 1 - \frac{\theta_l}{\lambda_l}.$$

Convexity of  $C$  implies that  $\hat{\tau}_l > \hat{\tau}_m$ .

I make three assumptions in the appendix. These assumptions guarantee the following:

- The upper class does not attempt a coup during economically good times;
- The lower class does not revolt during economically good times;
- If the upper class can prevent a revolution via redistribution, then the upper class always prefers redistribution to extending franchise.

The three assumptions discussed in the appendix hold when the cost of coup and cost of revolution are high in economically good times; and when  $w^H$  is large enough or when  $w^L$  is small enough and  $\pi$  is small enough, that is, recessions that might lead to social unrest are severe and less likely.

Note that these assumptions are not crucial for my results. Under these assumptions, no social class can commit to a future redistribution. That is, during economically good times, the ruling class enjoys its most favorite tax rate: zero for the upper class under autocracy,  $\hat{\tau}_m$  for the middle class under semi-democracy, and  $\hat{\tau}_l$  for the lower class under democracy. In turn, extending franchise provides a way of committing to higher distribution in the future (Acemoglu and Robinson 2000, 2001).

### **3.2 Pattern 1: Stable Autocracy $A \rightarrow A \rightarrow A \rightarrow \dots$**

If  $w = w^H$ , there is no revolutionary threat, and the upper class sets a zero tax rate. If  $w = w^L$ , then the upper class sets a tax rate of  $\tau$  to avoid a

revolution. That is, the upper class chooses a tax rate that would make the lower class payoff under autocracy higher than that under revolution.

$$(NR) \quad \frac{\delta_R w^L}{\lambda_m + \lambda_l} + \beta \frac{\kappa \bar{w}}{\lambda_m + \lambda_l} \leq (1 - \tau)x_l^L + (\tau - C(\tau))w^L + \beta [\eta_l \bar{x}_m(A) + (1 - \eta_l)\bar{x}_l(A)].$$

Optimality requires that  $(NR)$  holds with equality. Expectations are formed rationally, and the generations adopt the same strategies in the same states across time, so that the expectations under autocracy are formed as follows:

$$\text{For } c \in \{u, m, l\} : \bar{x}_c(A) = (1 - \pi)x_c^H + \pi [(1 - \tau)x_c^L + (\tau - C(\tau))w^L].$$

I will find a critical value  $\bar{\delta}_R$ , such that pattern 1 can sustain in equilibrium if and only if  $\delta_R \leq \bar{\delta}_R$ .<sup>7</sup> That is, the upper class can maintain autocracy if and only if the cost of revolution is above some critical threshold. Let  $\bar{\delta}_R$  solve  $(NR)$  with equality by substituting  $\tau = \hat{\tau}_l$  in  $(NR)$  and in expectations. If  $\delta_R > \bar{\delta}_R$ , then pattern 1 will not sustain in equilibrium. This is obvious from the fact that  $\hat{\tau}_l$  maximizes the net income of a lower-class agent today, so there is no way of preventing a revolution when  $\delta_R > \bar{\delta}_R$ .

When  $\delta_R \leq \bar{\delta}_R$ , there always exists a tax rate that sustains autocracy in equilibrium. This follows from assumption 3 by which the upper class always prefers, if possible, to keep autocracy by a temporary tax increase rather than extending the franchise. I will construct the equilibrium strategies under stable autocracy and leave the construction of the equilibria in other cases to the reader since it is straightforward. Let  $\tau_a$  solve  $(NR)$  with equality when we substitute  $\tau_a$  for  $\tau$  in  $\bar{x}_c(A)$ ,  $c \in \{m, l\}$ . Since  $\delta_R \leq \bar{\delta}_R$ , we have

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<sup>7</sup>One might ask whether there exists a set of parameters for which stable autocracy arises in equilibrium, i.e.  $\bar{\delta}_R \in (0, 1)$ . The answer is affirmative for this pattern as well as for other patterns. In order to check for existence, a Matlab code that computes the relevant critical values for each pattern is available from the author upon request.

that  $\tau_a \leq \hat{\tau}_l$ . The upper class sets the tax rate at zero when  $w = w^H$ , and at  $\tau_a$  when  $w = w^L$ . The lower class revolts if  $w = w^L$  and the tax rate is lower than  $\tau_a$ . The strategy of the middle class does not affect the equilibrium outcome.

**Proposition 1**  $\frac{\partial \bar{\delta}_R}{\partial \eta_l} > 0$ .

This proposition reveals that an increase in social mobility may facilitate the stability of an autocracy by decreasing the incentives for a revolution. The interpretation is that if the lower class agents anticipate that their children will move up and become middle class agents, then the lower class will prefer their children to live under autocracy with lower redistribution rates. Accordingly, the incentives for a revolution will be hindered. This is consistent with empirical facts: For example, in late 19th century France, the political leaders promoted social mobility to create a middle class with less inclination towards both revolution and redistributive conflicts (Bourguignon and Verdier 2000). In South Korea, the military rule expanded the number of students enrolled in higher education from 100,000 to 600,000 not only to supply an educated workforce for Korea's economy, but also to "satisfy a pervasive hunger for education, and provide expectations of social mobility for the lower class" and delay democratization accordingly (Steinberg 1995). Such strategies were also adopted by colonial powers to maintain their regime by giving hope to the colonized that they had a stake in the colonial regime and would have better lives under that regime (Bourguignon and Verdier 2000).

The remaining parts of the analysis assume that  $\delta_R > \bar{\delta}_R$ .

