Globalization and Democracy, 1870-2000

J. Ernesto López-Córdova and Christopher M. Meissner*

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Abstract

We study whether international trade fosters democracy. The likely endogeneity between democracy and trade is addressed via the gravity model of trade, allowing us to obtain a measure of natural openness. This serves as our instrumental variable for actual trade openness *à la* Frankel and Romer (1999). We use this powerful instrument to obtain estimates of the causal impact of openness on democratization. A positive impact of openness on democracy is apparent from about 1895 onwards. Late nineteenth century globalization may have helped generate the "first wave" of democratization. Between 1920 and 1938 countries more exposed to international trade were less likely to become authoritarian. Finally, our post-World War II results suggest that a one standard deviation increase in trade with other countries could bring countries like Indonesia, Russia or Venezuela to be as democratic as the US, Great Britain or France. We also see some variation in the impact of openness by region and note that commodity exporters and petroleum producers do not seem to become more democratic by exporting more of such items.

1 Introduction

Does democracy go hand in hand with globalization? Or, on the contrary, does globalization stem incipient democracy? The questions go beyond mere academic interest. There is increasing evidence that democracy leads to positive economic outcomes and welfare gains. To the extent that trade fosters democracy, if at all, the implications are crucial for global trade talks and for the negotiation of regional integration arrangements such as the Free Trade Area of the Americas, to take but one example. Promoting world and hemispheric commerce might help achieve economic development in less-developed countries, and it may also strengthen their efforts toward building better institutions. From a long-run perspective, there may be a case

*López-Córdova: Inter-American Development Bank, INT/ITD Stop W608, 1300 New York Ave. NW, Washington, DC 20577, USA (email: *joselc@iadb.org*); Meissner: Faculty of Economics, University of Cambridge, Austin Robinson Building, Sidgwick Avenue, Cambridge CB3 9DD, England (email: *chris.meissner@econ.cam.ac.uk*) and NBER. We thank seminar participants at Humboldt University, UC Berkeley and Cambridge for comments. Gernot Doppelhofer, Hashem Pesaran, and Jeff Williamson also kindly provided interest and feedback in the initial stages.

that today's most economically advanced democracies achieved such status partially because of their engagement with international trade.

To investigate the link between international commerce and democracy, we first marshal a number of theoretical and anecdotal explanations. Many of these argue trade could bring about greater political participation and competition, but there is little agreement on the exact mechanisms. Moreover, some argue that globalization could hinder democracy.

What of the systematic statistical evidence? There is no consensus here either and relatively little research on this to date. Figures 1, 2, and 3 show the evolution of the global average value of "openness" to trade and the average of one measure of democracy for three separate historical periods. Over the long run, there seems to be a positive relationship between trade and democracy. But, Bussman (2001) explores the issue using simultaneous equation techniques and instrumental variables (*different from those we propose*) and finds that there was little evidence that trade openness was associated with democracy. On the other hand, Li and Reuveny (2002) report a negative relationship between trade openness and democracy. Mansfield, Milner and Rosendorff (2000) look at whether political regimes influence trade but not the reverse.

We contribute to this empirical question by refining the methodological approach to the problem. In particular we propose a new, powerful instrumental variable to better sort out the causal impact of globalization on democracy. Our instrument uses exogenous geographic information to predict trade flows similar to Frankel and Romer (1996). We use this in two-stage least squares regressions for data from the period 1870 to 2000. Contrary to the empirical work we are familiar with, we find some evidence of a substantive and statistically significant positive impact of openness on the level of democracy. Unfortunately, most of our evidence relies on cross-sectional variation in the data to identify the relationship of interest. Our conclusion that there is a positive relationship hinges crucially on this. We believe our instrument, which measures proximity to other nations in a complex way, gives us a good impression of the reduced form association between openness and democracy. But there is some evidence that other time-invariant national characteristics which are correlated with proximity are creating more democracy. However, since it is not immediately apparent which factors these are and our

instrument seems to incorporate truly exogenous information that is unfortunately rather time invariant, we conclude that there is more evidence for a positive relationship than otherwise.

We begin by reviewing the theoretical, anecdotal and empirical evidence to date. Section 3 outlines our research design. We present our econometric results in Section 4 and conclude by putting these in greater context while also suggesting further lines of investigation.

