

# All in the Family: Why Non-Democratic Leaders Have More Children

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## Abstract

Economists have come to learn that politics matters. But survival matters the most to those involved in politics. We provide a theory whereby non-benevolent non-democratic leaders increase their expected family size to raise the likelihood that a child will be a match at continuing the regime's survival. As a consequence, having a larger family size raises the non-democratic leader's expected rents that they can exploit from the citizenry. In contrast, democratic leaders have a lower desire to appropriate rents from the citizenry, and therefore have a diminished desire to have additional children for these purposes. We construct a data set of the number of children of country leaders as of August 31<sup>st</sup>, 2005. We find that in a sample of 221 country leaders, fully non-democratic leaders have approximately 1.5 to 2.5 more actual children as compared to if they are fully democratic. This empirical relationship is established controlling for full array of country specific as well as individual specific variables. Our finding also continues to hold when using alternative measures of family size.

**JEL Codes:** D72, H1, J13.

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\*This paper has been prepared for a conference honoring Herschel I. Grossman at Brown University in April of 2006. The opinions expressed are those of the authors and do not necessarily reflect views of the Federal Reserve Board or the Federal Reserve System. Address correspondence to Gregory D. Hess, Department of Economics, Claremont McKenna College, 500 E. Ninth St., Bauer Center, Claremont, CA 91711. Tel: (909) 607-3686, Fax: (909) 621-8249. E-mail: ghess@mckenna.edu

# 1 Introduction

Economists have come to learn that political institutions matter for understanding long run patterns of economic development – e.g., see North (1990), Acemoglu and Robinson (2006) and Herschel Grossman’s countless number of contributions. What matters most for political leaders, however, is survival – e.g., see Bueno de Mesquita, *et al* (2003). As such, we believe that economists who care about a country’s nature of governance, should also be interested in the transmission mechanisms of that governance from one generation to the next.

While the question of ‘who governs?’ goes to the heart of the difference between democratic and non-democratic rule, ‘who governs next?’ is no less a distinguishing query. Typically, transitions of power in mature democracies take place at regular intervals, where timing and tenure limits are determined in the law. For non-democratic countries, however, transitions are more problematic and irregular, as there are fewer formal mechanisms for a smooth succession of power.<sup>1</sup>

The premise of our paper is that the transmission mechanism which answers ‘who governs next?’ is different for non-democracies as compared to democracies. In other words, non-democratic leaders face succession risk that is different from the succession risk faced by democratic leaders.<sup>2</sup> For democratic leaders, competency and the partisan nature of policy combine to help determine a leader’s perceived performance (e.g., see Blomberg and Hess (2003)), which in turn affects whether he or she is returned to office. For non-democratic leaders, as demonstrated throughout Bueno de Mesquita (2003), broader performance indicators are not the main criteria for determining the survival duration of non-democratic leaders. However, at some point they become unable or

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<sup>1</sup>Indeed, while monarchies may have formal succession mechanisms, history has shown time and again that transitions of power even in monarchies are often turbulent events.

<sup>2</sup>Indeed, Bueno de Mesquita, *et al* (1999) report that for the past 200 years, the average duration of office holding by an autocrat is almost 21 years, while for democratic leaders it is under 6 years. See Bueno de Mesquita, *et al* (2003) for a broader analysis of the issues of regime type and the survival of leaders.

unwilling to continue their reign and must transfer power to a successor. A successful transfer will ensure the continued success of the regime and secure the succeeded leader future rents. An unsuccessful transfer could jeopardize the regime and/or the succeeded leader's enjoyment of future rents.

The question then becomes how can a leader help to arrange the survival of the regime into the next generation? Generally speaking, when agents face risk for which there is no market solution, they may enter into what are typically referred to as non-market arrangements. Such arrangements are used to complete or to substitute for market based insurance schemes. We argue that as there is clearly no market for leaders to ameliorate succession risk, it is optimal for them to seek some such non-market arrangement.

Implicit in these non-market arrangements is the assumption that somehow the agents involved find it optimal to adhere to their promises, which are normally made *ex-ante*. However it is possible that such promises are reneged on after the fact, or that the presence of such transfers may induce moral hazard type problems, leading to the failure of such arrangements. Arnott and Stiglitz (1991) suggest 'peer monitoring' as one mechanism through which agency problems among co-insuring agents can be mitigated. Chami and Fischer (1996) show that trust may preclude the need for costly monitoring, as trust does away with the gains from such types of externalities. In the case of a non-democratic leader facing succession risk, trust is important in the sense that they can help reduce the agency problem, and preclude costly negotiations or the need for monitoring once succession has taken place. Thus, the question is, how can one find a trustworthy succession match?

Trust and caring are not standard commodities for leaders, particularly non-democratic ones. However, familial relationships are naturally imbued with them. Thus, having more children,

despite its costs, would go a long way to finding that person who can successfully maintain the regime and the expropriation of rents, and with whom the enforcement of ex-ante promises is less problematic. Note that this motive for choosing an heir is not altruistically motivated; rather it is purely non-benevolent. That is, the motivation is based on the presumption that the child with the closest match to the parent would ensure the continued survival of the regime. In turn, this would allow the current non-democratic leader to increase his or her expected expropriation of rents. Ultimately for non-democratic leaders, survival politics is necessarily linked to family politics even for purely non-benevolent reasons.

In contrast, democratic leaders are different from non-democratic leaders, particularly with respect to the non-benevolent approach to regime survival. The key to our framework is that we posit that non-democratic leaders are more selfish than democratic ones. That is, non-democratic leaders can be characterized as systematically more selfish in that they will choose to transfer more resources away from the citizenry towards rents that they, or their selectorate, can enjoy. And while democratic leaders may not be perfectly selfless, the checks and balances inherent in democracies plus the size of the selectorate arbitrage away a leader's ability to enjoy rent seeking.<sup>3</sup> Consequently, since democratic leaders are less interested than non-democratic leaders in appropriating rents, they will have a reduced desire for progeny to extend their reach for this purpose. That is not to say that democratic leaders do not attempt to influence policy even after they have left office – see Persson and Svensson (1989) and Alesina and Tabellini (1990). The important issue is that while all leaders have a common desire to have children, non-democratic leaders have a heightened non-benevolent

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<sup>3</sup>See the recent paper by Fisman, Galef and Khuran (2005) where they provides evidence that firms with connections to Vice President of the United States Dick Cheney did not receive excess returns. In contrast, they point to work in a number of other less democratic countries, where connections do lead to clear market responses – see Fisman (2001) and Faccio (2006). Indeed, our approach is similar to the approach in Hess and Orphanides (2001), whereby non-democratic governments place more weight on their ability to appropriate resources as compared to improving the welfare of the citizenry. Furthermore, Acemoglu and Robinson (2006) indicate that “Stated simply and extremely, nondemocracy is generally a regime for the elite and the privileged; comparatively, democracy is a regime more beneficial to the majority of the populace, resulting in policies more favorable to the majority (p. 18).”

motive such that having more children increases their ability to sustain the regime and exploit more rents.

The outline of the paper is as follows. In section 2 we present a theory whereby non-benevolent leaders choose their rent appropriate plans as well as their family size, and we empirically analyze the predictions in Section 3. More specifically, in sub-section 3.1 we describe the data used in this study, and in sub-section 3.2 we test whether non-democratic leaders have more children. We conclude in Section 4 some additional issues that might affect our results on self-employment status and family size.

## 2 Theory

To better understand the transition mechanism through which a leader seeks to extend his ability to seek rent through a successful succession, we consider a model of a leader's decision to have children and seek rent from their citizenry. In particular, we consider a theory based on a leader's non-benevolent desire for his or her children.<sup>4</sup> To keep the model simple, we assume a two period model where a leader fully holds power in the first period but cannot fully hold power in the second period.<sup>5</sup> In the second period, a new leader decides how much to seek rent from the citizenry and may pay a fee to the first period leader if it is incentive compatible to do so. The world ends after the second period so that that second period leader does not have a child choice.

In the first period, the leader receives welfare from three distinct channels: first, from the

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<sup>4</sup> As in Broussard, Chami and Hess (2006), the assumption of non-benevolence is made for simplicity. The model's main prediction, can also be shown to work with a standard model that also includes a leader's benevolence towards his or her children. See Bernheim, Shleifer and Summers (1985) for alternative issues in strategic bequests to one's children.

<sup>5</sup> Nominally the first period leader could be in power in the second period, but they are not able to monopolize the rents exploited from the citizenry in the second period. As will be seen below, the leader may be able to share in the rent exploitation in the second period if he or she can find a successor.

simple welfare of having children,  $\nu(n)$ , where  $n$  is the number of children. We presume that the net-benefit from having children is subject to diminishing and even negative marginal net benefit.<sup>6</sup> Second, the leader receives a benefit from the utility of the citizenry,  $U(C - x_1)$ , where  $U(\cdot)$  is a standard utility function with  $U'(\cdot) > 0$  and  $U''(\cdot) < 0$ ,  $C$  is the constant per-period consumption endowment that the citizen receives, and  $x_1$  is the amount of the citizens per-capita bundle of consumption that is eaten away by the leader's first period rent-seeking. To keep things simple we assume that the population of the citizenry is fixed at 1. Finally, the leader enjoys a linear utility benefit from rents in period 1,  $\rho x_1$ , where  $\rho \geq 0$ . Taken together, the leader's first period welfare is:

$$\max_{\{n, x_1\}} \nu(n) + U(C - x_1) + \rho x_1 \quad (1)$$

The key to this framework is that some leaders can be characterized as behaving systematically more selfish, that is with a higher value of  $\rho$  as compared to others. Leaders that are more selfish will, for instance, be shown to transfer resources away from the citizenry towards rents that they can enjoy. As argued above, we take non-democratic leaders to be more selfish and hence less interested in maximizing the utility of the citizenry.

In the second period, the first period leader can no longer monopolize power and hence must try to find a 'good match' to run the country in the second period. We define a 'good match' for succession to be in consideration of all attributes of a potential period 2 leader that have the effect of making succession by the period 2 leader more desirable to the period 1 leader.<sup>7</sup> This includes a similar valuation of a country's resources and a similar desire to exploit those resources,

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<sup>6</sup> $\nu(n)$  allows for some heterogeneity in the desired number of children, where it has the properties that  $\nu(n) > 0$  for  $n < n^*$  and  $\nu(n) < 0$  for  $n > n^*$  where  $n^*$  is the net-benefit bliss point for the number of children assuming that an individual is either not a leader or perfectly selfless.

<sup>7</sup>We further define a 'matched successor' to be one who is a match for succession in the second period.

trustworthiness and perceived likelihood of keeping *ex ante* promises, penchant for passing on rents to past leaders, effectiveness, etc. However, finding a ‘good match’ from the general population of the citizenry is unlikely to be easy. One reason could be that an outsider is unlikely to have a good idea of the value of the leader’s ability to exploit the citizenry. For instance, an outsider may not know the extent of an uprising or insurgency that the current leader may know about. Or an outsider may not know the value of mineral and oil potential that would be available to exploit. Nor will the leader be as likely to trust that an outsider will fulfill his or her part of the bargain. Of course, an inside family member may also not see the true value of the country’s leadership in exploiting the citizenry, unless of course they are a good match.

To capture this phenomenon, assume that with probability  $1 - p$  the first period leader does not find an insider or outsider as a good match for succession. Hence, if the first period leader cannot find a successor he is cast into the bottomless well of the citizenry where he receives  $U(C - x_2)$  in period 2 where  $x_2$  is the amount of per-capita rents that are exploited by the new period 2 leader. In the case of no match, the new leader is assumed to be chosen at random such that he has no ties to the prior regime, though he does share the same degree of selfishness,  $\rho$ .

Alternatively, with probability  $p$  the leader may find an insider or an outsider who has the skills needed to be a matched successor. We assume that the first period leader passes the torch of leadership to one individual and that these two linked leaders share the surplus.<sup>8</sup> To keep matters simple, we assume that a matched successor transfers a fixed amount  $\epsilon$  of rent to the first period leader.<sup>9</sup> Hence in the second period, the first period leader receives  $U(C - x_2)$  if he does not find a match, and  $U(C - x_2) + \rho\epsilon$  if he does.

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<sup>8</sup>Competition between potential successors is not problematic to the leader, and may perhaps be a reasonable sorting mechanism if ruthlessness and cunning are the relevant characteristics that a non-democratic leader seeks.

<sup>9</sup>Note that both the leader and the successor are both better off by the hand off of the regime’s leadership for payment.

