Contingent Democratization

Online Appendix 1 - 5

Appendix 1: Formal Proof

The following proof shows that a sudden economic shock disrupts the existing equilibrium, and with the authoritarian elites' having a higher share of state-owned assets, economic crises are more likely to trigger coalition defection of the business class. Suppose that, when an economic crisis occurs in a country, it affects the masses and business class alike by decreasing their respective income by λ. Due to the greater capability of political elites to protect returns from the state economy, political elites suffer a lesser degree of loss. The political elites are motivated and, at the same time, monopolize the political means to protect the returns when crises occur. They can do so by either shrinking special benefits for the business groups and other social groups or raising the extent of economic extraction to continue to pay for political support. The choices include an increase in the tax rate (e.g., Bolivia), the physical seizure of land and private assets (e.g., Zimbabwe), or the reduction of subsidies for specific sections of the economy (e.g., Burma, Iran). Political elites also can provide selective help for the business in which they have vested economic interest, while ignoring most other business groups. Starting in 1979, for instance, the Korean economy, particularly the manufacturing sectors, was strongly hurt by crises. The government handpicked by military generals aided only the large *chaebols*, from which politicians received kickbacks. The results included large-scale bankruptcy of the owners of middle- and small-size businesses and subsequently widespread protests.

It should be noted that political elites' gains from state assets are, *by no means*, insulated from crises. Yet, as discussed above, they can use various tools to protect themselves or to pass on the loss to societal groups. During economic crises, political elites are hurt disproportionately less than are other groups. For the purpose of simplification of the presentation of our formal model, we set that economic crises do not affect the income of political elites. Mathematically, assuming that political elites suffer some but proportionally less loss from crises than do other groups (e.g., a ρ portion of the loss of the masses, $0 < \rho < 1$) will yield

the same result. In other words, the conclusion derived from the formal modeling does not require that state assets are insulated from crises or political elites do suffer from economic crises. In this appendix, we present the simplified model; the derivation of the more complicated model where political elites also lose a share of income is not presented and can be requested.

A. Provision Pact and Coalition Defection

Since an economic crisis decreases the income of the mass and business class by λ but does not affect that of the elites, we have the following expressions about per capita income for elites and business class.

Before crisis:

y^e (*per capita* income for the elites), $y^e = \frac{\theta}{\delta} \cdot \bar{y}_p + k$; and

y^b (*per capita* income for business groups), $y^b = \frac{1-\theta}{1-\delta} \cdot \bar{y}_p + r$.

After crisis:

y^{es} (*per capita* income for the elites), $y^e = \frac{\theta}{\delta} \cdot \bar{y}_p + k$; and

y^{bs} (*per capita* income for business groups),

$y^{bs} = \left[(1-\lambda)\frac{1-\theta}{1-\delta} \cdot \bar{y}_p - \lambda\frac{\theta}{1-\delta} \cdot \bar{y}_p \right] + \left[(1-\lambda)r - \lambda\frac{\delta}{1-\delta}k \right]$

$y^{bs} = (1-\lambda)\left(\frac{1-\theta}{1-\delta} \cdot \bar{y}_p + r \right) - \frac{\lambda}{1-\delta}(\theta\bar{y}_p + \delta k)$.

Based on a definition that democracy is where the median voter gets to decide the allocation of resources, so that a democratic transition supported by the business class is the one in which all members of the business class will confiscate all the previous state economy and have the same *per capita* income after a successful defection. The defection constraint for business class therefore is, the *per capita* business income after successful defection and after discounting the defection cost (μ), will be higher than the per capita business income under authoritarian coalition and without defection cost:

$$(1 - \mu)(y^{es} + y^{bs}) > y^{bs} \tag{1}$$

Inequality (9) is equivalent to:

$$(1 - \mu)\left[\left(\frac{\theta}{\delta} \cdot \bar{y}_p + k\right) + \left(\frac{1-\theta}{1-\delta} \cdot \bar{y}_p + r\right)(1 - \lambda)\right] > \left(\frac{1-\theta}{1-\delta} \cdot \bar{y}_p + r\right)(1 - \lambda)$$

$$(1 - \mu)\left(\frac{\theta}{\delta} \cdot \bar{y}_p + k\right) - \mu\left[\left(\frac{1-\theta}{1-\delta} \cdot \bar{y}_p + r\right) - \frac{\lambda}{1-\delta}\right] > 0$$