### 3.3 Pattern 2: Fluctuation between Autocracy and Semi-Democracy $A \rightarrow SD \rightarrow A \rightarrow SD \rightarrow A \rightarrow \dots$

Under autocracy, if  $w = w^H$ , the upper class sets a zero tax rate and if  $w = w^L$ , the upper class extends franchise to the middle class. Under semi-democracy, if  $w = w^H$ , the middle class sets the tax rate at  $\hat{\tau}_m$ . Suppose that when  $w = w^L$ , even setting a zero tax rate may not prevent a coup, that is:

$$(C - SD) \quad \delta_C x_u^L + \beta \bar{x}_u(A) \geq x_u^L + \beta \bar{x}_u(SD).$$

The middle class can prevent a coup by extending franchise to the lower class. However, they may prefer a coup from above rather than extending franchise. That is,

$$(MC) \quad \delta_C x_m^L + \beta [\eta_m \bar{x}_l(A) + (1 - \eta_m) \bar{x}_m(A)] \geq (1 - \hat{\tau}_l) x_m^L + (\hat{\tau}_l - C(\hat{\tau}_l)) w^L \\ + \beta [\eta_m \bar{x}_l(D) + (1 - \eta_m) \bar{x}_m(D)]$$

Note that if the upper class prefers a coup in semi-democracy, it prefers a coup in democracy as well. Thus, the expectations of switching to democracy are formed as follows:

$$\text{For } c \in \{u, m, l\} : \bar{x}_c(D) = (1 - \pi) [(1 - \hat{\tau}_l) x_c^H + (\hat{\tau}_l - C(\hat{\tau}_l)) w^H] + \pi \delta_C x_c^L$$

where tomorrow will be economically good times with probability  $(1 - \pi)$  where the lower class will set the tax rate at  $\hat{\tau}_l$ ; and there will be an economic downturn with probability  $\pi$  where the upper class will attempt a coup.

Expectations under autocracy are formed as follows:

$$\text{For } c \in \{u, m, l\} : \bar{x}_c(A) = (1 - \pi) x_c^H + \pi [(1 - \hat{\tau}_m) x_c^L + (\hat{\tau}_m - C(\hat{\tau}_m)) w^L]$$

where the upper class will set the tax rate at zero during economically good times, and will extend franchise to the middle class during economically bad times where the middle class will set the tax rate at  $\hat{\tau}_m$ .

Expectations under semi-democracy are formed as follows:

$$\text{For } c \in \{u, m, l\} : \bar{x}_c(SD) = (1-\pi) [(1 - \hat{\tau}_m)x_c^H + (\hat{\tau}_m - C(\hat{\tau}_m))w^H] + \pi\delta_C x_c^L$$

where the middle class will set the tax rate at  $\hat{\tau}_m$  at economically good times, and the upper class will mount a coup during economically bad times and will set the tax rate at zero.

Let  $\bar{\delta}_C^{SD}$  solve  $(C - SD)$  with equality. Then,  $\bar{\delta}_C^{SD}$  is independent of the transition probabilities (see Appendix). Moreover,  $(C - SD)$  is satisfied if and only if  $\delta_C \geq \bar{\delta}_C^{SD}$ . That is, if the cost of a coup is below some critical threshold, then it is impossible to prevent a coup under semi-democracy, even by choosing a zero tax rate.

Suppose that  $\delta_C \geq \bar{\delta}_C^{SD}$  so that the upper class prefers to mount a coup during economically bad times. The middle class can always avoid the coup by extending franchise to the lower class. Nevertheless, the middle class may indeed prefer a coup from above. Suppose that the middle class does prefer a coup rather than extending franchise. That is,  $(MC)$  is satisfied. Let  $\hat{\delta}_C^{SD}(\eta_m)$  solve  $(MC)$  with equality. Then,  $(MC)$  is satisfied if and only if  $\delta_C \geq \hat{\delta}_C^{SD}(\eta_m)$ . Furthermore,

**Lemma 2**  $\frac{\partial \hat{\delta}_C^{SD}(\eta_m)}{\partial \eta_m} > 0$ .

The proof of this lemma proceeds as follows. We can rearrange the left and the right hand sides of  $(MC)$  such that the right hand side becomes

independent of  $\hat{\delta}_C^{SD}$ . Then keeping  $\hat{\delta}_C^{SD}$  constant, one can show that the partial derivative of the right hand side with respect to  $\eta_m$  is greater than that of the left hand side. So, an increase in  $\eta_m$  requires an increase in  $\hat{\delta}_C^{SD}$ .

Let  $\bar{\eta}_m$  be such that  $\hat{\delta}_C^{SD}(\bar{\eta}_m) = \delta_C$ . Then the above lemma immediately implies the following proposition:

**Proposition 3** *Let  $\delta_C \geq \bar{\delta}_C^{SD}$ . Then (MC) is satisfied if and only if  $\eta_m \leq \bar{\eta}_m$ .*

This proposition reveals that a decrease in social mobility may let the middle class prefer a coup from above rather than enfranchising the lower class. In other words, if the middle classes expected their children to keep their middle class status, then they would prefer to have their children enjoy lower redistribution rates under autocracy.

### 3.4 Pattern 3: Democratic Consolidation $A \rightarrow SD \rightarrow D \rightarrow D \rightarrow D \rightarrow \dots$

In this case,  $\delta_C < \bar{\delta}_C^{SD}$ . That is, under semi-democracy, a coup is very costly that there is no coup threat.<sup>8</sup> If there is no coup threat, then the middle class may extend franchise only due to altruistic reasons. I postpone the discussion of “no threat of a coup under democracy” until the end of the analysis of this pattern.

I show, in the appendix, that the middle class does not extend franchise in economically good times. The intuition behind this result is the following: When the middle class extends franchise to the lower class, the lower class sets redistribution rates that are higher than what middle class would prefer

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<sup>8</sup>Otherwise, the upper class would prefer a coup when  $w = w^L$  under semi-democracy. Then the upper class would prefer a coup when  $w = w^L$  under democracy as well.

(remember that  $\hat{\tau}_l > \hat{\tau}_m$ ). Thus, the middle class faces some immediate cost from extending franchise. On the other hand, by extending franchise, the middle classes may guarantee high redistribution rates for their children. If the middle classes expect their children to move downward and become lower class agents, extending franchise may bring some extra utility to the middle class purely due to altruistic reasons. However, at economically good times, this extra utility does not cover the immediate cost of extending franchise.

Now, I focus on the economically bad times where the middle class enfranchises the lower class. For the time being, I assume that the middle class prefers democracy to semi-democracy. I will analyze the incentives of the middle class later.

Expectations under autocracy are formed as follows:

$$\text{For } c \in \{u, m, l\} : \bar{x}_c(A) = (1 - \pi)x_c^H + \pi [(1 - \hat{\tau}_m)x_c^L + (\hat{\tau}_m - C(\hat{\tau}_m))w^L]$$

where the upper class will set a zero tax rate during economically good times and will enfranchise the middle class in case of an economic downturn where the middle class will set the tax rate at  $\hat{\tau}_m$ .