The key to the model is that the probability of finding a good match,  $p$ , may be affected by family size.<sup>10</sup> Consider the following components that go into the probability of a leader finding a match. Let  $\gamma_0$ ,  $0 \leq \gamma_0 \leq 1$ , be the probability that the first period leader is approached by an outsider who is a good match. Furthermore, let  $\gamma_1$ ,  $0 \leq \gamma_1 \leq 1$ , be the per-child probability that a leader's progeny is a good match to run the country. For example, if a leader has no children, his chance of finding a match is  $\gamma_0$ . If he has one child it is  $1 - (1 - \gamma_0) \cdot (1 - \gamma_1)$ . With two children, the probability of a match is  $1 - (1 - \gamma_0) \cdot (1 - \gamma_1)^2$ . More generally, for 'n' number of children, the probability of finding a match is:

$$p(n) = 1 - (1 - \gamma_0) \cdot (1 - \gamma_1)^n$$

Note that  $p(n)$  is increasing in  $\gamma_0$ ,  $\gamma_1$ , and  $n$ , where  $p'(n) = -(1 - \gamma_0) \cdot (1 - \gamma_1)^n \cdot \log(1 - \gamma_1) \geq 0$ , where the equation holds with equality only if  $\gamma_1 = 0$  or  $\gamma_0 = 1$ .<sup>11</sup> Note that if  $\gamma_1 = 0$ , then the probability of a match is constant and independent of  $n$ .

Taken together, the two period problem that the 1st period leader faces is:

$$\max_{\{n, x_1\}} \nu(n) + U(C - x_1) + \rho x_1 + \beta \{p(n)U(C - x_2) + (1 - p(n))(U(C - x_2) + \rho\epsilon)\} \quad (2)$$

where  $\beta < 1$  is the discount factor. Note the implicit assumption in this formulation is that expropriated rents cannot be saved across periods.

In the second period, the leader faces a simpler problem because the world ends after the second period. If the second period leader is a 'matched successor' with the first period leader, then

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<sup>10</sup>Our approach contrasts with that of Grossman and Noh (1994), where the leader's survival probability depends endogenously on the leader's fiscal policies which impact his ability to gather rents. In our model, the leader's ability to extend his reign through a successor is not affected by the amount he or she appropriates.

<sup>11</sup>Note that:  $dp(n)/d\gamma_1 = +(1 - \gamma_0) \cdot n \cdot (1 - \gamma_1)^{n-1} > 0$ .



the leader must choose how much to exploit the citizens in the second period while transferring  $\epsilon$  amount of rent to the first period leader.<sup>12</sup> Namely, he chooses to maximize:

$$\max_{\{x_2\}} U(C - x_2) + \rho(x_2 - \epsilon) \quad (3)$$

If he is not a ‘matched successor’, he need not transfer anything to the first period leader so that he simply solves:

$$\max_{\{x_2\}} U(C - x_2) + \rho x_2. \quad (4)$$

To solve this problem, we first consider the second leader’s problem as shown in expressions (3) and (4). For both the cases of a ‘matched’ and ‘unmatched’ successor, the optimal choice of  $x_2$  satisfies:

$$U'(C - x_2^*) = \rho \quad (5)$$

Hence, for both the matched and unmatched scenarios, the second period leader equates the marginal utility of the citizenry with the marginal utility of expropriated resources.<sup>13</sup> The solution to the optimal level of  $x_2$  is denoted with  $x_2^*$ . Note that as  $\rho$  rises and the leader becomes more selfish (i.e. places a relatively lower weight on the citizen’s welfare), the level of rent seeking rises: namely,  $\partial x_2^*/\partial \rho = -U''(C - x_2^*)^{-1} > 0$ . Plugging the solution for  $x_2^*$  into the first period leader’s objective function, expression (2), yields:

$$\max_{\{n, x_1\}} \nu(n) + U(C - x_1) + \rho x_1 + \beta \{U(C - x_2^*) + p(n)\rho\epsilon\} \quad (6)$$

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<sup>12</sup>In order to facilitate the transfer of the government from one generation to the next, both the first period leader and the successful match are better off with the side payment. As such, it is incentive compatible for the successful match to make the payment and the first period leader to receive it and transfer power. We take the value of  $\epsilon$  to be fixed and positive.

<sup>13</sup>The simplicity of the result is due to assumptions made on the functional forms of the leader’s preferences. The result can also be demonstrated with more general functional forms.

The two optimality conditions are as follows.

$$U'(C - x_1^*) = \rho \tag{7}$$

$$\nu'(n^*) + p'(n^*)\rho\epsilon = 0 \tag{8}$$

Expression (7) is similar to (5), namely the first period leader also equates the marginal utility of the citizenry with the marginal utility of expropriated resources. Furthermore,  $x_1^*(\rho)$  has the property that  $x_1^* ' > 0$ .

More importantly, expression (8) indicates the optimal number of children for a given leader of selfishness type  $\rho$ . The first term,  $\nu'(n^*)$ , if equal to zero, is the optimality condition for the number of children for a leader who is selfless and only values the welfare of the citizenry. The second term is the one that is central to our argument. This term reflects the positive impact that having more children has on making a successful successor match. Note that if having more children does not help in matching, then  $\gamma_1 = 0$  and  $p'(n) = 0$ , so that the last term vanishes. This term would also vanish if a leader were not selfish,  $\rho = 0$ , or if a downstream leader were unable to payoff the upstream leader for helping to create a successful leadership transition,  $\epsilon = 0$ .

The key prediction that we want to empirically explore is that if having more children increases your ability to obtain a good match to extend your reign, then leaders who are more selfish will have more of them. In other words, if having more children makes it easier to find a successful match to exploit more rents, this will raise the desire to have more children.<sup>14</sup> Simply

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<sup>14</sup>Note that

$$p''(n) = -(1 - \gamma_0) \cdot (\log(1 - \gamma_1))^2 \cdot (1 - \gamma_1)^n < 0,$$

$$\partial p'(n)/\partial \gamma_1 = (1 - \gamma_0) \cdot (1 - \gamma_1)^{n-1} \cdot (1 - n \cdot \log(1 - \gamma_1)) > 0.$$

It is straightforward to show that the numerator and denominator are both positive, so that  $dn/d\gamma_1|_{\gamma_1=0} > 0$ . Critical to signing the effect is to note that  $\partial p'(n)/\partial \gamma_1 > 0$  for  $1 > \gamma_1 \geq 0$ .

put, as we assume that non-democratic leaders are more selfish than democratic ones, then *ceteris paribus* they should have more children.

### 3 Empirical Analysis

The theoretical model presented above provides a strong prediction: namely, that non-democratic leaders will have larger preferred family sizes. The mechanism at work here is that non-democratic leaders are more selfish than democratic ones, in that they place a higher weight on receiving resources as compared to valuing the welfare of the citizenry. As such, non-democratic leaders will have more children in order to raise the likelihood of extending their reign and hence their ability to appropriate resources. In the following sub-sections, we construct an original data set linking government leaders to family size or other economic variables.

#### 3.1 The Data

In this section, we begin by describing the data employed in the paper.<sup>15</sup> The leader-level data for this study came from three primary sources. The first two sources, *The International Who's Who* and *Marquis Who's Who*, are biographical reference books of famous men and women. The first focuses its interest on international personalities. The second evolved from *Who's Who in America*, but now includes biographies of men and women from the international community as well. The final source for the data is the online encyclopedia [www.wikipedia.org](http://www.wikipedia.org) (Wikipedia). As well as biographical information, Wikipedia provides external links such as official leader websites, official country websites, news websites, and monarchy genealogy websites, all from which much data was

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<sup>15</sup>In Appendix A, we provide a full presentation of the data observations in our sample.

obtained.<sup>16</sup>

The country-level data for this study are from The World Bank, Freedom House, and the CIA World Factbook. Freedom House is a non-profit, nonpartisan organization which promotes democracy and freedom. Its annual “Freedom in the World” country ratings are a general assessment of a country’s freedom of civil liberties and political freedoms which, in turn, are based largely on the Universal Declaration of Human Rights.

The key variable of interest in this study is the leader’s number of children. As such, our standard measure for this study is a leader’s total number of children, KIDS. Throughout we test our model using KIDS as our dependant variable. For thoroughness we also test our hypothesis using alternative measures of family size. The alternative measures are a leader’s total number of sons, SONS, a dummy for whether or not the leader has at least one son, ASON, and a leader’s total number of birth partners, BIRTHPARTNERS. We have KIDS data for 221 country leaders, and somewhat fewer data observations for SONS, ASON (145 observations) and BIRTHPARTNERS (185 observations).<sup>17</sup>

We use a number of variables to measure the extent of democracy in each country. Freedom House rates each country’s freedom of civil liberties and political freedoms on a scale of 1 to 7. For this study we have scaled these measures to between 0 and 1 with a score of 1 signifying a country that is the most free. This yields CIVLIBERTY and POLRIGHT, respectively. AVECIVPOL is

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<sup>16</sup>Wikipedia data is user-editable, and data from Wikipedia benefit from Wikipedia’s open format in terms of breadth and depth. However it is also subject to negative effects from Wikipedia’s open format such as possible vandalism or inaccuracies. While this fact may cause some concern, a recent study in *Nature* magazine, <http://www.nature.com/nature/journal/v440/n7084/full/440582b.html>, has found that Wikipedia’s articles are at least as accurate as conventional references. Furthermore, we have in all cases attempted to verify our data, and while inaccuracies due to Wikipedia may exist, we find it unlikely that inaccuracies would be systematic.

<sup>17</sup>There is, of course, the possibility that leaders have both official and unofficial children. Unfortunately, it is unlikely that this biases the results in our favor. Indeed, likely it further strengthens our findings. The reason is that a leader’s children are likely to be under-reported in non-democracies than in democracies. In other words, non-democratic leaders are likely to have more under-reported children than democratic ones. That is because democracies are associated with free presses, which enjoy revealing the extra marital exploits of their leaders.

the average of these two measures, and DEMOCRACY is a dummy variable which is assigned a 1 if a country's AVECIVPOL rating is greater than or equal to 0.75.

To control for additional personal attributes which may influence a leader's decision to produce children, we include a number of leader-specific variables. INLINE is a dummy variable which is assigned a 1 if a leader was in line to ascend to power. This does not necessarily mean the leader was first in line, but INLINE is inclusive of that set.<sup>18</sup>

We also have a set of leader specific characteristics that could potentially influence an individual's decision to have children. HEADOFSTATE is a dummy variable which received a 1 if a leader is the head of state, and zero otherwise. This variable is included to identify whether or not it matters if a leader is the head of state, the head of government, or both.<sup>19</sup> We've also included controls for associated demographic characteristics such as sex (MALE), age (AGE), marital status (NEVERMARRIED), and education (COLLEGE).<sup>20</sup> We estimate education based on a leader's credentials and/or any source's mention of the leader's time spent in school. COLLEGE is a dummy variable which is assigned a 1 if there is evidence of any education beyond high school.

We have included additional explanatory variables to control for observable country-level factors. The intuition behind their inclusion is that they may be good proxies to measure how a country's culture might affect a leader's decision to produce children. For example, a country's overall fertility rate, FERTILITY, may reflect the social norms regarding child production in a given country, which may be reflected in the actions of that country's leader(s). CHRISTIAN and

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<sup>18</sup>INLINE is only assigned a 1 if specific mention of or evidence conclusive of this was discovered. It is possible therefore that some leader's who were in line but went unidentified. In the case of Azerbaijan, we recorded Ilham Aliev as in line even though he was not officially in line as he was democratically elected. We argue that effectively he was in line as he succeeded his father, Heidar Aliev, and the elections are widely thought to have been rigged. Note that removing Azerbaijan from the sample does not affect the results presented below.

<sup>19</sup>Note that a leader could be the head of state but not the head of government, or they could be both.

<sup>20</sup>We use NEVERMARRIED, a dummy assigned a 1 if a leader has never been married, in our study. We have similarly broken marital status down by whether or not a leader has been married, divorced, or widowed. Including NEVERMARRIED, holding the others constant, yields the only significant results.

MUSLIM measure the proportion, as reported by the CIA World Factbook, of a country identifying as Christian and Muslim, respectively. LLOW is a dummy signifying whether a country is in one of the lowest two income echelons as defined by the World Bank. We use the World Bank's income echelons because this data is available for a larger set of countries than is income data.<sup>21</sup>

Table 1 provides sample statistics for our key variables. The first column lists variable names, while columns two through eight report summary statistics. As reported in the table, a leader in our sample has on average 3.4 children and 1.8 sons, the most children a leader has is 39 and the most sons is 21. The average age of a leader in our sample is 61. Approximately 2 percent of leader's have never been married, 98 percent have at least some post-high school education, and 15 percent were in line to ascend to power. For a country in our sample the average civil liberties and political rights score is 0.61 (out of 1, 1 being the most free), the average fertility rate is equal to 3.06 births per woman, and 58 percent are in the lowest two of the World Bank's income echelons. The final column of Table 1 reports the correlation coefficient between the variable in the first column and KIDS. These coefficients reveal a number of interesting relationships between the variables of interest. As hypothesized KIDS is negatively correlated with all measures of freedom. It is also positively correlated with INLINE and FERTILITY, which indicates that these will be important control variables in our regression results below.