Multiply $\delta(1 - \delta)g$ on both sides and rearrange, in addition to a positive portion, we can show that,

$$(-\mu\delta\bar{y}_p + \mu\delta\theta\bar{y}_p - r\mu\delta + r\mu\delta^2 + \lambda\mu\delta\bar{y}_p - \lambda\mu\delta\theta\bar{y}_p + r\lambda\mu\delta - r\lambda\mu\delta^2) +$$

$$(\theta\bar{y} + \mu\delta\theta\bar{y}_p - \mu\theta\bar{y}_p - \delta\theta\bar{y}_p + k\delta + k\mu\delta^2 - k\mu\delta - k\delta^2) > 0$$

To satisfy this inequality, the following three conditions are required:

1. $1 - \mu - \delta > 0$;

2. $2\theta - 1 > 0$; and

3. $k\delta - r(1 - \delta)$.

In sum, the three conditions suggest that as long as the coalition defection is not self-destructive, the business class is motivated to break away from the existing coalition with political elites.

Alternatively, the necessary condition for business class to break away from the coalition with political elites can be derived by examining the aggregate income of the bussiness class and elites. The aggregate income of political elites after crisis is, $Y^{es} = y^{es}\delta N_p = \theta N_p \bar{y}_p + k\delta N_p$. The aggregate income of business class is, $Y^{bs} = y^{bs}(1-\delta)N_p$, which equals to $(1-\lambda)(1-\theta)N_p \bar{y}_p + (1-\lambda)(1-\delta)N_p r - \lambda\theta N_p \bar{y}_p - \lambda\delta N_p k$.

Similarly, the defection constraint for business class is, the *per capita* business income after successful defection, after discounting the defection cost, will be higher than the *per capita* business income under authoritarian coalition and without defection cost:

$$(1 - \mu)\left[\frac{Y^{es}+Y^{bs}}{(1-\delta)N_p}\right] > \frac{Y^{bs}}{(1-\delta)N_p}.$$

This is equivalent:

$$(1-\mu)\left(\theta N_p \bar{y}_p + k\delta N_p\right) - \mu\left[(1-\lambda)(1-\theta)N_p \bar{y}_p + (1-\lambda)(1-\delta)N_p r - \lambda\theta N_p \bar{y}_p - \lambda\delta N_p k\right] > 0,$$

which can be tranformed into,

$$(\theta - \mu)\bar{y}_p + (1-\mu)k\delta + \mu(\lambda\bar{y}_p - r + \lambda r + \delta r) + \mu\lambda\delta(k - r) > 0$$

To satisfy this defection constraint for business class, the following two conditions are required:

1. $\mu < \theta$; and

2. $\lambda\bar{y}_p - r + \lambda r + \delta r > 0 \Leftrightarrow \lambda > \frac{(1-\delta)r}{\bar{y}_p + r}$.

In sum, the two conditions suggest that as long as the coalition defection is not self-destructive, the business class is motivated to break away from the existing coalition with political elites.

To what extent is the share of the state-owned assets associated with the defection constraint for business class? Our model suggests that higher shares of the state-owned assets make the defection constraint for business class more binding. Suppose there are two countries that are otherwise identical. Yet one has a larger privileged economy than another, $G_1 < G_2$. It has been proved that the key condition for coalition defection is $k\delta - r(1 - \delta)$. For G_1, the condition for coalition defection therefore is $k_1\delta - r_1(1 - \delta)$, and $k_2\delta - r_2(1 - \delta)$ for G_2.

It can be proved that $k_2\delta - r_2(1 - \delta)$ is more likely to hold than $k_1\delta - r_1(1 - \delta)$. This is equivalent to prove,

$$(k_2\delta - k_1\delta) - [r_2(1 - \delta) - r_1(1 - \delta)] > 0$$

Mutiply N_p on both sides, and we have,

$$(K_2 - K_1) - (R_2 - R_1) > 0$$

Since $K > R$, the above inequality holds. Therefore, when an economic crisis occurs, higher share of state economy within an authoritarian country makes the business class defect more likely.