Expectations under semi-democracy are formed as follows:

$$\begin{aligned} \text{For } c \in \{u, m, l\} : \bar{x}_c(SD) = & (1 - \pi) [(1 - \hat{\tau}_m)x_c^H + (\hat{\tau}_m - C(\hat{\tau}_m))w^H] \\ & + \pi [(1 - \hat{\tau}_l)x_c^L + (\hat{\tau}_l - C(\hat{\tau}_l))w^L] \end{aligned}$$

where the middle class will set the tax rate at  $\hat{\tau}_m$  during economically good times, and will enfranchise the lower class in case of an economic downturn, and the lower class will set the tax rate at  $\hat{\tau}_l$  under democracy.

Let  $\tau_d \leq \hat{\tau}_l$  be the tax rate that can prevent a coup during an economic downturn under democracy. Then, expectations under democracy are formed

as follows:

$$\begin{aligned} \text{For } c \in \{u, m, l\} : \bar{x}_c(D) = & (1 - \pi) [(1 - \hat{\tau}_l)x_c^H + (\hat{\tau}_l - C(\hat{\tau}_l))w^H] \\ & + \pi [(1 - \tau_d)x_c^L + (\tau_d - C(\tau_d))w^L]. \end{aligned}$$

since the lower class will set the tax rate at  $\hat{\tau}_l$  during economically good times, and will lower the tax rate to  $\tau_d \leq \hat{\tau}_l$  to avoid a coup during an economic downturn.

Even though there is no coup threat, the middle class enfranchises the lower class in case of an economic downturn. That is, the utility the middle class obtains from extending franchise is larger than that the middle class obtains by keeping semi-democracy.

$$\begin{aligned} (1 - \hat{\tau}_l)x_m^L + (\hat{\tau}_l - C(\hat{\tau}_l))w^L + \beta [\eta_m \bar{x}_l(D) + (1 - \eta_m)\bar{x}_m(D)] \\ \geq (1 - \hat{\tau}_m)x_m^L + (\hat{\tau}_m - C(\hat{\tau}_m))w^L + \beta [\eta_m \bar{x}_l(SD) + (1 - \eta_m)\bar{x}_m(SD)]. \end{aligned}$$

Rewrite this inequality as

$$\begin{aligned} (E) \quad & \beta \{ \eta_m [\bar{x}_l(D) - \bar{x}_l(SD)] + (1 - \eta_m) [\bar{x}_m(D) - \bar{x}_m(SD)] \} \\ & \geq (\hat{\tau}_l - \hat{\tau}_m)x_m^L + [[C(\hat{\tau}_l) - C(\hat{\tau}_m)] - (\hat{\tau}_l - \hat{\tau}_m)] w^L. \end{aligned}$$

Now, let  $\hat{\eta}_m$  solve (E) with equality.

**Proposition 4** *When there is coup threat under democracy, democracy is consolidated if and only if  $\eta_m \geq \hat{\eta}_m$ .*

This proposition reveals that if the middle classes expect their children to keep their middle class status, then they may prefer to keep semi-democracy even if there is no coup threat under democracy. Otherwise, the middle

classes may enfranchise the lower classes due to altruistic reasons only: If the middle classes expect their children to move downward and become lower class agents, then they would like to let their children enjoy high redistribution rates under democracy.

This result is consistent with empirical facts: For example, in Mexico, during the seven decades of the PRI reign, the middle classes did not push for an inclusive democracy as long as they had positive perceptions of their economic status (Levy and Bruhn 1995). The middle classes voted for the “conservatism” of semi-democracy in Mexico as long as they had the hope that their children would be able to maintain their middle class status. During the economic decline of 1980s and 1990s, the middle classes saw their personal assets and living standards declined (Cornelius 2002) and their hopes for their children to keep their middle class status faded away accordingly. The middle class’ anticipation of downward mobility, among other things, accounts for the enormous loss of confidence in the PRI’s regime that the PRI elites agreed to transfer power to a non-PRI president after 70 years of continuous political rule in Mexico. Also, in India, a country with considerable poor population that could consolidate democracy, Das Gupta (1995) stresses that a promise of expansion of privileges offered a “mobility incentive to a wider number in rural and urban areas who developed a sense of stake in the system more on the basis of aspirations than accomplishment (308).” Indian political leaders also used “job reservation” not only as an expression of caste politics but more importantly as an instrument of social mobility on the part of backward castes to build and keep support for the democratic regime.

Let  $\bar{\delta}_C^D$  be the critical value of  $\delta_C$  where a tax rate  $\tau_d = 0$  set by the lower class can prevent a coup in democracy (see the Appendix). Then, the lower class can sustain democracy as long as mounting a coup is very costly for the upper class, i.e. if and only if  $\delta_C \leq \bar{\delta}_C^D$ .

### 3.5 Pattern 4: Stable Semi-Democracy $A \rightarrow SD \rightarrow SD \rightarrow SD \rightarrow \dots$

In this case,  $\delta_C < \bar{\delta}_C^{SD}$ . This pattern may sustain in equilibrium under two conditions:

1. Since  $\delta_C < \bar{\delta}_C^{SD}$ , under semi-democracy, a coup is very costly and the middle class can prevent a coup by a temporary tax decrease. Moreover, the middle class prefers semi-democracy to democracy even if there is no coup threat under democracy, i.e.  $\delta_C \leq \bar{\delta}_C^D$ . In this case,  $\eta_m < \hat{\eta}_m$ . This follows from the analysis of Pattern 3.
2. There is a coup threat under democracy, i.e.  $\delta_C > \bar{\delta}_C^D$ . In order to avoid a coup in the following period, the middle class prefers to keep the regime semi-democratic.

I have already explained the first case in my discussion of democratic consolidation. Now, suppose that  $\delta_C > \bar{\delta}_C^D$ .