2 Trade and Democracy: Theoretical and Anecdotal Evidence

Could "globalization" be responsible for the growing preponderance of democracy? The July 2000 election of Mexican opposition candidate Vicente Fox, after 71 years of one-party rule, led some observers to establish a link between the country's membership in the North American Free Trade Agreement (NAFTA) and its democratic transition. For example, Thomas Carothers, vice president for studies at the Carnegie Endowment for International Peace, recently wrote that "[b]ringing Mexico into the North American Free Trade Agreement created a broader context of integration that reinforced pressure on the Mexican political elite to move ahead with liberalization".[1] A related view is implicit in official documents as well. Take for example the following statement from a US Trade Representative's report on NAFTA [USTR (1999, chapter VII)]:

> "In the decade since the end of the Cold War, the United States has continued to lead in development of the world's trade agenda, and to lead in advancing the democratic values embodied in free markets, consumer choice, respect for basic rights of workers and the environment, and transparency of process. The NAFTA exemplifies this leadership."

Similarly, following political turmoil in Paraguay in the mid 1990s, which threatened to de-rail the latter's incipient democracy, the Mercosur members—Argentina, Brazil, Paraguay, and Uruguay—adopted a clause making political democracy a prerequisite for membership in the South American customs union. Lastly, the transition to democracy in Southern Europe—Greece, Portugal, and Spain—occurred almost simultaneously with an expansion of the European Economic Community.

There is also a perception among certain quarters that globalization in general, and not just the expansion of international trade, is good for democracy. For example, some people have argued that the presence of transnational corporations in developing countries at present-times instills democratic values in the population of the host countries. Consider the following passage taken from *Civilization*, the magazine of the U.S. Library of Congress:

> "In developing countries, most of them with strong authoritarian traditions and rigid hierarchical structures, American companies often provide workers, at least those who are reasonably educated and somewhat skilled, their first experience of civil society—their first chance to cultivate the skills needed to make most of democracy, free markets, and the rule of law. Companies do so not because they can help it. They build the skills of civil society because of the way they work."[2]

From Lin and Nugent (1995, p. 2336):

> "...a dictatorship or authoritarian regime may not be compatible with long-run economic growth. The more successful is such a state in achieving economic development, the more likely it is that the state will face a legitimacy crisis. This is because both a financially independent middle class and the integration of the domestic economy with the world economy are at the same time both necessary conditions for and natural effects of economic success in the modern world. As a result, democratic ideology of DCs [developed countries] may penetrate the middle class and undermine the legitimacy of the regime. These pressures may also force the state to cut its own power of intervention in order to make credible its commitment to such reforms. Thus, authoritarian states may gradually be transformed into democratic states, as seems to be happening in Korea, Taiwan, and Chile."

Political economy arguments can be seen in the work of Acemoglu and Robinson (2003). They argue globalization narrows income inequality in LDCs due to Stolper-Samuelson effects. This in turn causes elites to be more willing to extend the franchise to a population that is now less likely to vote for redistributive policies because of their improved incomes.

Alternatively, more proximate nations are often more democratic. A conventional argument goes that as nations come into more frequent contact (e.g., through transactions) a diversity of views is embraced and emboldened culminating in a transition to a democratic political system that allows free expression of such ideas.

Li and Reuveny (2002) provide an extensive survey of many similar approaches that argue for a positive relationship. But they also survey the literature that argues there could be a negative relationship between trade and democracy. We leave this theoretical debate for further research. Our approach focuses on the cross-country experience of many nations since 1870.

Indeed, from an historical viewpoint, there have been many ups and downs in both the level of international integration and also the amount of democracy. For instance, the years between 1870 and 1913 witnessed rapid integration in the world economy stimulated in part by liberal trade policies, falling shipping costs, economic growth, improved communication infrastructure and decreasing transaction costs of international trade associated with the spread of the gold standard (see for example López Córdova and Meissner (2003), Estevadeordal, Frantz, and Taylor(2003) and O'Rourke and Williamson (1999)). It is natural to wonder whether these factors had anything to do with the fact that at roughly the same time many western countries extended the franchise to larger segments of society.

Also, the interwar years saw attempts to re-build the international order of the late nineteenth century and a burst of interest in democratization associated with the creation of new countries after the War. Eventually the momentum fizzled and even reversed. The global trading system and capital markets imploded. Fascists and Bolsheviks stormed to power. Liberal democracy lost ground. Because of this, the period is an excellent testing ground for our econometric model. One might ask if the countries with the most extensive commercial links with other countries avoided or delayed the downward spiral into authoritarianism beginning in the mid-1920s. While theory and observation suggests there should be a link between democracy and integration, our statistical techniques complement these approaches and work to find the reduced form association.