B. Social Pact and Mass Rebellion

Similarly to the discussion of business defection, the rebellion constraint for the mass can be obtained when the *per capita* income of mass after a successful revolt, after discounting the

cost of revolt (i.e., μ_m), is higher than the per capita mass income under the authoritarian regime and without the cost of revolt:

$$(1 - \mu_m)(y^{ms} + y^{ps}) > y^{ms} \tag{2}$$

This is equivalent to,

$$(1 - \mu)\left[\left(\frac{\theta}{\delta} \cdot \bar{y}_p + k\right) + \left(\frac{1-\theta}{1-\delta} \cdot \bar{y}_p + r\right)(1 - \lambda) + \frac{1-\alpha}{1-\beta} \cdot \bar{y}(1 - \lambda)\right] > \frac{1-\alpha}{1-\beta} \cdot \bar{y}(1 - \lambda)$$

Multiply $(1 - \delta)(1 - \theta)\delta$ on both sides, we have,

$$(1 - \mu_m)(1 - \delta)(1 - \beta)\theta\bar{y}_p + (1 - \mu_m)(1 - \delta)(1 - \beta)k\delta + (1 - \mu_m)(1 - \lambda)(1 - \theta)\delta\bar{y}_p$$

$$+ (1 - \mu_m)(1 - \delta)(1 - \lambda)(1 - \beta)\delta r - \mu_m(1 - \delta)(1 - \lambda)(1 - \alpha)\delta\bar{y}_p > 0 \tag{3}$$

Compare the first term $(1 - \mu_m)(1 - \delta)(1 - \beta)\theta\bar{y}_p$ and the only negative term $-\mu_m(1 - \delta)(1 - \lambda)(1 - \alpha)\delta\bar{y}_p$ on the left hand side. Given the model setups as well as no-catastrophe condition for mass rebellion (i.e., $1 - \mu_m > \mu_m$), the following inequality holds,

$$(1 - \mu_m)(1 - \delta)(1 - \beta)\theta\bar{y}_p - \mu_m(1 - \delta)(1 - \lambda)(1 - \alpha)\delta\bar{y}_p > 0 \tag{4}$$

Moreover, Inequality (11) suggests that higher shares of the state-owned assets make revolt constraint for the mass more binding. This is so because with the increase of the size of privileged economy (i.e., with the rise k and r), the revolt constraint becomes more binding.

C. Cross-Class Alliance between the Mass and Business Class

C.1 Inequality and cross-class alliance

The economic crisis will affect the income inequality between the mass and business class. The post-crisis inequality between the two is,

$$\eta^s = \frac{Y^{bs}}{Y^{bs} + Y^{ms}},\tag{5}$$

where,

$Y^{ms} = y^{ms}(1-\beta)N = (1-\alpha)(1-\lambda)N\bar{y}$; and

$Y^{bs} = y^{bs}(1-\delta)N_p = \alpha(1-\lambda)(1-\theta)N\bar{y} - \beta(1-\lambda)(1-\delta)Nr - \alpha\lambda\theta N\bar{y} - \beta\delta Nkr.$

Therefore,

$$\eta^s = \frac{(1-\lambda)(1-\theta)N\alpha\bar{y}+(1-\lambda)(1-\delta)N\beta r-\lambda\theta N\alpha\bar{y}-\lambda\delta kN\beta}{(1-\lambda)(1-\theta)N\alpha\bar{y}+(1-\lambda)(1-\delta)N\beta r-\lambda\theta N\alpha\bar{y}-\lambda\delta kN\beta+(1-\lambda)(1-\alpha)N\bar{y}}.$$

This is equivalent to,

$$\eta^s = \frac{N\alpha\bar{y}-\lambda N\alpha\bar{y}-\theta N\alpha\bar{y}+N\beta r-\lambda N\beta r-\delta N\beta r+\lambda\delta N\beta r-\lambda\delta kN\beta}{N\bar{y}-\lambda N\bar{y}-\theta N\alpha\bar{y}+N\beta r-\lambda N\beta r-\delta N\beta r-\lambda\delta kN\beta}.$$

The first-order derivative test of $\eta^s = f(\lambda)$ will reveal the relationship economic crisis to the inequality between the business class and the mass. It can be proved that,

$$\frac{d\eta^s}{d\lambda} < 0.\tag{6}$$

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In other words, as economic crisis increases in severity, inequality between business class and the mass declines.