### 3.2 Empirical Results

In this section we provide a broader test of the proposition that a leader's family size is related to his or her country's form of governance. To get a picture of the key data in the paper, Figure 1

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<sup>21</sup> We use LLOW, but have also considered each of the World Bank's income echelons as separate explanatory variables. As well, we also considered regional dummy variables, but these also were not independently significant after the inclusion of the other mentioned explanatory factors.

presents the probability distribution of children for two important sub-groups: the lighter, wider bars indicate the distribution of children for democratic leaders where DEMOCRACY equals 1. In contrast, the darker narrower bars indicate the distribution of children for non-democratic leaders (i.e., DEMOCRACY equals 0). Clearly the distributions of children differ. For democracies, the distributions is centered on 2 children with 3 children being next in popularity. For non-democracies, the distribution is to the right of that for democracies, with relatively larger mass on four children and a fair number of observations that are larger than the largest one (seven) for democratic leaders. Tests that the means of these distributions are statistically different are presented in the Table 2 below.

Of course, other factors should be accounted for when trying to understand the heterogeneity in individual's observed number of children. Our baseline specification is:

$$N_i = \beta_0 + \beta_1 \cdot DEMOCRACY_i + \beta_2 \cdot INLINE_i + \beta_3 \cdot X_i + \epsilon_i \quad (9)$$

where  $N_i$  is the  $i^{th}$  leader number of children,  $DEMOCRACY_i$  is a measure of country governance,  $INLINE_i$  is a measure indicating whether the  $i^{th}$  leader had been in line for succession, and  $X_i$  represents a number of leader specific and country specific control variables that may be independent explanatory factors of a leader's number of children. According to the prediction of the theory outlined above, leaders of countries with higher levels of democracy should have fewer children. Note that since the number of children is truncated at zero, the estimates below are obtained using a Tobit procedure.<sup>22</sup>

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<sup>22</sup>The results shown are with robust standard errors, and the findings are very similar to those from linear regressions. Moreover, we tried a number of alternative variables in other specifications but did not include them in the paper to avoid clutter: these are region and Summers and Heston measures of per-capita GDP.

The baseline estimates of expression (9) are presented in Table 2. In this table, we explore the relationship between family size and alternative measures of governance. In sum, the results indicate broad support for our prediction that more democratic countries have fewer children. For example, in columns (1) and (2) we use CIVLIBERTY and POLRIGHTS as separate explanatory variables, and both estimates are negative and significant at or below the 5 percent level. In terms of magnitude, moving from CIVLIBERTY (POLRIGHTS) equal to zero to equal to one leads to a decline of 2.6 (2.1) children. Hence the effect of democracy on the number of children that a leader has is both statistically and economically significant. In column (3), both measures are simultaneously included but neither is individually significant, indicating a multicollinearity between the two governance measures.<sup>23</sup> In columns (4) and (5) we experiment with combinations of these two governance measures, namely AVECIVPOL and DEMOCRACY. Again, both sets of regression results indicate that more democracy is associated with leaders having smaller family size. However, while the coefficient on DEMOCRACY is smaller, indicating that democratic leaders have approximately 1.4 fewer children than non-democratic leaders, the coefficient is significantly different from zero at or below the .01 level.

In columns (6) through (9) of Table 2 we expand our findings to also investigate the effect of a leader being *INLINE* for succession on his or her desired family size. In column (6) we include just *INLINE* as an explanatory variable, while in columns (7) through (10) we also sequentially include the following measures of democracy: CIVLIBERTY, AVECIVPOL, and DEMOCRACY.<sup>24</sup> In these regression results, having been *INLINE* leads to a leader having over 2.6 more children than otherwise. As well, the inclusion of this variable has only a slight effect on the estimated coefficients on the governance variables. Generally speaking, the estimates on the governance

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<sup>23</sup>The p-value that both coefficients are jointly equal to zero is .0409.

<sup>24</sup>The exclusion of POLRIGHTS is merely to reduce the clutter of columns in the tables.



measures are slightly lower when we include INLINE in the regressions, though the pattern of statistical significance is little changed. Note that the row labelled ‘p-value’ at the bottom of the table is from the test that the coefficients on the governance variable and INLINE are both equal to zero.

Finally, the results in the last 3 columns of Table 2 explore an important sub-set of the data to demonstrate the robustness of our findings. Namely, we re-estimate these earlier specifications and omit from the sample all leaders with 20 or more children. As the table indicates, this reduces the sample from 221 to 217 observations. As the results indicate our prediction continues to hold that non-democratic leaders have more children than democratic ones. However, the coefficient on INLINE is no longer significantly different than zero, and the estimated value of the coefficient on the governance measures has been reduced

In Table 3 we begin to include some additional explanatory variables into our estimation of expression 9. To keep matters easy, we only present the evidence for the variable DEMOCRACY as the measure of governance.<sup>25</sup> In particular, we include leader specific demographics characteristics to control for factors that could explain a leader’s desire to have children. Column (1) provides estimates where we include whether the leader is the head of state, while columns (2) through (5) include measures of the leader’s gender (MALE), age (AGE and AGE<sup>2</sup>), education (COLLEGE) and marital status (NEVERMARRIED), respectively. In column (6), all the variables are included simultaneously. There are 2 key findings from these empirical specifications. First, the estimated coefficients on DEMOCRACY and INLINE remain at about  $-1.2$  and  $3.0$ , respectively, across all of these 5 columns. Moreover, the estimates are significantly different from zero at or below the .05 level and the signs of the coefficients are consistent with the theory. In other words, the main

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<sup>25</sup>Note that the results are similar if we use other measures such as CIVLIBERTY, POLRIGHT, or AVECIVPOL.

prediction of the model holds with the inclusion of standard measures of leader characteristics. Second, the only demographic variables that have coefficients that are significantly different from zero are MALE and NEVERMARRIED. *Ceteris paribus*, a male leader has about 1.5 more children as compared to a female leader, and those that have never been married have approximately 5 fewer children. Again, these coefficient estimates are both statistically and economically significant. In the final column of Table 3, we again exclude from the sample those rulers who have more than 20 children. Note that by removing these observations, the coefficient estimates fall by about one-half, though they still remain statistically significant at below the .05 level. Moreover, the age characteristics of the leader's fertility follow a more significant life-cycle pattern.

Table 4 provides a further array of results that demonstrate the robustness of our findings when additional country-specific controls are included in the regressions. In addition, the results in the table also examine alternative measures of family size that could be relevant to a leader's fertility/succession decision. Starting with the former, columns (1) through (4) present our empirical findings when our specification for a leader's number of children includes the leader's individual variables presented in Table 3 as well as the following national variables: namely, whether the country is in the bottom two quartiles in terms of development (LLOW), the country's fertility rate (FERTILITY), and the fraction of the population that is Muslim (MUSLIM) or Christian (CHRISTIAN). These country-specific variables are sequentially included in estimation results presented in columns (1) through (3), and they are simultaneously included in the results in column (4). Interestingly, neither the religion variables or the income variable are statistically significant; however, the variable on fertility is significant at below the .01 level in column (4). In other words, a country's fertility rate is a significant predictor of its leader's number of children, likely because fertility rates are good summary statistics for income and cultural factors that influence an indi-

vidual's fertility decision.<sup>26</sup> Overall, the estimation results in column (4) demonstrate our base findings: being in-line for succession raises a leader's number of children by over three, while moving from fully democratic to fully non-democratic increases his/her children by around 1.3. As the p-values also indicate, the governance measures are jointly significant at or below the .1 level in all circumstances. Moreover, leaders that are male, who are married and who come from country's with high fertility rates, in turn have more children. The results in column (5) also demonstrate these findings with leaders who have fewer than 20 children. Again, while the magnitude of the coefficients tend to be reduced, the pattern of statistical significance is intact.

The results in the final three columns of Table 4 are based on exploring the robustness of our findings to alternative measures of family size. That is, we consider as dependent variables the likelihood that the leader has a son (PR(SON)), the number of sons that a leader has (SONS) as well as the number of birth partners (BIRTH PARTNERS).<sup>27</sup> Again, according to our prediction, the more non-democratic succession-based a leader is, the more likely that he or she is to have at least one son, or more sons, or more birth partners in order to improve the chance of creating a successor. As indicated by the demonstrated empirical results in columns (6) through (8), in all three cases non-democratic governance and the designation of being 'in-line' for succession are positive influences on the number and probability of having sons, and the number of birth partners. For instance, all other things constant, moving from fully non-democratic governance to fully democratic governance reduces the number of birth partners by .5., while being INLINE increase the number of birth partners by .7. Overall then, the results appear to be robust across a number of controls variables as well as to alternative measures of family size.

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<sup>26</sup>Again, as pointed to in footnote 21 other measures of income do not affect the results presented in this Table.

<sup>27</sup>The results in column (6) were obtained from a Probit estimation with robust standard errors. The results in columns (7) and (8) were, like the earlier results, were obtained using a Tobit procedure with robust standard errors.

## 4 Conclusion

Politics matters for economics, and political survival matters for politics. This paper has pointed to a potential transmission mechanism for political survival, namely children, that distinguishes non-democracies from democracies. Our theory is based on the view that non-democratic leaders are more selfish than democratic leaders, that is interested in exploiting rents rather than maximizing the welfare of citizens, and for non-benevolent reasons they have more children in order to raise the level of rents that they can appropriate. Our empirical work, using cross-sectional evidence from 2005, demonstrates that non-democratic leaders and those in line for succession have significantly more children.

As a consequence of the leader behavior we derive from our model, non-democratic leaders can extend the duration of their regime. This is consistent with the empirical work in Bueno de Mesquita, *et al* (2003) that demonstrates that over the past two hundred plus years non-democratic regimes last longer than democratic ones. However, while having children is a mechanism for accomplishing this increased duration, we have not provided direct evidence that children are the empirical mechanism by which non-democratic leaders stay in power. To demonstrate this would involve a great deal of historical data gathering on leader characteristics, children, etc. for a broad number of countries, which we leave to our future research.

**Table 1: Sample Statistics**

|               | (1)   | (2)     | (3)   | (4)    | (5)    | (6)    | (7)   | (8)        |
|---------------|-------|---------|-------|--------|--------|--------|-------|------------|
|               | Mean  | STD ERR | MIN   | FRAC25 | FRAC50 | FRAC75 | MAX   | CORR(KIDS) |
| KIDS          | 3.41  | 3.57    | 0.00  | 2.00   | 3.00   | 4.00   | 39.00 |            |
| CIVLIBERTY    | 0.63  | 0.31    | 0.00  | 0.33   | 0.67   | 1.00   | 1.00  | -.22*      |
| POLRIGHT      | 0.60  | 0.37    | 0.00  | 0.17   | 0.67   | 1.00   | 1.00  | -.21*      |
| AVECIVPOL     | 0.61  | 0.33    | 0.00  | 0.25   | 0.67   | 1.00   | 1.00  | -.22*      |
| DEMOCRACY     | 0.46  | 0.50    | 0.00  | 0.00   | 0.00   | 1.00   | 1.00  | -.19*      |
| INLINE        | 0.15  | 0.36    | 0.00  | 0.00   | 0.00   | 0.00   | 1.00  | .30*       |
| LLOW          | 0.58  | 0.49    | 0.00  | 0.00   | 1.00   | 1.00   | 1.00  | .01        |
| FERTILITY     | 3.06  | 1.66    | 1.10  | 1.71   | 2.48   | 4.30   | 7.58  | .19*       |
| HEADOFSTATE   | 0.58  | 0.49    | 0.00  | 0.00   | 1.00   | 1.00   | 1.00  | .05        |
| MALE          | 0.94  | 0.23    | 0.00  | 1.00   | 1.00   | 1.00   | 1.00  | .09        |
| AGE           | 60.71 | 10.33   | 37.00 | 53.00  | 60.00  | 68.00  | 93.00 | .11        |
| COLLEGE       | 0.98  | 0.14    | 0.00  | 1.00   | 1.00   | 1.00   | 1.00  | -.02       |
| NEVERMARRIED  | 0.02  | 0.13    | 0.00  | 0.00   | 0.00   | 0.00   | 1.00  | -.10       |
| SONS          | 1.79  | 2.15    | 0.00  | 1.00   | 1.00   | 2.00   | 21.00 | .91*       |
| ASON          | 0.79  | 0.41    | 0.00  | 1.00   | 1.00   | 1.00   | 1.00  | .23*       |
| BIRTHPARTNERS | 1.20  | 1.16    | 0.00  | 1.00   | 1.00   | 1.00   | 13.00 | .88*       |