Let  $\tau_{sd}$  be the tax rate that can prevent a coup during an economic downturn under semi-democracy. Then, expectations under autocracy are formed as follows:

$$\text{For } c \in \{u, m, l\} : \bar{x}_c(A) = (1 - \pi)x_c^H + \pi [(1 - \hat{\tau}_m)x_c^L + (\hat{\tau}_m - C(\hat{\tau}_m))w^L]$$

where the upper class will set a zero tax rate at economically good times, and will extend franchise to the middle class in case of an economic downturn where the middle class will set the tax rate at  $\hat{\tau}_m$ .

Expectations under semi-democracy are formed as follows:

$$\begin{aligned} \text{For } c \in \{u, m, l\} : \bar{x}_c(SD) = & (1 - \pi) [(1 - \hat{\tau}_m)x_c^H + (\hat{\tau}_m - C(\hat{\tau}_m))w^H] \\ & + \pi [(1 - \tau_{sd})x_c^L + (\tau_{sd} - C(\tau_{sd}))w^L] \end{aligned}$$

where the middle class will set the tax rate at  $\hat{\tau}_m$  at economically good times, and at  $\tau_{sd}$  at economically bad times.

The middle class may consider extending franchise to the lower class. Then, expectations under democracy are formed as follows:

$$\text{For } c \in \{u, m, l\} : \bar{x}_c(D) = (1 - \pi) [(1 - \hat{\tau}_l)x_c^H + (\hat{\tau}_l - C(\hat{\tau}_l))w^H] + \pi \delta_C x_c^L$$

where the lower class will set the tax rate at  $\hat{\tau}_l$  at economically good times, and the upper class will attempt a coup during an economic downturn and choose a zero tax rate.

In this case, the middle class prefers to keep semi-democracy in order to avoid a coup under democracy. Let  $\tau^H = \hat{\tau}_m$ ,  $\tau^L = \tau_{sd}$ , for  $e \in \{H, L\}$ . Therefore, the following inequality should hold for  $e \in \{H, L\}$ :

$$\begin{aligned} & (1 - \tau^e)x_m^e + (\tau^e - C(\tau^e))w^e + \beta [\eta_m \bar{x}_l(SD) + (1 - \eta_m)\bar{x}_m(SD)] \\ & \geq (1 - \hat{\tau}_l)x_m^e + (\hat{\tau}_l - C(\hat{\tau}_l))w^e + \beta [\eta_m \bar{x}_l(D) + (1 - \eta_m)\bar{x}_m(D)]. \end{aligned}$$

Rewrite this inequality for  $e \in \{H, L\}$  as

$$\begin{aligned} (SD - e) \quad & (\hat{\tau}_l - \tau^e)x_m^e + [C(\hat{\tau}_l) - C(\tau^e) - (\hat{\tau}_l - \tau^e)]w^e \\ & \geq \beta \{ \eta_m [\bar{x}_l(D) - \bar{x}_l(SD)] + (1 - \eta_m) [\bar{x}_m(D) - \bar{x}_m(SD)] \}. \end{aligned}$$

In the Appendix, I show that  $(SD - L)$  implies  $(SD - H)$ . So, we can ignore  $(SD - H)$ . Let  $\tilde{\eta}_m$  solve  $(SD - L)$  with equality. I show in the appendix that the right hand side of  $(SD - L)$  is increasing in  $\eta_m$ . Then, the following result is immediate:

**Proposition 5** *When there is no coup threat under semi-democracy, and there is a coup threat under democracy, the middle class keeps semi-democracy if and only if  $\eta_m \leq \tilde{\eta}_m$ .*

This proposition reveals that a decrease in social mobility may let the middle class keep semi-democracy. That is, if the middle classes expect their children to keep their middle class status, then they would like to have their children enjoy lower redistribution rates under semi-democracy. On the other hand, if the middle classes expect their children to go downward and become lower class agents, then they would let their children enjoy higher redistribution rates under democracy even if there is a coup threat in the future. Thus, social mobility contributes to explaining the ambivalent the middle class decision of regime type. This result offers an explanation for the East Asian countries that are stuck at semi-democracy: For example, in South Korea, the middle classes hold the expectation that their children will keep their middle class status and hence they vote to protect the semi-democratic status quo (Steinberg 1995). Similarly, as the Taiwanese middle classes have felt as the major beneficiary of the semi-democratic regime, they have been reluctant to go onto political stage to push for an inclusive democracy (Jones 1998). The middle classes in Indonesia and Malaysia have been obsessed with economical security and in particular with reproducing

their children into middle class status (Jones 1998). Therefore, as long as these middle classes feel that the political regime is on their side, and expect to reproduce their children into middle class status, they are more likely to support the semi-democratic regime.

### 3.6 Pattern 5: Chronic Regime Instability $A \rightarrow SD \rightarrow D \rightarrow A \rightarrow SD \rightarrow D \rightarrow A \rightarrow \dots$

This pattern may sustain in equilibrium under two conditions:

1.  $\delta_C > \bar{\delta}_C^{SD}$  and  $\delta_C < \hat{\delta}_C^{SD}$ , or equivalently  $\delta_C > \bar{\delta}_C^{SD}$  and  $\eta_m > \bar{\eta}_m$ . That is, the upper class extends franchise to the middle class during an economic downturn, because they cannot avoid revolution through a temporary tax increase. Under semi-democracy, the upper class will attempt a coup in case of an economic downturn ( $\delta_C > \bar{\delta}_C^{SD}$ ), and the middle class will avoid the coup by enfranchising the lower class ( $\eta_m > \bar{\eta}_m$ ). Social mobility accounts for the middle class' decision of regime type: If the middle classes expect their children to go downward and become lower class agents, then they let their children enjoy higher redistribution rates under democracy, at least during economically good times. The upper classes will mount a coup when the democracy faces an economic downturn under democracy.
2.  $\bar{\delta}_C^{SD} > \delta_C > \bar{\delta}_C^D$ , and  $\eta_m > \tilde{\eta}_m$ . That is, the upper class extends franchise to the middle class during an economic downturn. There is no coup threat under semi-democracy ( $\bar{\delta}_C^{SD} > \delta_C$ ), and there is a coup threat under democracy ( $\delta_C > \bar{\delta}_C^D$ ). Yet, the middle class extends franchise to

the lower class. Social mobility accounts for the middle class' decision of regime type: If the middle classes expect their children to go downward and become lower class agents, then they let their children enjoy higher redistribution rates under democracy, at least during economically good times. The upper classes will mount a coup when democracy faces an economic downturn under democracy.