C.2 Cross-class alliance constraint

For cross-class alliance constraint, when after a crisis, the combined payoff for cross-class alliance is greater than the combined payoff for the business class and the mass under the authoritarian regime, given the cost of cross-class alliance (i.e., μ_c),

$$(1 - \mu_c)(1 - \lambda)\frac{Y}{N_m + N_b} > \frac{Y^{bs} + Y^{ms}}{N_m + N_b}. \tag{7}$$

It is known that,

$Y^{ms} = (1 - \alpha)(1 - \lambda)N\bar{y}$; and

$Y^{bs} = \alpha(1 - \lambda)(1 - \theta)N\bar{y} - \beta(1 - \lambda)(1 - \delta)Nr - \alpha\lambda\theta N\bar{y} - \beta\delta Nkr$.

Inequality (15) therefore can be transformed into,

$$\beta(1 - \mu_c)(1 - \lambda)Ng + (1 - \mu_c)(1 - \lambda)N\bar{y} >$$
$$\beta\left[(1 - \delta)r - \lambda g\right]N + \{\alpha(1 - \lambda)(1 - \theta)N\bar{y} + (1 - \alpha)(1 - \lambda)N\bar{y} - \alpha\lambda\theta N\bar{y}\}.$$

First, compare if $\beta(1 - \mu_c)(1 - \lambda)Ng > \beta\left[(1 - \delta)r - \lambda g\right]N$. This inequality is assured if $(1 - \mu_c + \lambda\mu_c)g > (1 - \delta)r \Leftrightarrow g > \frac{(1-\delta)r}{1-\mu_c+\lambda\mu_c}$. This is true given the fact that r is a fraction of g.

Second, compare the if,

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$$(1 - \mu_c)(1 - \lambda)N\bar{y} > \alpha(1 - \lambda)(1 - \theta)N\bar{y} + (1 - \alpha)(1 - \lambda)N\bar{y} - \alpha\lambda\theta N\bar{y}.$$

This is equivalent to verify if,

$$1 - \mu_c - \lambda + \lambda\mu_c > \alpha - \alpha\lambda - \alpha\theta + \alpha\theta\lambda + 1 - \alpha - \lambda + \alpha\lambda - \alpha\theta\lambda.$$

Rearrange and we have, $\mu_c < \frac{\alpha\theta}{1-\lambda}$. This indicates that as long as the cross-class alliance cost is not prohibitively high, then the cross-class alliance constraint is binding, such that the two classes have an incentive to engage in coalition against the authoritarian rule by the political elites.

To what extent is the share of the state-owned assets associated with the cross-class alliance constraint for the mass and business class? This can be answered by examining the first order $w.r.t. k$ of Inequality (15), which is equivalent to,

$$\beta(1 - \mu_c)(1 - \lambda)Ng + (1 - \mu_c)(1 - \lambda)N\bar{y} >$$
$$\beta\left[(1 - \delta)r - \lambda g\right]N + \{\alpha(1 - \lambda)(1 - \theta)N\bar{y} + (1 - \alpha)(1 - \lambda)N\bar{y} - \alpha\lambda\theta N\bar{y}\}.$$

Take the first order $w.r.t. k$, then we have,

$$(1 - \mu_c)(1 - \lambda)N\beta\delta + \lambda\delta N\beta > 0.$$

This is greater than zero, which indicates that the higher the state economy the more binding is the cross-class alliance constraint.

Appendix 2: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
DD	3693	0.52	0.50	0.00	1.00
Polity IV	3496	2.05	7.45	-10.00	10.00
Crisis1 (Dichotomous)	3693	0.26	0.44	0.00	1.00
Crisis2 (2-year MA)	3603	-0.02	0.05	-0.31	0.30
Crisis3 (Dichotomous, 3-year MA)	3693	0.28	0.45	0	1
Govt. size	3643	4.35	1.51	1.20	9.90
Govt. investment	3693	35.45	17.55	1.90	100.00
GDP pc (log)	3693	8.61	1.12	5.74	11.26
Colonial history	3499	0.25	0.43	0.00	1.00
Oil export country	3499	0.11	0.31	0.00	1.00
Percent. Of Moslem	3499	18.23	33.05	0.00	99.40
Ethnic fragmentation	3499	69.19	25.64	18.00	100.00
Openness	3693	69.75	50.36	8.78	456.56
Legislature	3688	0.86	0.34	0.00	1.00
Military regime	3687	0.21	0.40	0.00	1.00

Appendix 3: A List of Democratic Transitions

Democratic transition in this list is defined as a change from democracy$_{t-1}$=0 to democracy$_t$=1. That is, a country changes from an autocracy in the previous year to a democracy in the next year. Democracy is measured by DD. The years after country names indicate $t-1$ and t.