Note: The data sample size is 221, except for the gender of children which is 147 observations, and the number of birth partners which is 185. See Data Section 3.1 and the Data Appendix for data descriptions. Each row presents the summary statistics for a particular variable of interest. Columns (1) and (2) report the means and standard deviations of the data. Columns (3) – (7) report the minimum, 25<sup>th</sup>, 50<sup>th</sup> and 75<sup>th</sup> percentiles, and maximum values, respectively. The final column lists the correlation of KIDS with the variables listed in each row. \* indicates that the relationship is different from zero at or below the .1 level of statistical significance.

$$N_i = \beta_0 + \beta_1 \cdot DEMOCRACY_i + \beta_2 \cdot INLINE_i + \beta_3 \cdot X_i + \epsilon_i$$

**Table 2: Baseline Regression Results**

|             | (1)                 | (2)                 | (3)                 | (4)                 | (5)                  | (6)                 | (7)                 | (8)                  | (9)                  | (10)                | (11)                | (12)                |
|-------------|---------------------|---------------------|---------------------|---------------------|----------------------|---------------------|---------------------|----------------------|----------------------|---------------------|---------------------|---------------------|
| CONS        | 5.125***<br>[0.937] | 4.742***<br>[0.734] | 5.115***<br>[1.110] | 4.957***<br>[0.830] | 4.035***<br>[0.456]  | 2.904***<br>[0.119] | 4.508***<br>[0.654] | 4.333***<br>[0.557]  | 3.563***<br>[0.250]  | 3.601***<br>[0.392] | 3.599***<br>[0.366] | 3.277***<br>[0.180] |
| CIV-LIBERTY | -2.633**<br>[1.100] |                     | -2.520<br>[4.696]   |                     |                      |                     | -2.312**<br>[0.926] |                      |                      | -0.960*<br>[0.518]  |                     |                     |
| POL-RIGHT   |                     | -2.131**<br>[0.847] | -0.102<br>[3.806]   |                     |                      |                     |                     |                      |                      |                     |                     |                     |
| AVE-CIVPOL  |                     |                     |                     | -2.421**<br>[0.961] |                      |                     |                     | -2.083***<br>[0.789] |                      |                     | -0.968**<br>[0.487] |                     |
| DEMO-CRACY  |                     |                     |                     |                     | -1.357***<br>[0.497] |                     |                     |                      | -1.254***<br>[0.435] |                     |                     | -0.650**<br>[0.254] |
| INLINE      |                     |                     |                     |                     |                      | 2.878**<br>[1.386]  | 2.671**<br>[1.286]  | 2.657**<br>[1.295]   | 2.782**<br>[1.332]   | 0.686<br>[0.599]    | 0.67<br>[0.593]     | 0.714<br>[0.608]    |
| OBS         | 221                 | 221                 | 221                 | 221                 | 221                  | 221                 | 221                 | 221                  | 221                  | 217                 | 217                 | 217                 |
| P-VALUE:    |                     |                     |                     |                     |                      |                     | 0.042               | 0.029                | 0.015                | 0.174               | 0.138               | 0.037               |

Note: See Table 1. See Data Section 3.1 and the Data Appendix for data descriptions. The estimates reported in this table were obtained from Tobit estimation with robust standard errors. \*, \*\* and \*\*\* indicate statistical significance at or below the .1, .05 and .01 levels, respectively. The dependent variable is measured as the leader's total number of children. The estimation results are for the full sample size, except for the results in columns (10) – (12) where we exclude observations where the number of children is greater than or equal to 20. P-value refers to the joint test that the coefficients on the measure of DEMOCRACY and INLINE are both equal to zero.

$$N_i = \beta_0 + \beta_1 \cdot DEMOCRACY_i + \beta_2 \cdot INLINE_i + \beta_3 \cdot X_i + \epsilon_i$$

**Table 3: Regression Results with Leader Explanatory Variables**

|                  | (1)                  | (2)                  | (3)                  | (4)                  | (5)                  | (6)                  | (7)                  |
|------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| CONSTANT         | 3.726***<br>[0.379]  | 2.137***<br>[0.458]  | 8.58<br>[9.313]      | 4.058***<br>[1.557]  | 3.574***<br>[0.251]  | 4.657<br>[9.008]     | -5.381<br>[3.653]    |
| DEMOCRACY        | -1.277***<br>[0.440] | -1.192***<br>[0.422] | -1.297***<br>[0.442] | -1.230***<br>[0.450] | -1.213***<br>[0.427] | -1.191***<br>[0.448] | -0.686***<br>[0.240] |
| INLINE           | 2.842**<br>[1.346]   | 2.841**<br>[1.340]   | 2.536**<br>[1.172]   | 2.743*<br>[1.403]    | 3.208**<br>[1.385]   | 3.288**<br>[1.376]   | 1.625**<br>[0.682]   |
| HEADOFSTATE      | -0.242<br>[0.398]    |                      |                      |                      |                      | -0.238<br>[0.307]    | -0.135<br>[0.219]    |
| MALE             |                      | 1.472***<br>[0.524]  |                      |                      | 1.627***<br>[0.592]  | 1.627***<br>[0.592]  | 1.183***<br>[0.408]  |
| AGE              |                      |                      | -0.207<br>[0.300]    |                      |                      | -0.087<br>[0.291]    | 0.266**<br>[0.112]   |
| AGE <sup>2</sup> |                      |                      | 0.201<br>[0.241]     |                      |                      | 0.089<br>[0.230]     | -0.203**<br>[0.093]  |
| COLLEGE          |                      |                      |                      | -0.545<br>[1.546]    |                      | -0.624<br>[1.601]    | -0.834<br>[1.482]    |
| NEVERMARRIED     |                      |                      |                      |                      | -5.823**<br>[2.548]  | -5.641**<br>[2.510]  | -3.620***<br>[1.368] |
| OBSERVATIONS     | 221                  | 221                  | 221                  | 207                  | 218                  | 205                  | 203                  |
| P-VALUE:         | 0.014                | 0.018                | 0.013                | 0.022                | 0.017                | 0.026                | 0.009                |

Note: See Tables 1 and 2. See Data Section 3.1 and the Data Appendix for data descriptions. The dependent variable is measured as the leader's total number of children. The estimation results are for the full sample size, except when the data are unavailable or for the results in column (7) where we exclude observations where the number of children is greater than or equal to 20.

Table 4: Additional Regression Results

|                  | (1)                 | (2)                 | (3)                  | (4)                 | (5)                 | (6)                  | (7)                   | (8)                   |
|------------------|---------------------|---------------------|----------------------|---------------------|---------------------|----------------------|-----------------------|-----------------------|
|                  | <i>KIDS</i>         | <i>KIDS</i>         | <i>KIDS</i>          | <i>KIDS</i>         | <i>KIDS</i>         | <i>PR(SONS)</i>      | <i>SONS</i>           | <i>BIRTH PARTNERS</i> |
| CONSTANT         | 7.175<br>[0.795]    | 4.656<br>[9.141]    | 3.905<br>[9.105]     | 7.989<br>[10.172]   | -5.325<br>[3.537]   | -6.282<br>[4.382]    | -2.075<br>[7.036]     | 5.924<br>[4.056]      |
| DEMOCRACY        | -1.549*<br>[0.800]  | -1.047*<br>[0.542]  | -1.097***<br>[0.381] | -1.285**<br>[0.613] | -0.580*<br>[0.312]  | -1.164***<br>[0.299] | -1.538**<br>[0.441]   | -0.548**<br>[0.218]   |
| INLINE           | 3.179**<br>[1.263]  | 3.301**<br>[1.412]  | 3.320**<br>[1.339]   | 3.132**<br>[1.229]  | 1.649**<br>[0.649]  | 1.247***<br>[0.466]  | 2.116***<br>[0.810]   | 0.747*<br>[0.402]     |
| HEADOFSTATE      | -0.170<br>[0.292]   | -0.235<br>[0.320]   | -0.237<br>[0.306]    | -0.114<br>[0.311]   | -0.128<br>[0.240]   | 0.179<br>[0.293]     | 0.114<br>[0.396]      | 0.083<br>[0.092]      |
| MALE             | 1.623***<br>[0.602] | 1.572***<br>[0.586] | 1.599***<br>[0.570]  | 1.493***<br>[0.564] | 1.098***<br>[0.379] | 0.284<br>[0.430]     | 0.419<br>[0.479]      | 0.375*<br>[0.193]     |
| AGE              | -0.144<br>[0.310]   | -0.108<br>[0.298]   | -0.084<br>[0.291]    | -0.211<br>[0.325]   | 0.236**<br>[0.100]  | 0.228<br>[0.145]     | 0.088<br>[0.220]      | -0.167<br>[0.133]     |
| AGE <sup>2</sup> | 0.133<br>[0.248]    | 0.104<br>[0.236]    | 0.087<br>[0.231]     | 0.182<br>[0.259]    | -0.181**<br>[0.082] | -0.187<br>[0.118]    | -0.048<br>[0.183]     | 0.133<br>[0.105]      |
| COLLEGE          | -0.797<br>[1.651]   | -0.515<br>[1.663]   | -0.486<br>[1.616]    | -0.559<br>[1.757]   | -0.763<br>[1.532]   | 0.587<br>[0.997]     | -0.164<br>[2.402]     | 0.156<br>[0.294]      |
| NEVERMARRIED     | -5.704**<br>[2.483] | -6.305*<br>[3.447]  | -5.630**<br>[2.478]  | -6.335*<br>[3.351]  | -4.041**<br>[1.851] |                      | -14.644***<br>[3.118] | -2.093*<br>[1.236]    |
| LLOW             | -0.706<br>[0.797]   |                     |                      | -1.219<br>[0.846]   | -0.222<br>[0.417]   | -0.219<br>[0.363]    | -0.881<br>[0.707]     | -0.518*<br>[0.287]    |
| FERTILITY        |                     | 0.226<br>[0.139]    |                      | 0.390***<br>[0.137] | 0.265***<br>[0.098] | 0.082<br>[0.142]     | 0.131<br>[0.142]      | 0.116**<br>[0.057]    |
| MUSLIM           |                     |                     | 0.007<br>[0.011]     | 0.008<br>[0.011]    | 0.004<br>[0.007]    | 0.004<br>[0.005]     | 0.006<br>[0.009]      | -0.001<br>[0.004]     |
| CHRISTIAN        |                     |                     | 0.006<br>[0.006]     | 0.004<br>[0.006]    | 0.004<br>[0.005]    | -0.001<br>[0.001]    | 0.003<br>[0.007]      | 0.000<br>[0.002]      |
| OBSERVATIONS     | 205                 | 195                 | 205                  | 195                 | 193                 | 147                  | 147                   | 185                   |
| P-VALUE:         | 0.042               | 0.064               | 0.006                | 0.035               | 0.026               | 0.001                | 0.014                 | 0.042                 |

Note: See Tables 1 – 3. See Data Section 3.1 and the Data Appendix for data descriptions. The dependent variable is measured as the leader's total number of children. The estimation results are for the full sample size, except when the data are unavailable or for the results in column (7) where we exclude observations where the number of children is greater than or equal to 20.