The first follows from the analysis of fluctuation between autocracy and semi-democracy. The second follows from the analysis of stable semi-democracy.

These results are consistent with the empirical facts: For example, in Argentina, as they saw the increasing militant labor movement in early 20th century, the upper classes were convinced to open the regime to the middle classes so that the major decisions would still be made among the "gentlemen." In 1930, as Argentine economy declined due to depression, the middle classes supported a coup from above to prevent further redistribution (Rock 1975). In 1946, Peron took over and he promoted egalitarian values and ideas, and provided channels for social mobility to lower classes. The blurring class lines between the middle class and the lower class made the lower class adore the Peronist regime where as the middle class supported a coup from above to prevent further redistribution. The authoritarian regime switched to semi-democracy in 1958 and the Peronist party that represented the lower classes was strictly excluded from politics. In 1976, the middle class once again supported a coup from above to prevent further redistribution. However, despite experiencing severe economic crises after its democratic transition in 1980s, Argentina has not had the high rates of redistribution that could have led to a democratic breakdown. Catterberg and Zayuelas (1992) argue that, despite

poor economic conditions of 1980s, the people of Argentina strongly believed that they would have better living standards in future. Also, it may well be that the loss of belief in social mobility accompanied by very poor economic conditions triggered the social unrest against the political elite in Argentina in 2002. Also, in Thailand, the Thai middle class has never demonstrated a consistent commitment to democracy. In Thailand, military and bureaucracy have provided an “important ladder for social mobility” to middle and lower class children since the 19th century (Samudavanija 1995). In particular, the middle class children have also enjoyed the opportunity of state-sponsored tertiary education to keep their middle class status. Thus, as long as the Thai middle class had the expectation that their children would keep their middle class status, they supported autocracy. Once the Thai middle class did not feel “economically secure” and anticipated downward mobility under an authoritarian government, they pressed for democracy in 1973, and later they supported a coup in 1976 and again in 1991 to prevent further redistribution and opposed the extension of democratic rights to lower classes (Jones 1998).

## **A Appendix**

### **A.1 Three Assumptions**

Now, I will make three assumptions. The first two assumptions will guarantee that there will be no threat of a coup or a revolution during economically good times. The third assumption will guarantee the following scenarios:

- (i) The upper class always prefers to prevent revolution by a temporary tax

increase, whenever possible, rather than extend franchise. (ii) The difference between the expected net incomes of middle class and lower class agents is larger under semi-democracy than that under democracy regardless there is a coup threat or not. That is, in terms of net income, semi-democracy is more advantageous for the middle class than democracy is. Note that this makes democracy harder to reach.

First, consider democracy and economically good times,  $w = w^H$ . The lower bound for the utility an upper class agent obtains under democracy and good times can be written as

$$(1 - \hat{\tau}_l)x_u^H + (\hat{\tau}_l - C(\hat{\tau}_l))w^H + \beta \{(1 - \hat{\tau}_l)\hat{x}_u + (\hat{\tau}_l - C(\hat{\tau}_l))\bar{w}\} \quad (1)$$

where  $\hat{x}_u = \pi x_u^L + (1 - \pi)x_u^H$  is the average pre-tax income of an upper class agent; and  $\bar{w} = \pi w^L + (1 - \pi)w^H$  is the average gross income of the country.  $\hat{\tau}_l$  is the maximum tax rate that the lower class sets in democracy.

On the other hand, the upper bound for the utility an upper class agent obtains under democracy and good times can be written as follows assuming that there will be no taxation tomorrow:

$$\delta_C^H x_u^H + \beta \hat{x}_u. \quad (2)$$

where  $(1 - \delta_C^H)$  of the generated income is destroyed during the coup. The following assumption guarantees that the upper class will not attempt a coup during economically good times.

**Assumption 1:** The value of (1) is larger than the value of (2).

Now, consider autocracy and economically good times, i.e.  $w = w^H$ . If the lower class does not revolt, and there is no redistribution today and

tomorrow under the autocratic regime. Then the utility of a lower-class agent is

$$\frac{\theta_l}{\lambda_l} w^H + \beta \left[ \eta_m \frac{\theta_m}{\lambda_m} + (1 - \eta_m) \frac{\theta_l}{\lambda_l} \right] \bar{w}. \quad (3)$$

Note that we take the social mobility into account when calculating the child's expected net income. Obviously, (3) is a lower bound on the utility of a lower class agent if the lower class does not revolt.

If the lower class revolts, the utility of a lower class agent in this period is

$$\frac{\delta_R^H w^H}{\lambda_m + \lambda_l} + \beta \frac{\kappa \bar{w}}{\lambda_m + \lambda_l}. \quad (4)$$

where  $(1 - \delta_R^H)$  of the generated income is destroyed during the revolution, and  $(1 - \kappa)$  of it is lost thereafter. All the upper class agents and their children are killed during the revolution, and there is no class difference anymore that the remaining population shares the generated income equally thereafter. The following assumption guarantees that the lower class will not revolt in economically good times.

**Assumption 2:** The value of (3) is larger than the value of (4).

Note that assumptions 1 and 2 are satisfied when  $\delta_C^H$ ,  $\delta_R^H$  and  $\kappa$  are sufficiently small. From now on, I will assume that assumptions 1 and 2 hold, so that there will be no revolutionary or coup threat during economically good times. For simplicity, I will also rename  $\delta_C^L$  and  $\delta_R^L$  as  $\delta_C$  and  $\delta_R$ , respectively.

Now, consider autocracy and economically bad times,  $w = w^L$ . The lower bound for the utility an upper class agent obtains under a sustained auto-

cratic regime (pattern 1) can be written as

$$(1 - \hat{\tau}_l)x_u^L + (\hat{\tau}_l - C(\hat{\tau}_l))w^L + \beta \left\{ (1 - \pi)x_u^H + \pi \left[ (1 - \hat{\tau}_l)x_u^L + (\hat{\tau}_l - C(\hat{\tau}_l))w^L \right] \right\}. \quad (5)$$

where  $\hat{\tau}_l$  is the maximum tax rate the upper class can set in autocracy (which is equal to the the maximum tax rate the lower class sets in democracy). The upper class imposes  $\hat{\tau}_l$  in bad times, and  $\tau = 0$  in good times.