Argentina: 1972-1973; 1982-1983

Bangladesh: 1985-1986

Benin: 1990-1991

Bolivia: 1977-1978; 1981-1982

Brazil: 1984-1985

Burundi: 1992-1993; 2004-2005

Central African Republic: 1992-1993

Chile: 1989-1990

Congo Brazzaville: 1991-1992

Congo Kinshasa: 1991-1992

Cyprus: 1982-1983

Ecuador: 1978-1979; 2001-2002

El Salvador: 1983-1984

Fuji: 1991-1992

Ghana: 1978-1979; 1992-1993

Greece: 1973-1974

Guatemala: 1985-1986

Honduras: 1970-1971; 1981-1982

Hungary: 1989-1990

Indonesia: 1998-1999

Kenya: 1997-1998

South Korea: 1987-1988

Madagascar: 1992-1993

Malawi: 1993-1994

Mali: 1991-1992

Mexico: 1999-2000

Nepal: 1989-1990

Nicaragua: 1983-1984

Niger: 1992-1993; 1999-2000

Nigeria: 1978-1979; 1998-1999

Pakistan: 1987-1988

Panama: 1988-1989

Paraguay: 1988-1989

Peru: 1979-1980; 2000-2001

Philippines: 1985-1986

Poland: 1988-1989

Portugal: 1975-1976

Senegal: 1999-2000

Sierra Leone: 1995-1996; 1997-1998

Spain: 1976-1977

Sri Lanka: 1988-1989

Taiwan: 1995-1996

Thailand: 1974-1975; 1978-1979; 1991-1992

Turkey: 1982-1983

Uganda: 1979-1980

Uruguay: 1984-1985.

Appendix 4: On the dependent variable and interpretation of coefficients

The choice of dichotomous dependent variable

In theory, we hold a binary conception of democracy. We are interested in the change from autocracy to democracy (democratic transition), not the change from one level of democracy (autocracy) to another. Accordingly, in the empirical model, we used a probit model (Markov transition model) that has been widely used in the literature to estimate the probability of change from autocracy to democracy. Both theory and empirical analysis therefore require a dichotomous variable. We used DD as our primary measurement. In order to show the robustness of our findings, we supplemented it with Polity IV. When scholars use Polity IV but need a binary measurement, a common practice is to dichotomize it at the point 6. We followed that practice in this research.

The interpretation of regression coefficients

The model we used in this research, Markov transition model, is a dynamic probit model estimates the probability of a country in a given year will be a democratic country, given that this country was authoritarian in previous year.

From the primary analysis in Model 4, we can calculate the regression coefficients (not transformed) for each given value of government investment and obtain the following marginal effect graph.
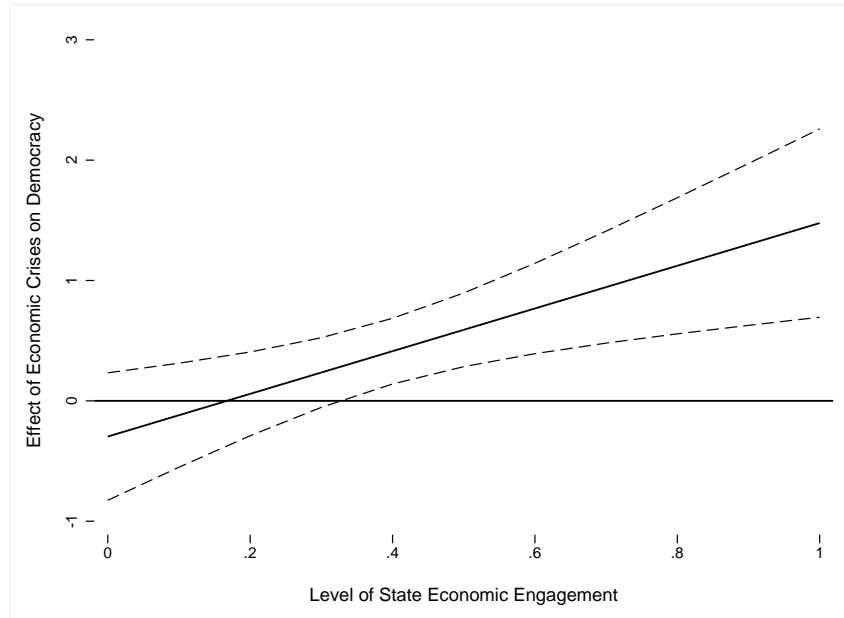
Figure 2. Marginal effect of economic crises on democratic transition (Dependent variable: the regression coefficients of Model 4)