3 Empirical strategy

The challenge for an empirical test of the above hypotheses is that there is, in all likelihood, a two-way causal relationship present. Mansfield, Milner and Rosendorff (2000) argue that democracies are more likely to enact free trade policies. The net effect of democracy on openness would be ambiguous *a priori*. In the other direction, international trade, as argued above, may lead to greater political freedoms. Also, in a democracy, interest groups may also be better able to obtain protection from foreign competition and voters may even agree to impose import restrictions in order to help less-privileged social groups.

If there is in fact a simultaneous determination of political and trade outcomes, one possible approach in the absence of a plausible structural model is to find variables that determine trade flows but are not correlated with any other factors influencing the level of democracy. These could then be used as instrumental variables to isolate the impact of greater international trade flows (or globalization at large) on political outcomes. Such a technique avoids the simultaneity bias which would plague any regression analysis that attempts to explain democracy in terms of trade flows.

As appropriate instruments, we take an approach inspired by the Frankel and Romer (1999) study of the impact of trade openness on output per capita. This is a problem similarly affected by endogeneity. The methodology has been subsequently used by a number of papers including Frankel and Rose (2002) who study how currency unions, through their impact on trade, affect growth and Wei (2000) who examines the impact of openness on corruption and the quality of governance.

Frankel and Romer used geographic variables—distance from other nations, land area, and information on waterway access—to estimate a country's "natural openness" through the *gravity* equation of trade. That is, these variables are used as regressors in an OLS regression where the dependent variable to be explained is exports and imports (relative to GDP) between any two countries. The predicted level of openness then serves as an instrument for the actual level of openness. The authors then estimated an instrumental variables regression with income per capita as the dependent variable and openness as an endogenous regressor.

In a similar fashion, we use a gravity equation, augumented with other variables not used by Frankel and Romer, to create an instrument for trade openness. Then we regress a country's democracy measure on trade openness using our predicted openness measure as an instrumental variable. Of course, other variables besides openness may influence a country's political status. Nevertheless, pinpointing the correct set of those other variables poses an important challenge in itself, and many would themselves be subject to endogeneity problems.[3] As Rodrik (2000) has noted, democracy is a "meta-institution" which likely defines the effectiveness of other institutions—e.g., the rule of law— that shape economic outcomes. While this is an important line of research, as long as the geographic information we use to predict openness is not correlated with these omitted variables the relationship we estimate will not be biased because of these exclusions.

3.1 Econometric Model

Given the above, democracy in country i during period t might be a function of the following variables: the level of exports plus imports divided by GDP during the period (Openness_{it}); a $(1 \times K_1)$ vector, x, consisting of time-varying country-specific characteristics; and a $(1 \times K_2)$ vector, z, containing time-invariant country-specific characteristics.

Possibilities for time-invariant (or very slowly changing) characteristics that do not suffer from an endogeneity problem are colonial legacy, land area, ethnic or linguistic diversity or simple country indicator variables to control for unobservable characteristics such as culture. Time varying variables might include lagged values of the democracy measure and population.[4] We also posit a possibly heteroscedastic and autocorrelated error term u_{it} and a possibly heteroscedastic, country specific, time-invariant error term ε_i. The following equation summarizes the basic econometric model of interest:

$$Democracy_{it} = \beta_0 + \delta\,\text{Openness}_{it} + x_{it}\gamma + z_i\Gamma + \varepsilon_i + u_{it} \tag{1}$$

where β_0, δ, γ, and Γ are vectors of parameters to be estimated. Model (1) may be subject to endogeneity problems, as discussed before. As such, openness could be correlated with the

error term u_{it}. TO circumvent this, an appropriate instrumental variable for openness that is not correlated with any other possible omitted determinants of democracy not included in equation (1) but which is strongly correlated with trade openness. We use a two-step procedure to obtain such instruments.