## References

- Acemoglu, Daron, and Robinson, James P., 2006. *Economic Origins of Dictatorship and Democracy*. Cambridge University Press, New York, NY.
- Alesina, Alberto, and Tabellini, Guido, 1990. "A Positive Theory of Fiscal Deficits and Government Debt." *Review of Economic Studies*, 57(3), 403-414.
- Arnott, Richard, and Stiglitz, Joseph E., 1991. "Moral Hazard and Nonmarket Institutions: Dysfunctional Crowding Out of Peer Monitoring?" *The American Economic Review*, 81(1), 179-190.
- Bernheim, B. Douglas, Shleifer, Andrei and Summers, Lawrence H., 1985. "The Strategic Bequest Motive." *The Journal of Political Economy* 93(6), 1045-1076.
- Blomberg, S. Brock, and Hess, Gregory. 2003. "Is the Political Business Cycle for Real?" *The Journal of Public Economics*, 87(5-6), 1091-1022.
- Bueno de Mesquita, Bruce, Morrow, James, Siverson, Randolph M. and Smith, Alastair, 1999. "Policy Failure and Political Survival: The Contribution of Political Institutions." *Journal of Conflict Resolution* 43, 147-161.
- Bueno de Mesquita, Bruce, Smith, Alastair, Siverson, Randolph M., and Morrow, James 2003. *The Logic of Political Survival*. MIT Press, Cambridge, MA.
- Chami, Ralph, and Fischer, Jeffrey H., 1996. "Altruism, Matching, and Nonmarket Insurance." *Economic Inquiry*, 34(4), 630-647.
- Broussard, Nzinga, Chami, Ralph and Hess, Gregory D. 2002. "(Why) Do Self Employed Parents Have More Children?" *CEPR Working Paper # 1103*.
- Faccio, Mara. "Politically Connected Firms," 2006. *American Economic Review*, 96(1), pp. 369-386.
- Fisman, Raymond. "Estimating the Value of Political Connections," 2001. *American Economic Review*, 96(1), 1095-1102.
- Fisman, Raymond, Galef, Julia and Khurana, Rakesh. "The Cheney Effect: Valuing Political Connections in America," mimeo.
- Freedom House. <http://www.freedomhouse.org/ratings/index.htm>. July 31st - September 19th, 2005.
- Grossman, Herschel I., and Noh, Suk Jae, 1994. "Proprietary Public Finance and Economic Welfare." *Journal of Public Finance*, 53, 187-204.
- Hess, Gregory D., and Orphanides, Athanasios, 2001. "War and Democracy," *The Journal of Political Economy*, 109(4), 776-810.
- International Who's Who, The. Elster, J. Robert, editor. 68th Edition, 2005. Europa Publications.

Marquis Who's Who. <http://marquiswhoswho.com/>. July 31st - September 19th, 2005.

North, Douglass C. 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge University Press. New York, NY.

Persson, Torsten, and Persson, Lars E.). 1989. "Why a Stubborn Conservative would Run a Deficit: Policy with Time- Inconsistent Preferences, " *Quarterly Journal of Economics*, 104(2), 325-345.

The World Bank Group. <http://www.worldbank.org/data/countryclass/classgroups.htm>. July 31st - September 19th, 2005.

The World Bank Group - WDI Online. <http://devdata.worldbank.org/dataonline/>. July 31st - September 19th, 2005.

## Data Appendix: Variables Used in the Analysis

### Key Variables of Interest

**KIDS** The number of children a leader has ever had.

**SONS** The number of sons a leader has ever had.

**ASON** Dummy variable assigned a 1 if leader has at least 1 son, 0 otherwise.

**BIRTHPARTNERS** The number of people with whom the leader has had children.

**CIVILIBERTY** Freedom House score measuring a country's freedom of civil liberties. Scores range between 0 and 1, with 1 being the most free.

**POLRIGHT** Freedom House score measuring a country's freedom of political rights. Scores range between 0 and 1, with 1 being the most free.

**AVECIVPOL** Average of CIVILIBERTY and POLRIGHT.

**DEMOCRACY** Dummy variable assigned a 1 if AVECIVPOL  $\geq$  0.75 and 0 otherwise.

### Additional Control Variables

**INLINE** Dummy variable assigned a 1 if a leader was in line to ascend to power.

**HEADOFSTATE** Dummy variable assigned a 1 if leader is the head of state and 0 otherwise.

**AGE** Age of Respondent.

**MALE** Dummy variable assigned a 1 if a leader is Male and a 0 if a leader is Female.

**NEVERMARRIED** Dummy variable assigned a 1 if a leader has never been married.

**COLLEGE** Dummy variable assigned a 1 if a leader has any schooling beyond high school.

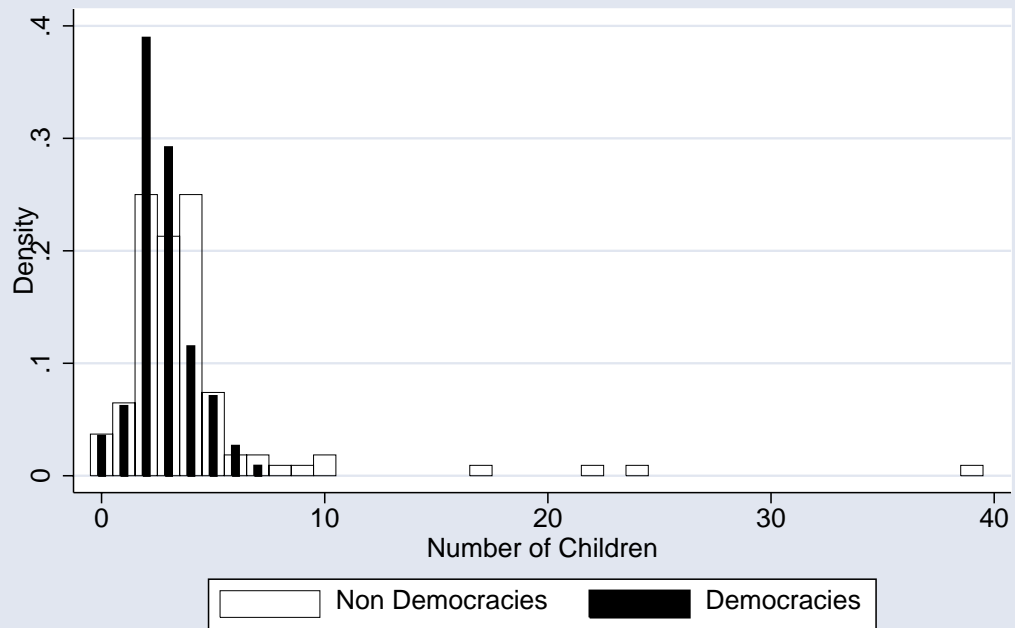
**FERTILITY** A country's fertility rate - the number of births per woman.??

**CHRISTIAN** The proportion, as reported by the CIA World Factbook, of a country identifying as Christian.

**MUSLIM** The proportion, as reported by the CIA World Factbook, of a country identifying as Muslim.

**LLOW** Dummy variable assigned a 1 if a country is in one of the lowest two income echelons as defined by the World Bank.

Figure 1: Probability Density Functions of the Number of Children  
Democratic v. Non Democratic Leaders