The upper bound for the utility an upper class agent obtains in case the regime switches to semi-democracy can be written as

$$(1 - \hat{\tau}_m)x_u^L + (\hat{\tau}_m - C(\hat{\tau}_m))w^L + \beta \left\{ (1 - \pi) \left[ (1 - \hat{\tau}_m)x_u^H + (\hat{\tau}_m - C(\hat{\tau}_m))w^H \right] + \pi x_u^L \right\} \quad (6)$$

where the middle class immediately imposes  $\hat{\tau}_m$ . In good times, the regime stays at semi-democracy and the middle class imposes  $\hat{\tau}_m$ .  $x_u^L$  is the upper bound of an income that an upper class agent can have in bad times.

**Assumption 3:** The value of (5) is larger than the value of (6).

This assumption guarantees that the upper class always prefers to prevent a revolution by a temporary tax increase, whenever possible, rather than by extending franchise. It holds when  $w^H$  is sufficiently large or when  $w^L$  is sufficiently small and  $\pi$  is sufficiently small, that is, when economic downturns that might lead to political unrest are severe and less likely. Under these very mild conditions, the difference between the expected net incomes of middle class and lower class agents is larger under semi-democracy than under democracy regardless there is a coup threat or not. This will be used in the proof of proposition 4 and a claim about pattern 4.

## A.2 Proof of Proposition 1

The proof of this proposition follows from the following observation: The difference between the expected incomes of middle class and lower class agents under autocracy is positive. But the derivative of the right hand side of  $(NR)$  with respect to  $\eta_l$  is proportional to this difference, so that it is also positive.

Let  $RHS$  denote the right hand side of  $(NR)$ . Then,

$$\frac{\partial RHS}{\partial \eta_l} = \beta [\bar{x}_m(A) - \bar{x}_l(A)].$$

Calculating this by substituting  $\tau = \hat{\tau}_l$

$$\frac{\partial RHS}{\partial \eta_l} = \beta [(1 - \pi)(x_m^H - x_l^H) + \pi(1 - \hat{\tau}_l)(x_m^L - x_l^L)].$$

Note that

$$x_m^e - x_l^e = \left( \frac{\theta_m}{\lambda_m} - \frac{\theta_l}{\lambda_l} \right) w^e > 0.$$

So,  $\frac{\partial RHS}{\partial \eta_l} > 0$ . Therefore  $\frac{\partial \bar{\delta}_R}{\partial \eta_l} > 0$ . QED

## A.3 The derivation of $\bar{\delta}_C^{SD}$

Substitute the expectations and  $\delta_C = \bar{\delta}_C^{SD}$  in  $(C - SD)$  with equality, and solve for  $\bar{\delta}_C^{SD}$ :

$$\bar{\delta}_C^{SD} = \frac{1}{1 - \beta\pi} \left\{ 1 - \frac{\beta}{x_u^L} \left[ (1 - \pi) [\hat{\tau}_m x_u^H - (\hat{\tau}_m - C(\hat{\tau}_m))w^H] + \pi [(1 - \hat{\tau}_m)x_u^L + (\hat{\tau}_m - C(\hat{\tau}_m))w^L] \right] \right\}.$$

## A.4 Proof of Lemma 2

Substitute the expectations and  $\delta_C = \hat{\delta}_C^{SD}$  in  $(MC)$  with equality, and solve for  $\hat{\delta}_C^{SD}$  (I drop the argument of  $\hat{\delta}_C^{SD}$  in order to simplify the exposition):

$$\begin{aligned} \hat{\delta}_C^{SD} x_m^L &= (1 - \hat{\tau}_l)x_m^L + (\hat{\tau}_l - C(\hat{\tau}_l))w^L \\ &+ \beta \{ \eta_m [\bar{x}_l(D) - \bar{x}_l(A)] + (1 - \eta_m) [\bar{x}_m(D) - \bar{x}_m(A)] \}. \end{aligned}$$

I can rewrite this equation in a way that the right hand side becomes independent of  $\hat{\delta}_C^{SD}$  :

$$\hat{\delta}_C^{SD} \{x_m^L - \beta\pi [\eta_m x_l^L + (1 - \eta_m)x_m^L]\} = (1 - \hat{\tau}_l)x_m^L + (\hat{\tau}_l - C(\hat{\tau}_l))w^L + \beta \left\{ \begin{array}{l} \eta_m [\bar{x}_l(D) - \pi\hat{\delta}_C^{SD}x_l^L - \bar{x}_l(A)] \\ + (1 - \eta_m) [\bar{x}_m(D) - \pi\hat{\delta}_C^{SD}x_m^L - \bar{x}_m(A)] \end{array} \right\}.$$

Suppose that  $\hat{\delta}_C^{SD} < 1$ . Otherwise, the middle class would prefer a coup anyway, and the analysis would be trivial. Let *LHS* denote the left hand side of this equality; and *RHS* denote the right hand side of it. Keeping  $\hat{\delta}_C^{SD}$  constant,

$$\frac{\partial LHS}{\partial \eta_m} = \hat{\delta}_C^{SD} \beta \pi (x_m^L - x_l^L).$$

Moreover,

$$\begin{aligned} \frac{\partial RHS}{\partial \eta_m} &= \beta \left\{ [\bar{x}_l(D) - \pi\hat{\delta}_C^{SD}x_l^L - \bar{x}_l(A)] - [\bar{x}_m(D) - \pi\hat{\delta}_C^{SD}x_m^L - \bar{x}_m(A)] \right\} \\ &= \beta \left\{ \begin{array}{l} [(\bar{x}_l(D) - \pi\hat{\delta}_C^{SD}x_l^L) - (\bar{x}_m(D) - \pi\hat{\delta}_C^{SD}x_m^L)] \\ - [\bar{x}_l(A) - \bar{x}_m(A)] \end{array} \right\} \\ &= \beta [(1 - \pi)\hat{\tau}_l(x_m^H - x_l^H) + \pi(1 - \hat{\tau}_m)(x_m^L - x_l^L)]. \end{aligned}$$