Substantively, this plot graphically presents the regression coefficients at each value of government investment. For instance, when state engagement at 10%, the coefficient is insignificant, indicating that the effect of crises is not significant. When state engagement is at 40%, the coefficient is 0.41 and statistically significant. This indicates that one unit increase in crisis (i.e., change from "no crisis" to "crisis") increases the Z-score of the predicted probability of democracy by 0.41. When state engagement is at 80%, the coefficient is 1.12 and significant. In this scenario, economic crises increase the Z-score of the predicated probability of democracy by 1.12

Although we can interpret the statistical significance and the sign of each coefficient directly, assessing the magnitude of the effect is trick in probit models. Moreover, as noted by various statisticians and political scientists, the estimation of coefficients in nonlinear models with an interaction effect cannot be directly interpreted as in linear models. We therefore calculated the predicted probability of democratic transition given a crisis (crisis changes from 0 to 1)

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at each value of state engagement. That marginal effect plot is presented in Figure 1 and its substantive meaning is presented in text.

Appendix 5. Robustness Check

In addition to including dummies for countries, years, regions, and decades, we examine the robustness of our findings in various ways. First, we vary the measurement of the independent variable, economic crises. In Model 8 of Table 2, we use the negative values of the two-year moving average of economic growth as the measurement to ensure that the dichotomization does not cause distortion in results. In Model 9, we create a dichotomous measure of crisis by recoding the three-year moving average of economic growth rate. Both analyses yield a similar pattern in regard to the moderating effect of state economic engagement. We also alternate the measurement of the dependent variable, i.e., democracy. Polity IV is one of the most popular measurements in the field. Because our theory posits a binary state of democracy, and our model is a probit model, we recode Polity IV into a dichotomous measurement at 6. We will later conduct an analysis using the original continuous measurement of Polity IV. This analysis of Model 10 confirms the pattern that economic crises are more likely to be positively associated with regime transition when the share of the state economy is higher. As we argued in previous sections, we prefer to use the share of government investment as the measurement of the economic engagement of the state because it closely pertains to our theoretical argument. Nevertheless, we would like to show whether the economic role of the state in a broader sense entails the same political consequence in terms of its moderating effect on the relationship between economic crises and democratic transition. We thus change the measurement of state economic engagement and use a more comprehensive indicator, "the size of government," provided in EFW. Model 11 is the analysis that uses this alternative measurement.

Table 2. Robustness Check: The Effect of Economic Crises on Democratic Transition