Appendix A: Data By Country and Leader

| Country                  | Leader                                 | KIDS | SONS | POLRIGHT | CIVLIBERTY | FERTILITY | MUSLIM | CHRISTIAN | INLINE | LLOW | MALE | COLLEGE | Age | NEVERMARRIED |
|--------------------------|--|------|------|----------|------------|-----------|--------|-----------|--------|------|------|---------|-----|--------------|
| Afghanistan              | Hamid Karzai                           | 0    | 0    | 0.33     | 0.17       |           | 99     | 0         | 0      | 1    | 1    | 1       | 48  | 0            |
| Albania                  | Alfred Moisiu                          | 4    | 1    | 0.67     | 0.67       | 2.2       | 70     | 30        | 0      | 1    | 1    | 1       | 76  | 0            |
| Algeria                  | Ahmed Ouyahia                          | 2    |      | 0.17     | 0.33       | 2.7       | 99     | 1         | 0      | 1    | 1    |         | 53  | 0            |
| Andorra                  | Albert Pintat                          | 3    |      | 1.00     | 1.00       |           | 0      | 100       | 0      | 0    | 1    |         | 81  | 0            |
| Angola                   | José Eduardo dos Santos                | 2    |      | 0.17     | 0.33       | 7.0       | 0      | 53        | 0      | 1    | 1    | 1       | 63  | 0            |
| Antigua and Barbuda      | Baldwin Spencer                        | 2    | 1    | 0.83     | 0.83       | 1.7       | 0      | 100       | 0      | 0    | 1    | 1       | 57  | 0            |
| Argentina                | Néstor Kirchner                        | 2    | 1    | 0.83     | 0.83       | 2.4       | 0      | 94        | 0      | 0    | 1    | 1       | 56  | 0            |
| Armenia                  | Robert Kocharian                       | 3    | 2    | 0.33     | 0.50       | 1.2       | 0      | 99        | 0      | 1    | 1    | 1       | 51  | 0            |
| Armenia                  | Andranik Margaryan                     | 3    |      | 0.33     | 0.50       | 1.2       | 0      | 99        | 0      | 1    | 1    | 1       | 54  | 0            |
| Australia                | John Howard                            | 3    | 2    | 1.00     | 1.00       | 1.8       | 2      | 67        | 0      | 0    | 1    | 1       | 66  | 0            |
| Austria                  | Heinz Fischer                          | 2    | 1    | 1.00     | 1.00       | 1.4       | 4      | 78        | 0      | 0    | 1    | 1       | 67  | 0            |
| Austria                  | Wolfgang Schäussel                     | 1    |      | 1.00     | 1.00       | 1.4       | 4      | 78        | 0      | 0    | 1    | 1       | 60  | 0            |
| Azerbaijan               | Ilham Aliyev                           | 3    | 1    | 0.17     | 0.33       | 2.1       | 93     | 5         | 1      | 1    | 1    | 1       | 44  | 0            |
| Azerbaijan               | Artur Rasizade                         | 1    | 0    | 0.17     | 0.33       | 2.1       | 93     | 5         | 0      | 1    | 1    | 1       | 71  | 0            |
| The Bahamas              | Perry Christie                         | 3    | 2    | 1.00     | 1.00       | 2.1       | 0      | 96        | 0      | 0    | 1    | 1       | 61  | 0            |
| Bahrain                  | Hamad ibn Isa Al Khalifa               | 4    | 3    | 0.33     | 0.33       | 2.3       | 81     | 9         | 1      | 0    | 1    | 1       | 56  | 0            |
| Bahrain                  | Khalifa ibn Salman Al Khalifa          | 3    |      | 0.33     | 0.33       | 2.3       | 81     | 9         | 1      | 0    | 1    |         | 70  | 0            |
| Bangladesh               | Iajuddin Ahmed                         | 3    | 3    | 0.50     | 0.50       | 2.9       | 83     | 0         | 0      | 1    | 1    | 1       | 75  | 0            |
| Bangladesh               | Khaleida Zia                           | 2    | 2    | 0.50     | 0.50       | 2.9       | 83     | 0         | 0      | 1    | 0    | 1       | 60  | 0            |
| Belarus                  | Aleksandr Lukashenko                   | 2    | 2    | 0.00     | 0.17       | 1.3       | 6      | 92        | 0      | 1    | 1    | 1       | 51  | 0            |
| Belgium                  | Albert II                              | 3    | 2    | 1.00     | 1.00       | 1.6       | 0      | 100       | 1      | 0    | 1    |         | 71  | 0            |
| Belgium                  | Guy Verhofstadt                        | 2    | 1    | 1.00     | 1.00       | 1.6       | 0      | 100       | 0      | 0    | 1    | 1       | 52  | 0            |
| Belize                   | Said Musa                              | 4    |      | 1.00     | 0.83       | 3.1       | 0      | 77        | 0      | 0    | 1    | 1       | 61  | 0            |
| Bhutan                   | Jigme Singye Wangchuk                  | 10   | 5    | 0.17     | 0.33       | 5.1       | 0      | 0         | 1      | 1    | 1    | 1       | 50  | 0            |
| Bolivia                  | Eduardo Rodríguez (interim)            | 4    |      | 0.67     | 0.67       | 3.7       | 0      | 100       | 0      | 1    | 1    | 1       | 49  | 0            |
| Bosnia and Herzegovina   | Ivo Miro Jović (President of the Pres) | 3    | 1    | 0.50     | 0.67       | 1.3       | 40     | 46        | 0      | 1    | 1    | 1       | 55  | 0            |
| Bosnia and Herzegovina   | Sulejman Tihić                         | 3    | 2    | 0.50     | 0.67       | 1.3       | 40     | 46        | 0      | 1    | 1    | 1       | 54  | 0            |
| Bosnia and Herzegovina   | Borislav Paravac                       | 2    |      | 0.50     | 0.67       | 1.3       | 40     | 46        | 0      | 1    | 1    | 1       | 63  | 0            |
| Botswana                 | Festus Mogae                           | 3    | 0    | 0.83     | 0.83       | 3.7       | 0      | 72        | 0      | 0    | 1    | 1       | 66  | 0            |
| Brazil                   | Luiz Inácio Lula da Silva              | 3    | 3    | 0.83     | 0.67       | 2.1       | 0      | 89        | 0      | 1    | 1    | 0       | 60  | 0            |
| Brunei                   | Sir Hassanal Bolikiah                  | 10   | 4    | 0.17     | 0.33       | 2.5       | 67     | 10        | 1      | 0    | 1    | 1       | 59  | 0            |
| Bulgaria                 | Georgi Parvanov                        | 2    | 2    | 1.00     | 0.83       | 1.2       | 12     | 84        | 0      | 1    | 1    | 1       | 48  | 0            |
| Bulgaria                 | Simeon Saksoburggotski                 | 5    | 4    | 1.00     | 0.83       | 1.2       | 12     | 84        | 1      | 1    | 1    | 1       | 68  | 0            |
| Cambodia                 | Norodom Sihamoni                       | 0    | 0    | 0.17     | 0.33       | 3.9       | 0      | 0         | 1      | 1    | 1    | 1       | 52  | 1            |
| Cameroon                 | Paul Biya                              | 3    | 2    | 0.17     | 0.17       | 4.6       | 20     | 40        |        | 1    | 1    | 1       | 73  | 0            |
| Canada                   | Paul Martin                            | 3    | 3    | 1.00     | 1.00       | 1.5       | 2      | 70        | 0      | 0    | 1    | 1       | 67  | 0            |
| Cape Verde               | Pedro Pires                            | 2    | 0    | 1.00     | 1.00       | 3.5       | 0      | 100       | 0      | 1    | 1    | 1       | 71  | 0            |
| Central African Republic | Élie Doté                              | 6    |      | 0.17     | 0.33       | 4.6       | 15     | 50        | 0      | 1    | 1    | 1       | 59  | 0            |
| Chile                    | Ricardo Lagos                          | 3    | 1    | 1.00     | 1.00       | 2.2       | 0      | 100       | 0      | 0    | 1    | 1       | 68  | 0            |
| China                    | Hu Jintao                              | 2    | 1    | 0.00     | 0.17       | 1.9       | 0      | 0         | 0      | 1    | 1    | 1       | 63  | 0            |
| Colombia                 | Álvaro Uribe                           | 2    | 2    | 0.50     | 0.50       | 2.5       | 0      | 90        | 0      | 1    | 1    | 1       | 53  | 0            |
| Comoros                  | Azali Assoumani                        | 4    |      | 0.50     | 0.50       | 4.0       | 98     | 2         | 0      | 1    | 1    |         | 47  | 0            |
| Costa Rica               | Abel Pacheco                           | 6    |      | 1.00     | 1.00       | 2.3       | 0      | 92        | 0      | 0    | 1    | 1       | 72  | 0            |
| Côte d'Ivoire            | Laurent Gbagbo                         | 4    | 1    | 0.17     | 0.17       | 4.5       | 40     | 30        | 0      | 1    | 1    | 1       | 60  | 0            |
| Croatia                  | Stipe Mesić                            | 2    | 0    | 0.83     | 0.83       | 1.4       | 1      | 0         | 0      | 0    | 1    | 1       | 71  | 0            |
| Croatia                  | Ivo Sanader                            | 2    |      | 0.83     | 0.83       | 1.4       | 1      | 0         | 0      | 0    | 1    | 1       | 52  | 0            |
| Cuba                     | Fidel Castro                           | 7    | 6    | 0.00     | 0.00       | 1.6       | 0      | 95        | 0      | 1    | 1    | 1       | 79  | 0            |
| Cyprus                   | Tassos Papadopoulos                    | 4    | 2    | 1.00     | 1.00       | 1.9       | 18     | 80        | 0      | 0    | 1    | 1       | 72  | 0            |
| Czech Republic           | Václav Klaus                           | 2    | 2    | 1.00     | 1.00       | 1.2       | 0      | 29        | 0      | 0    | 1    | 1       | 64  | 0            |
| Denmark                  | Margrethe II                           | 2    | 2    | 1.00     | 1.00       | 1.8       | 2      | 98        | 1      | 0    | 0    | 1       | 65  | 0            |
| Denmark                  | Anders Fogh Rasmussen                  | 3    | 1    | 1.00     | 1.00       | 1.8       | 2      | 98        | 0      | 0    | 1    | 1       | 53  | 0            |
| Djibouti                 | Ismaél Omar Guelleh                    | 4    |      | 0.33     | 0.33       | 5.2       | 94     | 6         | 0      | 1    | 1    | 1       | 58  | 0            |
| Dominican Republic       | Leonel Fernández                       | 3    | 1    | 0.83     | 0.83       | 2.6       | 0      | 95        | 0      | 1    | 1    | 1       | 52  | 0            |
| East Timor               | Xanana Gusmão                          | 3    | 2    | 0.67     | 0.67       | 7.6       | 4      | 93        | 0      | 1    | 1    | 1       | 59  | 0            |
| East Timor               | Mari Alkatiri                          | 3    |      | 0.67     | 0.67       | 7.6       | 4      | 93        | 0      | 1    | 1    | 1       | 59  | 0            |
| Ecuador                  | Alfredo Palacio                        | 4    | 1    | 0.67     | 0.67       | 2.7       | 0      | 95        | 0      | 1    | 1    | 1       | 67  | 0            |
| Egypt                    | Hosni Mubarak                          | 2    | 2    | 0.17     | 0.33       | 3.1       | 94     | 6         | 0      | 1    | 1    | 1       | 77  | 0            |
| El Salvador              | Antonio Saca                           | 2    |      | 0.83     | 0.67       | 2.8       | 0      | 83        | 0      | 1    | 1    | 1       | 41  | 0            |
| Eritrea                  | Isaias Afewerki                        | 2    |      | 0.00     | 0.17       | 4.8       | 50     | 50        | 0      | 1    | 1    | 1       | 60  | 0            |
| Estonia                  | Arnold Rüütel                          | 2    | 0    | 1.00     | 1.00       | 1.4       | 0      | 28        | 0      | 0    | 1    | 1       | 77  | 0            |
| Estonia                  | Andrus Ansip                           | 3    |      | 1.00     | 1.00       | 1.4       | 0      | 28        | 0      | 0    | 1    | 1       | 49  | 0            |
| Fiji                     | Laisenia Qarase                        | 5    | 4    | 0.50     | 0.67       | 2.6       | 8      | 52        | 0      | 1    | 1    | 1       | 65  | 0            |
| Finland                  | Tarja Halonen                          | 1    | 0    | 1.00     | 1.00       | 1.8       | 0      | 86        | 0      | 0    | 0    | 1       | 62  | 0            |
| Finland                  | Matti Vanhanen                         | 2    |      | 1.00     | 1.00       | 1.8       | 0      | 86        | 0      | 0    | 1    | 1       | 50  | 0            |
| France                   | Jacques Chirac                         | 2    | 0    | 1.00     | 1.00       | 1.9       | 8      | 87        | 0      | 0    | 1    | 1       | 73  | 0            |
| France                   | Dominique de Villepin                  | 3    | 1    | 1.00     | 1.00       | 1.9       | 8      | 87        | 0      | 0    | 1    | 1       | 52  | 0            |
| Gabon                    | Omar Bongo                             | 3    |      | 0.33     | 0.50       | 4.0       | 1      | 75        | 0      | 0    | 1    | 1       | 70  | 0            |
| The Gambia               | Yahya Jammeh                           | 1    | 0    | 0.50     | 0.50       | 4.8       | 90     | 9         | 0      | 1    | 1    | 0       | 40  | 0            |
| Georgia                  | Mikheil Saakashvili                    | 1    | 1    | 0.67     | 0.50       | 1.1       | 10     | 89        | 0      | 1    | 1    | 1       | 38  | 0            |
| Georgia                  | Zurab Nogatdeli                        | 1    |      | 0.67     | 0.50       | 1.1       | 10     | 89        | 0      | 1    | 1    | 1       | 41  | 0            |
| Germany                  | Horst Köhler                           | 2    | 1    | 1.00     | 1.00       | 1.3       | 4      | 68        | 0      | 0    | 1    | 1       | 63  | 0            |
| Germany                  | Gerhard Schröder                       | 0    | 0    | 1.00     | 1.00       | 1.3       | 4      | 68        | 0      | 0    | 1    | 1       | 61  | 0            |
| Ghana                    | John Kufuor                            | 5    |      | 0.83     | 0.83       | 4.4       | 16     | 63        | 0      | 1    | 1    | 1       | 67  | 0            |
| Greece                   | Karolos Papoulias                      | 3    | 0    | 1.00     | 0.83       | 1.3       | 1      | 98        | 0      | 0    | 1    | 1       | 76  | 0            |
| Greece                   | Kostas Karamanlis                      | 2    | 1    | 1.00     | 0.83       | 1.3       | 1      | 98        | 0      | 0    | 1    | 1       | 49  | 0            |
| Grenada                  | Keith Mitchell                         | 1    | 1    | 1.00     | 0.83       | 3.0       | 0      | 100       | 0      | 0    | 1    | 1       | 59  | 0            |
| Guatemala                | Oscar Berger                           | 5    | 3    | 0.50     | 0.50       | 4.3       | 0      | 99        | 0      | 1    | 1    | 1       | 59  | 0            |
| Guyana                   | Sam Hinds                              | 3    |      | 0.83     | 0.83       | 2.3       | 10     | 50        | 0      | 1    | 1    | 1       | 62  | 0            |
| Haiti                    | Boniface Alexandre                     | 4    |      | 0.00     | 0.17       | 4.2       | 0      | 96        | 0      | 1    | 1    | 1       | 66  | 0            |
| Honduras                 | Ricardo Maduro                         | 4    | 1    | 0.67     | 0.67       | 4.0       | 0      | 100       | 0      | 1    | 1    | 1       | 59  | 0            |
| Hungary                  | Ferenc Mádl                            | 1    | 1    | 1.00     | 1.00       | 1.3       | 0      | 74        | 0      | 0    | 1    | 1       | 75  | 0            |
| Hungary                  | Ferenc Gyurcsány                       | 4    | 3    | 1.00     | 1.00       | 1.3       | 0      | 74        | 0      | 0    | 1    | 1       | 44  | 0            |
| Iceland                  | Ólafur Ragnar Grímsson                 | 2    | 0    | 1.00     | 1.00       | 2.0       | 0      | 95        | 0      | 0    | 1    | 1       | 62  | 0            |
| Iceland                  | Halldór Ásgrímsson                     | 0    | 0    | 1.00     | 1.00       | 2.0       | 0      | 95        | 0      | 0    | 1    | 1       | 62  | 0            |
| India                    | A.P.J. Abdul Kalam                     | 3    | 0    | 0.83     | 0.67       | 2.9       | 13     | 2         | 0      | 1    | 1    | 1       | 74  | 0            |
| India                    | Manmohan Singh                         | 3    | 0    | 0.83     | 0.67       | 2.9       | 13     | 2         | 0      | 1    | 1    | 1       | 73  | 0            |
| Indonesia                | Susilo Bambang Yudhoyono               | 2    | 2    | 0.67     | 0.50       | 2.4       | 88     | 8         | 0      | 1    | 1    | 1       | 56  | 0            |
| Iran                     | Ali Khamenei (Rahbar - "leader")       | 2    | 2    | 0.17     | 0.17       | 2.0       | 98     | 1         | 0      | 1    | 1    | 1       | 66  | 0            |
| Iran                     | Mohammad Khatami (president)           | 3    | 1    | 0.17     | 0.17       | 2.0       | 98     | 1         | 0      | 1    | 1    | 1       | 62  | 0            |
| Ireland                  | Mary McAleese                          | 3    | 1    | 1.00     | 1.00       | 2.0       | 0      | 93        | 0      | 0    | 0    | 1       | 51  | 0            |
| Ireland                  | Bertie Ahern                           | 2    | 0    | 1.00     | 1.00       | 2.0       | 0      | 93        | 0      | 0    | 1    | 1       | 54  | 1            |