Now I will compare  $\frac{\partial LHS}{\partial \eta_m}$  and  $\frac{\partial RHS}{\partial \eta_m}$ . First note that  $\hat{\tau}_l > \hat{\tau}_m$  and  $x_m^H - x_l^H > x_m^L - x_l^L$ . So,

$$\begin{aligned} \frac{\partial RHS}{\partial \eta_m} &> \beta [(1 - \pi)\hat{\tau}_m(x_m^L - x_l^L) + \pi(1 - \hat{\tau}_m)(x_m^L - x_l^L)] \\ &= \beta [(1 - \pi)\hat{\tau}_m + \pi(1 - \hat{\tau}_m)](x_m^L - x_l^L). \end{aligned}$$

Furthermore,  $\pi < 1/2$  implies that  $(1 - \pi)\hat{\tau}_m + \pi(1 - \hat{\tau}_m) > \pi$ . Hence,

$$\frac{\partial RHS}{\partial \eta_m} > \beta\pi(x_m^L - x_l^L) \geq \hat{\delta}_C^{SD} \beta\pi(x_m^L - x_l^L) = \frac{\partial LHS}{\partial \eta_m}.$$

Therefore, keeping  $\hat{\delta}_C^{SD}$  constant, an increase in  $\eta_m$  increases *RHS* more than it increases *LHS*. In order to have an equality in *(MC)*,  $\hat{\delta}_C^{SD}$  should increase. This completes the proof. QED.

### A.5 Proof of “Pattern 3: The middle class does not extend franchise in good times”

Suppose that the middle class extends franchise to the lower class even when  $w = w^H$ .

The expectations in autocracy are formed as follows:

$$\text{For } c \in \{u, m, l\} : \bar{x}_c(A) = (1 - \pi)x_c^H + \pi [(1 - \hat{\tau}_m)x_c^L + (\hat{\tau}_m - C(\hat{\tau}_m))w^L]$$

since the upper class will set the tax rate at zero at normal times, and it will extend franchise to the middle class during recession, then the middle class will set the tax rate at  $\hat{\tau}_m$ .

Expectations in semi-democracy are formed as follows:

$$\begin{aligned} \text{For } c \in \{u, m, l\} : \bar{x}_c(SD) = & (1 - \pi) [(1 - \hat{\tau}_l)x_c^H + (\hat{\tau}_l - C(\hat{\tau}_l))w^H] \\ & + \pi [(1 - \hat{\tau}_l)x_c^L + (\hat{\tau}_l - C(\hat{\tau}_l))w^L] \end{aligned}$$

since the middle class will extend franchise to the lower class, and the lower class will set the tax rate at  $\hat{\tau}_l$ .

Let  $\tau_d \leq \hat{\tau}_l$  be the tax rate that can prevent a coup at economically bad times in democracy. Then, expectations in democracy are formed as follows:

$$\begin{aligned} \text{For } c \in \{u, m, l\} : \bar{x}_c(D) = & (1 - \pi) [(1 - \hat{\tau}_l)x_c^H + (\hat{\tau}_l - C(\hat{\tau}_l))w^H] \\ & + \pi [(1 - \tau_d)x_c^L + (\tau_d - C(\tau_d))w^L] \end{aligned}$$

The middle class extends franchise when  $w = w^H$  only if the utility the middle class obtains from extending franchise at normal times is larger than that it obtains from keeping the regime semi-democratic at normal times:

$$\begin{aligned} & (1 - \hat{\tau}_m)x_m^H + (\hat{\tau}_m - C(\hat{\tau}_m))w^H + \beta [\eta_m \bar{x}_l(SD) + (1 - \eta_m)\bar{x}_m(SD)] \\ & \leq (1 - \hat{\tau}_l)x_m^H + (\hat{\tau}_l - C(\hat{\tau}_l))w^H + \beta [\eta_m \bar{x}_l(D) + (1 - \eta_m)\bar{x}_m(D)]. \end{aligned}$$

Rewrite this inequality as

$$\begin{aligned} & (\hat{\tau}_l - \hat{\tau}_m)x_m^H + [(C(\hat{\tau}_l) - C(\hat{\tau}_m)) - (\hat{\tau}_l - \hat{\tau}_m)] w^H \\ & \leq \beta \{ \eta_m [\bar{x}_l(D) - \bar{x}_l(SD)] + (1 - \eta_m) [\bar{x}_m(D) - \bar{x}_m(SD)] \}. \end{aligned}$$

Let  $\eta_m^*$  be such that the above inequality holds with equality. Note that left hand side of this inequality is independent of the transition probabilities. Let *RHS* denote the right hand side of this inequality. Then,

$$\begin{aligned} \frac{\partial RHS}{\partial \eta_m} &= \beta \{ [\bar{x}_l(D) - \bar{x}_l(SD)] - [\bar{x}_m(D) - \bar{x}_m(SD)] \} \\ &= \beta \{ [\bar{x}_m(SD) - \bar{x}_l(SD)] - [\bar{x}_m(D) - \bar{x}_l(D)] \} \\ &= \pi(\tau_d - \hat{\tau}_l)(x_m^L - x_l^L) \leq 0. \end{aligned}$$

I have supposed that in equilibrium, the middle class would extend franchise to the lower class even when  $w = w^H$ . By the above observation,  $\eta_m \leq \eta_m^*$ . Furthermore, the above observation implies that such a pattern can sustain in equilibrium for any  $\eta_m \leq \eta_m^*$ , in particular for  $\eta_m = 0$ , which is a contradiction. Since, if there is no threat of a coup, it would be optimal for the middle class not to extend franchise in absence of social mobility. QED.