	Model 8 2-year MV	Model 9 3-year MV (1-0)	Model 10 Polity (1-0)	Model 11 Govt. size	Model 12 Non-oil	Model 13 Pre-1990	Model 14 FE, DD	Model 15 FE, Polity
Crisis	-1.95 (3.75)	-0.36 (0.28)	-0.31 (0.20)	1.75*** (0.54)	-0.61* (0.32)	-1.15** (0.49)	-0.069*** (0.023)	-0.43 (0.34)
State engagement	0.33 (0.38)	-0.44 (0.49)	-0.021 (0.31)	-0.055 (0.059)	-0.43 (0.43)	-2.36*** (0.70)	0.037 (0.045)	-2.07*** (0.64)
Crisis*state	16.7** (6.78)	1.59** (0.63)	0.88*** (0.43)	0.25*** (0.091)	2.05*** (0.67)	3.17*** (1.02)	0.19*** (0.053)	1.57** (0.76)
GDP pc	-0.031 (0.11)	-0.015 (0.10)	0.22*** (0.070)	-0.036 (0.11)	0.082 (0.11)	-0.42** (0.17)	0.024 (0.018)	-0.74*** (0.27)
Military	-1.72*** (0.35)	-1.67*** (0.33)	-0.57*** (0.15)	-1.67*** (0.31)	-1.81*** (0.35)	-1.50*** (0.33)	-0.59*** (0.016)	-7.26*** (0.23)
Legislature	-0.56** (0.28)	-0.38 (0.27)	0.41*** (0.15)	-0.34 (0.26)	-0.36 (0.29)	-0.44 (0.39)	-0.12*** (0.016)	-1.55*** (0.24)
Colonial history	-0.69** (0.27)	-0.66** (0.27)	-0.22* (0.12)	-0.60** (0.27)	-0.95*** (0.29)	-0.54** (0.37)	.	.
Oil rich country	-0.40 (0.34)	-0.41 (0.34)	-0.54*** (0.17)	-0.38 (0.32)	-	0.024 (0.57)	.	.
Moslem pop.	0.0030 (0.0034)	0.0036 (0.0034)	0.0024 (0.0019)	0.0051 (0.0034)	0.00076 (0.0038)	0.0020 (0.0048)	.	.
Ethnic frag.	-0.00044 (0.0051)	-0.0022 (0.0051)	0.0020 (0.0026)	0.00042 (0.0052)	-0.0076 (0.0050)	0.0027 (0.0072)	.	.
Econ. open.	-0.0018 (0.0018)	-0.0021 (0.0018)	-0.0015 (0.00095)	-0.0031 (0.0020)	-0.0027 (0.0024)	-0.0025 (0.0032)	0.0011*** (0.00023)	0.0095*** (0.0034)
Democracy$_{t-1}$	1.77 (2.18)	1.52 (2.25)	0.073*** (0.0093)	3.00 (2.42)	3.37 (2.17)	48.06*** (8.31)		
Cons	-0.85 (0.85)	-0.57 (0.88)	-2.56*** (0.66)	-1.06 (0.99)	-0.88 (0.89)	4.53*** (1.49)	0.29* (0.15)	10.0*** (2.23)
Pseudo R^2/R^2	0.91	0.91	0.75	0.91	0.91	0.92	0.56	0.60
N	3387	3390	3287	3348	3017	1599	2898	2755
BIC	691.4	703.1	1397.0	698.6	610.9	376.7	-434.1	14058.3

Model: First-order Markov transition (Models 8 − 14); Fixed effects (Models 15 & 16).* $p < .10$, ** $p < .05$, *** $p < .01$; Coefficients for region dummies and time dummies are not reported.

Another problem with the measurement of public investment is that, in some cases, a large share of income of political elites that shapes the calculation of political actors is not generated from investment in public sectors. To address this issue, in Model 12, we exclude countries whose economy is heavily reliant on oil export. Oil is one of the most important resources that generate revenues for the regime. Moreover, some scholars have argued that oil-rich authoritarian regimes are less likely to collapse in economic crises (Smith 2006). Exclusion of these countries helps to avoid bias. The analysis of both Model 11 and Model 12 confirm the positive moderating effect of the economic engagement of the state In this study, we have addressed potential endogeneity issue in a variety of ways. First, the transition model we use conditions the analysis of the current value of democracy on its previous value and thus captures the dynamic process of the relationship between the dependent variable and its covariates over time. Second, all independent variables, including state engagement and its interaction with economic development, are lagged for one year. Nevertheless, there is a potential issue of endogeneity between state engagement and economic crises as economic crises often drive countries to intervene in the economy. To further address this issue, we conduct an analysis, in Model 13, for country-year cases before 1990. We do so because the value of state engagement does not change much for countries during the period 1970-1990. This corresponds to the historical fact that most countries started their market liberalization in late 1980s and early 1990s. While, theoretically, state engagement might be endogenous to both economic crises and political democracy, the change in either economic situations or political conditions has not yet caused significant changes in the level of state engagement during 1970 — 1990. The analysis, again, indicates the robustness of our findings revealed in other models. As argued above, we chose a dynamic probit model because it fits with our theory. To show the robustness of our findings, however, in Model 14 and Model 15, we conduct analysis using a regular panel method, a fixed-effects model. A Fixed-effects model also is useful to control for the country-specific effect without losing too many cases. The analysis of both models lends further support to the findings of the transition model. Again,

however, the findings revealed by the fixed-effects model are not directly relevant to our theory since it does not estimate the transition from an autocratic regime to a democratic one but, rather, the change from one level of democracy (or autocracy) to another level.