Appendix A: Data By Country and Leader (Continued)

| Country                    | Leader                              | KIDS | SONS | POLRIGHT | CIVLIBERTY | FERTILITY | MUSLIM | CHRISTIAN | INLINE | LLOW | MALE | COLLEGE | Age | NEVERMARRIED |
|----------------------------|-------------------------------------|------|------|----------|------------|-----------|--------|-----------|--------|------|------|---------|-----|--------------|
| Israel                     | Moshe Katsav                        | 5    | 4    | 1.00     | 0.67       |           | 16     | 2         | 0      | 0    | 1    |         | 60  | 0            |
| Israel                     | Ariel Sharon                        | 3    | 3    | 1.00     | 0.67       |           | 16     | 2         | 0      | 0    | 1    | 1       | 78  | 0            |
| Italy                      | Carlo Azeglio Ciampi                | 2    | 1    | 1.00     | 1.00       | 1.3       | 0      | 95        | 0      | 0    | 1    | 1       | 85  | 0            |
| Italy                      | Silvio Berlusconi                   | 5    |      | 1.00     | 1.00       | 1.3       | 0      | 95        | 0      | 0    | 1    | 1       | 69  | 0            |
| Jamaica                    | P. J. Patterson                     | 2    | 1    | 0.83     | 0.67       | 2.3       | 0      | 65        | 0      | 1    | 1    | 1       | 70  | 0            |
| Japan                      | Akihito                             | 3    | 2    | 1.00     | 0.83       | 1.3       | 0      | 1         | 1      | 0    | 1    | 1       | 72  | 0            |
| Japan                      | Junichiro Koizumi                   | 3    | 3    | 1.00     | 0.83       | 1.3       | 0      | 1         | 0      | 0    | 1    | 1       | 64  | 0            |
| Jordan                     | Abdullah II                         | 4    | 2    | 0.33     | 0.50       | 3.5       | 93     | 6         | 1      | 1    | 1    | 1       | 44  | 0            |
| Jordan                     | Adnan Badran                        | 6    | 4    | 0.33     | 0.50       | 3.5       | 93     | 6         | 0      | 1    | 1    | 1       | 70  | 0            |
| Kazakhstan                 | Nursultan Nazarbayev                | 3    | 0    | 0.17     | 0.33       | 1.8       | 47     | 46        | 0      | 1    | 1    | 1       | 65  | 0            |
| Kenya                      | Mwai Kibaki                         | 5    | 3    | 0.67     | 0.67       | 4.8       | 10     | 78        | 0      | 1    | 1    | 1       | 74  | 0            |
| Kiribati                   | Anote Tong                          | 7    | 3    | 1.00     | 1.00       | 3.6       | 1      | 0         | 0      | 1    | 1    | 1       | 53  | 0            |
| Korea, North               | Kim Jong Il (highest administrative | 4    | 3    | 0.00     | 0.00       | 2.1       | 0      | 0         | 1      | 1    | 1    | 1       | 64  | 0            |
| Korea, South               | Roh Moo Hyun                        | 2    | 1    | 1.00     | 0.83       | 1.5       | 0      | 26        | 0      | 0    | 1    | 1       | 59  | 0            |
| Kuwait                     | Jaber Al Ahmad Al Jaber Al Sabah    | 39   | 21   | 0.50     | 0.33       | 2.5       | 85     | 0         | 1      | 0    | 1    | 1       | 79  | 0            |
| Kyrgyzstan                 | Kurmanbek Bakiyev (acting)          | 2    | 2    | 0.17     | 0.33       | 2.4       | 75     | 20        | 0      | 1    | 1    | 1       | 56  | 0            |
| Latvia                     | Vaira Vīķe-Freiberga                | 2    | 1    | 1.00     | 0.83       | 1.3       | 0      | 100       | 0      | 0    | 0    | 1       | 68  | 0            |
| Lebanon                    | Emile Lahoud                        | 3    | 2    | 0.17     | 0.33       | 2.2       | 60     | 39        | 0      | 0    | 1    | 1       | 69  | 0            |
| Lebanon                    | Najib Mikati                        | 3    |      | 0.17     | 0.33       | 2.2       | 60     | 39        | 0      | 0    | 1    | 1       | 62  | 0            |
| Lesotho                    | Letsie III                          | 2    | 0    | 0.83     | 0.67       | 4.3       | 0      | 80        | 1      | 1    | 1    | 1       | 42  | 0            |
| Liberia                    | Gyude Bryant                        | 3    |      | 0.33     | 0.50       | 5.8       | 20     | 40        | 0      | 1    | 1    | 1       | 62  | 0            |
| Libya                      | Mu'ammal Al Qadhafi (de facto);     | 8    | 7    | 0.00     | 0.00       | 3.3       | 97     | 0         | 0      | 0    | 1    | 1       | 63  | 0            |
| Libya                      | Shukri Ghanem                       | 4    | 1    | 0.00     | 0.00       | 3.3       | 97     | 0         | 0      | 0    | 1    | 1       | 63  | 0            |
| Liechtenstein              | Hans-Adam II (Sovereign Prince);    | 4    | 3    | 1.00     | 1.00       |           | 0      | 83        | 1      | 0    | 1    | 1       | 61  | 0            |
| Liechtenstein              | Otmar Hasler                        | 4    | 2    | 1.00     | 1.00       |           | 0      | 83        | 0      | 0    | 1    | 1       | 52  | 0            |
| Lithuania                  | Valdas Adamkus                      | 0    | 0    | 0.83     | 0.83       | 1.3       | 0      | 85        | 0      | 0    | 1    | 1       | 79  | 0            |
| Lithuania                  | Algirdas Brazauskas                 | 2    | 0    | 0.83     | 0.83       | 1.3       | 0      | 85        | 0      | 0    | 1    | 1       | 73  | 0            |
| Luxembourg                 | Henri                               | 5    | 4    | 1.00     | 1.00       | 1.6       | 0      | 100       | 1      | 0    | 1    | 1       | 50  | 0            |
| Macedonia                  | Branko Crvenkovski                  | 2    | 1    | 0.67     | 0.67       | 17        |        | 33        | 0      | 1    | 1    | 1       | 43  | 0            |
| Madagascar                 | Marc Ravalomanana                   | 1    | 1    | 0.67     | 0.67       | 5.2       | 7      | 41        | 0      | 1    | 1    | 1       | 56  | 0            |
| Madagascar                 | Jacques Sylla                       | 4    |      | 0.67     | 0.67       | 5.2       | 7      | 41        | 0      | 1    | 1    | 1       | 59  | 0            |
| Malawi                     | Bingu wa Mutharika                  | 4    |      | 0.50     | 0.50       | 6.0       | 13     | 80        | 0      | 1    | 1    | 1       | 72  | 0            |
| Malaysia                   | Tuanku Syed Sirajuddin ibni al-Mar  | 2    | 1    | 0.50     | 0.50       | 2.8       | 56     | 9         | 1      | 0    | 1    | 1       | 62  | 0            |
| Malaysia                   | Datuk Seri Abdullah Ahmad Badawi    | 2    | 1    | 0.50     | 0.50       | 2.8       | 56     | 9         | 0      | 0    | 1    | 1       | 66  | 0            |
| Maldives                   | Maumoon Abdul Gayoom                | 4    | 2    | 0.17     | 0.33       | 4.0       | 100    | 0         | 0      | 1    | 1    | 1       | 68  | 0            |
| Malta                      | Eddie Fenech Adami                  | 5    | 4    | 1.00     | 1.00       | 1.4       | 0      | 98        | 0      | 0    | 1    | 1       | 72  | 0            |
| Malta                      | Lawrence Gonzi                      | 3    | 2    | 1.00     | 1.00       | 1.4       | 0      | 98        | 0      | 0    | 1    | 1       | 52  | 0            |
| Marshall Islands           | Kessai Note                         | 5    | 2    | 1.00     | 1.00       |           | 0      | 94        | 0      | 1    | 1    | 1       | 55  | 0            |
| Mauritania                 | Sghair Ould M'Bareck                | 4    |      | 0.17     | 0.33       | 4.6       | 100    | 0         | 0      | 1    | 1    | 1       | 60  | 0            |
| Mauritius                  | Sir Anerood Jugnauth                | 2    | 1    | 1.00     | 1.00       | 2.0       | 17     | 32        | 0      | 0    | 1    | 1       | 75  | 0            |
| Mexico                     | Vicente Fox                         | 4    | 2    | 0.83     | 0.83       | 2.2       | 0      | 95        | 0      | 0    | 1    | 1       | 63  | 0            |
| Micronesia                 | Joseph Urusemal                     | 4    | 3    | 1.00     | 1.00       | 3.4       | 0      | 97        | 0      | 1    | 1    | 1       | 53  | 0            |
| Moldova                    | Vladimir Voronin                    | 3    |      | 0.67     | 0.50       | 1.4       | 0      | 98        | 0      | 1    | 1    | 1       | 64  | 0            |
| Moldova                    | Vasile Tarlev                       | 3    |      | 0.67     | 0.50       | 1.4       | 0      | 98        | 0      | 1    | 1    | 1       | 52  | 0            |
| Monaco                     | Albert II                           | 1    | 1    | 0.83     | 1.00       |           | 0      | 90        | 1      | 0    | 1    | 1       | 47  | 1            |
| Mongolia                   | Nambaryn Enkhbayar                  | 3    | 2    | 0.83     | 0.83       | 2.4       | 4      | 3         | 0      | 1    | 1    | 1       | 47  | 0            |
| Mongolia                   | Tsakhagiyn Elbegdorj                | 2    |      | 0.83     | 0.83       | 2.4       | 4      | 3         | 0      | 1    | 1    | 1       | 42  | 0            |
| Morocco                    | Muhammad VI                         | 1    | 1    | 0.33     | 0.50       | 2.7       | 99     | 1         | 1      | 1    | 1    | 1       | 42  | 0            |
| Morocco                    | Driss Jettou                        | 4    |      | 0.33     | 0.50       | 2.7       | 99     | 1         | 0      | 1    | 1    | 1       | 60  | 0            |
| Mozambique                 | Luisa Diogo                         | 3    | 2    | 0.67     | 0.50       | 5.0       | 18     | 41        | 0      | 1    | 0    | 1       | 47  | 0            |
| Nepal                      | Gyanendra                           | 2    | 1    | 0.33     | 0.33       | 4.1       | 4      | 0         | 1      | 1    | 1    | 1       | 58  | 0            |
| Netherlands                | Beatrix                             | 3    | 3    | 1.00     | 1.00       | 1.8       | 6      | 51        | 1      | 0    | 0    | 1       | 68  | 0            |
| New Zealand                | Helen Clark                         | 0    | 0    | 1.00     | 1.00       | 1.9       | 0      | 54        | 0      | 0    | 0    | 1       | 56  | 0            |
| Nicaragua                  | Enrique Bolaños                     | 5    | 4    | 0.67     | 0.67       | 3.4       | 0      | 90        | 0      | 1    | 1    | 1       | 77  | 0            |
| Nigeria                    | Olusegun Obasanjo                   | 7    | 3    | 0.50     | 0.50       | 5.6       | 50     | 40        | 0      | 1    | 1    | 1       | 69  | 0            |
| Norway                     | Harald V                            | 2    | 1    | 1.00     | 1.00       | 1.8       | 0      | 90        | 1      | 0    | 1    | 1       | 69  | 0            |
| Norway                     | Kjell Magne Bondevik                | 3    | 2    | 1.00     | 1.00       | 1.8       | 0      | 90        | 0      | 0    | 1    | 1       | 58  | 0            |
| Oman                       | Qaboos ibn Sa'id Al 'Bu Sa'id       | 0    | 0    | 0.17     | 0.33       | 4.0       | 75     | 0         | 1      | 0    | 1    |         | 65  | 0            |
| Pakistan                   | Pervez Musharraf                    | 2    | 1    | 0.17     | 0.33       | 4.5       | 97     | 1         | 0      | 1    | 1    | 1       | 62  | 0            |
| Pakistan                   | Shaukat Aziz                        | 3    | 1    | 0.17     | 0.33       | 4.5       | 97     | 1         | 0      | 1    | 1    | 1       | 57  | 0            |
| Palau                      | Tommy Remengesau                    | 4    | 2    | 1.00     | 1.00       |           | 0      | 72        | 0      | 0    | 1    | 1       | 50  | 0            |
| Panama                     | Martin Torrijos                     | 3    |      | 1.00     | 0.83       | 2.4       | 0      | 100       | 0      | 0    | 1    |         | 42  | 0            |
| Papua New Guinea           | Sir Michael Somare                  | 5    | 2    | 0.67     | 0.67       | 4.3       | 0      | 66        | 0      | 1    | 1    | 1       | 69  | 0            |
| Paraguay                   | Nicanor Duarte                      | 5    |      | 0.67     | 0.67       | 3.8       | 0      | 100       | 0      | 1    | 1    | 1       | 49  | 0            |
| Peru                       | Alejandro Toledo                    | 1    | 0    | 0.83     | 0.67       | 2.7       | 0      | 84        | 0      | 1    | 1    | 1       | 59  | 0            |
| Peru                       | Pedro Pablo Kuczynski               | 4    |      | 0.83     | 0.67       | 2.7       | 0      | 84        | 0      | 1    | 1    | 1       | 67  | 0            |
| Philippines                | Gloria Macapagal-Arroyo             | 3    | 2    | 0.83     | 0.67       | 3.2       | 5      | 93        | 0      | 1    | 0    | 1       | 58  | 0            |
| Poland                     | Aleksander Kwaśniewski              | 1    | 0    | 1.00     | 1.00       | 1.2       | 0      | 91        | 0      | 0    | 1    | 1       | 51  | 0            |
| Poland                     | Marek Belka                         | 2    |      | 1.00     | 1.00       | 1.2       | 0      | 91        | 0      | 0    | 1    | 1       | 54  | 0            |
| Portugal                   | Jorge Sampaio                       | 2    | 1    | 1.00     | 1.00       | 1.4       | 0      | 100       | 0      | 0    | 1    | 1       | 66  | 0            |
| Portugal                   | José Sócrates                       | 2    |      | 1.00     | 1.00       | 1.4       | 0      | 100       | 0      | 0    | 1    | 1       | 48  | 0            |
| Qatar                      | Hamad ibn Khalifa Al Thani          | 17   | 11   | 0.17     | 0.33       | 2.5       | 95     | 0         | 1      | 0    | 1    | 1       | 53  | 0            |
| Romania                    | Traian Basescu                      | 2    | 0    | 0.67     | 0.83       | 1.3       | 1      | 99        | 0      | 1    | 1    | 1       | 54  | 0            |
| Russia                     | Vladimir Putin                      | 2    | 0    | 0.17     | 0.33       | 1.3       | 14     | 86        | 0      | 0    | 1    | 1       | 53  | 0            |
| Russia                     | Mikhail Fradkov                     | 2    |      | 0.17     | 0.33       | 1.3       | 14     | 86        | 0      | 0    | 1    | 1       | 55  | 0            |
| Rwanda                     | Paul Kagame                         | 4    |      | 0.17     | 0.33       | 5.7       | 5      | 87        | 0      | 1    | 1    | 1       | 48  | 0            |
| Saint Vincent and the Gren | Ralph Gonsalves                     | 2    | 0    | 0.83     | 1.00       | 2.1       | 0      | 93        | 0      | 0    | 1    | 1       | 59  | 0            |
| Samoa                      | Malietao Tanumafili II              | 5    |      | 0.83     | 0.83       | 4.0       | 0      | 97        | 1      | 1    | 1    | 1       | 93  | 0            |
| Samoa                      | Tuila'epa Sailele Malielegaoi       | 6    |      | 0.83     | 0.83       | 4.0       | 0      | 97        | 0      | 1    | 1    | 1       | 60  | 0            |
| Saudi Arabia               | Fahd (de jure), Crown Prince Abdul  | 22   | 7    | 0.00     | 0.00       | 5.3       | 100    | 0         | 1      | 0    | 1    |         | 81  | 0            |
| Senegal                    | Abdoulaye Wade                      | 2    |      | 0.83     | 0.67       | 4.9       | 94     | 5         | 0      | 1    | 1    | 1       | 79  | 0            |
| Senegal                    | Macky Sall                          | 2    |      | 0.83     | 0.67       | 4.9       | 94     | 5         | 0      | 1    | 1    | 1       | 44  | 0            |
| Serbia and Montenegro      | Svetozar Marović                    | 2    | 1    | 0.67     | 0.83       | 1.7       | 19     | 70        | 0      | 1    | 1    | 1       | 50  | 0            |
| Sierra Leone               | Ahmad Tejan Kabbah                  | 4    | 3    | 0.50     | 0.67       | 5.6       | 60     | 10        | 0      | 1    | 1    | 1       | 74  | 0            |
| Singapore                  | S.R. Nathan                         | 2    | 1    | 0.33     | 0.50       | 1.4       | 15     | 15        | 0      | 0    | 1    | 1       | 81  | 0            |
| Singapore                  | Lee Hsien Loong                     | 4    | 3    | 0.33     | 0.50       | 1.4       | 15     | 15        | 0      | 0    | 1    | 1       | 54  | 0            |
| Slovakia                   | Ivan Gašparovič                     | 2    | 1    | 1.00     | 1.00       | 1.2       | 0      | 84        | 0      | 0    | 1    | 1       | 64  | 0            |
| Slovakia                   | Mikuláš Dzurinda                    | 2    | 0    | 1.00     | 1.00       | 1.2       | 0      | 84        | 0      | 0    | 1    | 1       | 51  | 0            |
| Spain                      | Juan Carlos I                       | 3    | 1    | 1.00     | 1.00       | 1.3       | 0      | 94        | 1      | 0    | 1    | 1       | 68  | 0            |
| Spain                      | José Luis Rodríguez Zapatero        | 2    | 0    | 1.00     | 1.00       | 1.3       | 0      | 94        | 0      | 0    | 1    | 1       | 45  | 0            |