## A.6 Proof of Proposition 4

The proof follows from the following observation. The right hand side of (E) is independent of  $\eta_m$ . The derivative of the left hand side is proportional to the difference between the following: the differences between expected net incomes of the middle and lower class under semi-democracy and under democracy. We know that the former is greater than the latter from Assumption 3. Hence, the left hand side of (E) is increasing in  $\eta_m$ .

$$\begin{aligned} (E) \quad & \beta \{ \eta_m [\bar{x}_l(D) - \bar{x}_l(SD)] + (1 - \eta_m) [\bar{x}_m(D) - \bar{x}_m(SD)] \} \\ & \geq (\hat{\tau}_l - \hat{\tau}_m) x_m^L + [[C(\hat{\tau}_l) - C(\hat{\tau}_m)] - (\hat{\tau}_l - \hat{\tau}_m)] w^L. \end{aligned}$$

Right hand side (E) is independent of  $\eta_m$ . Let *LHS* denote the left hand side of (E). Then

$$\begin{aligned} \frac{\partial LHS}{\partial \eta_m} &= \beta \{ [\bar{x}_m(SD) - \bar{x}_l(SD)] - [\bar{x}_m(D) - \bar{x}_l(D)] \} \\ &= \beta [(1 - \pi)(\hat{\tau}_l - \hat{\tau}_m)(x_m^H - x_l^H) - \pi(\hat{\tau}_l - \tau_d)(x_m^L - x_l^L)] \\ &> \beta [(1 - \pi)(\hat{\tau}_l - \hat{\tau}_m)(x_m^L - x_l^L) - \pi(\hat{\tau}_l - \tau_d)(x_m^L - x_l^L)] \\ &> \beta [(1 - \pi)(\hat{\tau}_l - \hat{\tau}_m)(x_m^L - x_l^L) - \pi\hat{\tau}_l(x_m^L - x_l^L)] \\ &> 0 \end{aligned}$$

The last line follows from the the discussion following Assumption 3: The difference between the expected net incomes of middle class and lower class agents is larger under semi-democracy than under democracy regardless there is a coup threat or not. So, when there is no threat of a coup under democracy, pattern 3 sustains if and only if  $\eta_m \geq \hat{\eta}_m$ . QED.

## A.7 Derivation of $\bar{\delta}_C^D$ .

Now, I will derive the condition under which Pattern 3 may sustain. Let  $\bar{\delta}_C^D$  be the critical value of  $\delta_C$  such that  $\tau_d = 0$  just prevents a coup in democracy. That is

$$\bar{\delta}_C^D x_u^L + \beta \bar{x}_u(A) = x_u^L + \beta \bar{x}_u(D)$$

where  $\bar{x}_u(D)$  is calculated by substituting  $\tau_d = 0$ . Then

$$\begin{aligned} \bar{\delta}_C^D &= 1 - \frac{\beta}{x_u^L} [\bar{x}_u(A) - \bar{x}_u(D)] \\ &= 1 - \frac{\beta}{x_u^L} \left\{ \begin{array}{l} (1 - \pi) [\hat{\tau}_l x_u^H - (\hat{\tau}_l - C(\hat{\tau}_l))w^H] \\ -\pi [\hat{\tau}_m x_u^L - (\hat{\tau}_m - C(\hat{\tau}_m))w^L] \end{array} \right\}. \end{aligned}$$

Now let us compare  $\bar{\delta}_C^D$  and  $\bar{\delta}_C^{SD}$ . Remember that

$$\bar{\delta}_C^{SD} = \frac{1}{1 - \beta\pi} \left\{ 1 - \frac{\beta}{x_u^L} \left[ \begin{array}{l} (1 - \pi) [\hat{\tau}_m x_u^H - (\hat{\tau}_m - C(\hat{\tau}_m))w^H] \\ +\pi [(1 - \hat{\tau}_m)x_u^L + (\hat{\tau}_m - C(\hat{\tau}_m))w^L] \end{array} \right] \right\}.$$

Compare the terms in the brackets. Check that when  $\pi$  is small enough

$$\begin{array}{l} (1 - \pi) [\hat{\tau}_l x_u^H - (\hat{\tau}_l - C(\hat{\tau}_l))w^H] \\ -\pi [\hat{\tau}_m x_u^L - (\hat{\tau}_m - C(\hat{\tau}_m))w^L] \end{array} > \begin{array}{l} (1 - \pi) [\hat{\tau}_m x_u^H - (\hat{\tau}_m - C(\hat{\tau}_m))w^H] \\ +\pi [(1 - \hat{\tau}_m)x_u^L + (\hat{\tau}_m - C(\hat{\tau}_m))w^L] \end{array}$$

so that  $(1 - \beta\pi)\bar{\delta}_C^{SD} > \bar{\delta}_C^D$  which in turn implies that  $\bar{\delta}_C^{SD} > \bar{\delta}_C^D$ .

## A.8 Proof of “Pattern 4: $(SD - L)$ implies $(SD - H)$ ”

Right hand sides of  $(SD - H)$  and  $(SD - L)$  are equal. I will show that left hand side of  $(SD - H)$  is larger than the left hand side of  $(SD - L)$ .

By using  $x_m^e = \frac{\theta_m}{\lambda_m} w^e$  and  $C'(\hat{\tau}_m) = 1 - \frac{\theta_m}{\lambda_m}$ , rearrange the left hand sides as

$$[C(\hat{\tau}_l) - C(\tau^e) - (\hat{\tau}_l - \tau^e)C'(\hat{\tau}_m)] w^e.$$

We have  $\tau_{sd} \leq \hat{\tau}_m$ . Then, convexity of  $C$  implies that

$$C(\hat{\tau}_l) - C(\hat{\tau}_m) - (\hat{\tau}_l - \hat{\tau}_m)C'(\hat{\tau}_m) > C(\hat{\tau}_l) - C(\tau_{sd}) - (\hat{\tau}_l - \tau_{sd})C'(\hat{\tau}_m).$$

Also  $w^H > w^L$ . Therefore, left hand side of  $(SD - H)$  is larger than the left hand side of  $(SD - L)$ . QED

### A.9 Proof of “Pattern 4: The right hand side of $(SD - L)$ is increasing in $\eta_m$ ”

Let  $RHS$  denote the right hand side of  $(SD - L)$ . Then

$$\frac{\partial RHS}{\partial \eta_m} = \beta \{[\bar{x}_m(SD) - \bar{x}_l(SD)] - [\bar{x}_m(D) - \bar{x}_l(D)]\} > 0$$

The last inequality follows from the the discussion following Assumption 3: The difference between the expected net incomes of middle class and lower class agents is larger under semi-democracy than under democracy regardless there is a coup threat or not. QED.

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