Appendix A: Data By Country and Leader (Continued)

| Country             | Leader                       | KIDS | SONS | POLRIGHT | CIVLIBERTY | FERTILITY | MUSLIM | CHRISTIAN | INLINE | LLOW | MALE | COLLEGE | Age | NEVERMARRIED |
|---------------------|------------------------------|------|------|----------|------------|-----------|--------|-----------|--------|------|------|---------|-----|--------------|
| Sri Lanka           | Chandrika Kumaratunga        | 2    | 1    | 0.67     | 0.67       | 2.0       | 8      | 6         | 0      | 1    | 0    | 1       | 60  | 0            |
| Swaziland           | Mswati III                   | 24   |      | 0.00     | 0.33       | 4.2       | 10     | 60        | 1      | 1    | 1    | 1       | 37  | 0            |
| Sweden              | Carl XVI Gustav              | 3    | 1    | 1.00     | 1.00       | 1.7       | 2      | 93        | 1      | 0    | 1    | 1       | 59  | 0            |
| Sweden              | Göran Persson                | 2    | 0    | 1.00     | 1.00       | 1.7       | 2      | 93        | 0      | 0    | 1    | 1       | 57  | 0            |
| Switzerland         | Moritz Leuenberger           | 2    | 2    | 1.00     | 1.00       | 1.4       | 4      | 79        | 0      | 0    | 1    | 1       | 59  |              |
| Switzerland         | Pascal Couchepin             | 3    |      | 1.00     | 1.00       | 1.4       | 4      | 79        | 0      | 0    | 1    | 1       | 63  | 0            |
| Switzerland         | Joseph Deiss                 | 3    | 3    | 1.00     | 1.00       | 1.4       | 4      | 79        | 0      | 0    | 1    | 1       | 60  | 0            |
| Switzerland         | Samuel Schmid                | 3    | 3    | 1.00     | 1.00       | 1.4       | 4      | 79        | 0      | 0    | 1    | 1       | 59  | 0            |
| Switzerland         | Micheline Calmy-Rey          | 2    |      | 1.00     | 1.00       | 1.4       | 4      | 79        | 0      | 0    | 0    |         | 60  | 0            |
| Switzerland         | Christoph Blocher            | 4    | 3    | 1.00     | 1.00       | 1.4       | 4      | 79        | 0      | 0    | 1    |         | 65  | 0            |
| Switzerland         | Hans-Rudolf Merz             | 3    | 3    | 1.00     | 1.00       | 1.4       | 4      | 79        | 0      | 0    | 1    | 1       | 63  | 0            |
| Syria               | Bashar al-Assad              | 0    | 0    | 0.00     | 0.00       | 3.4       | 90     | 10        | 1      | 1    | 1    | 1       | 40  | 1            |
| Taiwan (ROC)        | Chen Shui-bian               | 2    | 1    | 0.83     | 1.00       |           | 0      | 5         | 0      | 0    | 1    | 1       | 55  | 0            |
| Taiwan (ROC)        | Frank Hsieh                  | 2    | 1    | 0.83     | 1.00       |           | 0      | 5         | 0      | 0    | 1    | 1       | 59  | 0            |
| Tajikistan          | Emomali Rahmonov             | 9    |      | 0.17     | 0.33       | 2.9       | 90     | 0         | 0      | 1    | 1    | 0       | 53  | 0            |
| Tanzania            | Benjamin Mkapa               | 2    | 2    | 0.50     | 0.67       | 5.0       | 35     | 30        | 0      | 1    | 1    | 1       | 67  | 0            |
| Thailand            | Bhumibol Adulyadej           | 4    | 1    | 0.83     | 0.67       | 1.8       | 5      | 1         | 1      | 1    | 1    | 1       | 78  | 0            |
| Togo                | Edem Kodjo                   | 4    | 2    | 0.17     | 0.33       | 4.9       | 20     | 29        | 0      | 1    | 1    | 1       | 67  | 0            |
| Tonga               | Taufa'ahau Tupou IV          | 4    | 3    | 0.33     | 0.67       | 3.4       | 0      | 100       | 1      | 1    | 1    | 1       | 87  | 0            |
| Tonga               | Prince 'Ulukalala Lavaka Ata | 3    |      | 0.33     | 0.67       | 3.4       | 0      | 100       | 1      | 1    | 1    | 1       | 46  | 0            |
| Trinidad and Tobago | Maxwell Richards             | 2    | 1    | 0.67     | 0.67       | 1.8       | 6      | 58        | 0      | 0    | 1    | 1       | 74  | 0            |
| Trinidad and Tobago | Patrick Manning              | 2    | 2    | 0.67     | 0.67       | 1.8       | 6      | 58        | 0      | 0    | 1    | 1       | 59  | 0            |
| Tunisia             | Zine El Abidine Ben Ali      | 5    |      | 0.17     | 0.33       | 2.0       | 98     | 1         | 0      | 1    | 1    | 1       | 69  | 0            |
| Tunisia             | Mohamed Ghannouchi           | 2    | 1    | 0.17     | 0.33       | 2.0       | 98     | 1         | 0      | 1    | 1    | 1       | 64  | 0            |
| Turkey              | Ahmet Necdet Sezer           | 3    |      | 0.67     | 0.67       | 2.4       | 99     | 0         | 0      | 0    | 1    | 1       | 64  | 0            |
| Turkey              | Recep Tayyip Erdoğan         | 4    | 2    | 0.67     | 0.67       | 2.4       | 99     | 0         | 0      | 0    | 1    | 1       | 52  | 0            |
| Turkmenistan        | Saparmurat Niyazov           | 2    |      | 0.00     | 0.00       | 2.7       | 89     | 9         | 0      | 1    | 1    | 0       | 66  | 0            |
| Uganda              | Yoweri Museveni              | 4    |      | 0.33     | 0.50       | 6.0       | 16     | 66        | 0      | 1    | 1    | 1       | 61  | 0            |
| Ukraine             | Viktor Yushchenko            | 5    | 2    | 0.50     | 0.67       | 1.2       | 0      | 59        | 0      | 1    | 1    | 1       | 52  | 0            |
| Ukraine             | Yuliya Tymoshenko            | 1    | 0    | 0.50     | 0.67       | 1.2       | 0      | 59        | 0      | 1    | 0    | 1       | 45  | 0            |
| United Kingdom      | Elizabeth II                 | 4    | 3    | 1.00     | 1.00       | 1.6       | 3      | 72        | 1      | 0    | 0    | 1       | 79  | 0            |
| United Kingdom      | Tony Blair                   | 4    | 3    | 1.00     | 1.00       | 1.6       | 3      | 72        | 0      | 0    | 1    | 1       | 52  | 0            |
| United States       | George W. Bush               | 2    | 0    | 1.00     | 1.00       | 2.0       | 1      | 76        | 0      | 0    | 1    | 1       | 59  | 0            |
| Uruguay             | Tabaré Vázquez               | 3    | 3    | 1.00     | 1.00       | 2.2       | 0      | 69        | 0      | 0    | 1    | 1       | 66  | 0            |
| Uzbekistan          | Islam Karimov                | 2    | 0    | 0.00     | 0.17       | 2.3       | 88     | 9         | 0      | 1    | 1    | 1       | 68  | 0            |
| Vanuatu             | Ham Lini                     | 6    |      | 0.83     | 0.83       | 4.3       | 0      | 83        | 0      | 1    | 1    | 1       | 63  | 0            |
| Venezuela           | Hugo Chávez                  | 4    | 1    | 0.67     | 0.50       | 2.7       | 0      | 98        | 0      | 0    | 1    | 1       | 51  | 0            |
| Yemen               | Abdul Qader Bajammal         | 4    | 2    | 0.33     | 0.33       | 6.0       | 100    | 0         | 0      | 1    | 1    | 1       | 60  | 0            |
| Zambia              | Levy Mwanawasa               | 4    | 2    | 0.50     | 0.50       | 5.0       | 21     | 63        | 0      | 1    | 1    | 1       | 57  | 0            |
| Zimbabwe            | Robert Mugabe                | 3    |      | 0.00     | 0.17       | 3.6       | 1      | 50        | 0      | 1    | 1    | 1       | 82  | 0            |