First we estimate a gravity equation. The gravity equation is a powerful reduced form model of bilateral trade flows with a long theoretical and empirical history. An early example of a theoretical derivation of the equation we estimate is in Anderson (1979). Modern practical and theoretical applications and variations can be found in Anderson and van Wincoop (2003), Frankel (1998) and Frankel and Rose (2002). The augmented gravity equation we use has the following form

(2)

$$\begin{aligned}\ln\left(\frac{\text{Exports}_{ijt}+\text{Imports}_{ijt}}{\text{GDP}_{it}}\right) = G_{it}\lambda_t + \omega_{it} = \lambda_0 &+ \lambda_{1t}\left(\ln(\text{population}_{it})\right) + \lambda_{2t}\left(\ln(\text{population}_{jt})\right) \\ &+ \lambda_{3t}\ln(\text{area}_{it}) + \lambda_{4t}\ln(\text{area}_{jt}) + \lambda_{5t}\left(\ln(\text{distance}_{ijt})\right) \\ &+ \lambda_{6t}\left(\text{border}_{ij}\right) + \lambda_{7t}\left(\text{landlocked}_{ij}\right) \\ &+ \lambda_{8t}\left(\text{island}_{ij}\right) + \lambda_{9t}\left(\text{language}_{ij}\right) + \omega_{ijt}\end{aligned}$$

where G_{it} is a (1×9) vector of explanatory variables, distance is the great-circle distance between two countries' geographic centers measured in kilometers, border_{ij} equals one if country i and country j share a border, landlocked takes on the values 0, 1 or 2 depending on whether neither, one or both countries are on a major body of water, island (defined similar to the landlocked variable) indicates whether the countries are islands, language is 1 if there is a dominant or official language shared by both countries and 0 otherwise, the other variables are naturally interpreted and ω_{it} is a homoscedastic white noise error term.[5]

We estimate the vector of coefficients, λ_t, separately for each year. We then predict the logarithm of bilateral openness for each country pair at each date for which we have all explanatory variables. For each country we then arrive at the level of predicted trade openness by taking the exponential of the predictions and adding up over all other trading partners. Our instrument for actual openness is predicted or "natural" openness, $\widehat{T}_{it}$, such that

$$\text{predicted openness} = \widehat{T}_{it} = \sum_{j \neq i} \exp\left[G' \widehat{\lambda}_t\right] \tag{3}$$

where $\widehat{\lambda}_t$ is the OLS estimate of the vector of coefficients in equation (2). Note that we can actually predict trade even for countries for which we have geographical data but not trade data. As usual $\widehat{T}_{it}$ is uncorrelated with the residuals from the regression and hence incorporates only the geographic determinants of trade.[6] These combinations of variables would seem to be uncorrelated with other possible determinants of democracy.

3.2 Data

We refer the reader to the data appendix for a full description of our sources and methodology for implementing the different econometric specifications. Here we outline the basic characteristics of the data.

To estimate our gravity equation we used trade data from López Córdova and Meissner (2003) and Barbieri (1996) prior to 1913, Barbieri (1996) and Ritschl and Wolf (2004) for the interwar period, and Rose and Glick (2001) made available on line at http://faculty.haas.berkeley.edu/arose/I for post-1960. We also supplemented the Rose and Glick trade data with the IMF's *Direction of Trade Statistics* and missing GDP and population data from the World Bank's *World Development Indicators* data base. Where possible we use PPP-adjusted output. Post-1960 the PPP adjustment factors come from the World Bank's *World Development Indicators*; the interwar period uses Maddison's PPP-adjusted GDP. Trade is expressed in US dollars as in the original sources and converted to real values for our two latter samples. Prior to 1910 we divide real trade values by real GDP.

To measure democracy, we use the *polity* score from the Polity IV data set (described by Marshall and Jaggers (2000)). This measures five attributes of a country's political system. These categories measure how competitive and open political participation is, how open and competitive "executive" recruitment is and how much constraint on the executive there is. A weighted sum of the component variables is taken, and two new variables, one measuring democracy and the other autocracy, are created. The democracy variables take the values 0, 1,

2,...,10. The autocracy variables take the values -10, -9, -8,...,0. The Polity IV score is the sum of the eleven point measure of democracy and the eleven point measure of autocracy. Countries are only included in the Polity IV data set if they achieved independence by 1998 and had a population of 500,000 or more in 1998. Dependencies at any point in time are not included.

We use the Polity IV measure because it appears to be the best available data set that measures deep political and institutional change over a long time and for a large number of nations. As a check we carry out a similar analysis using the binary measure democracy created by Alvarez, Cheibub, Limongi and Przeworski (2000). Other measures such as Polyarchy measure only participation rates in elections, while Freedom House measures information relevant to economic and political liberties at the personal level and is only available from 1973. Nevertheless we are aware that any attempt to measure the level of democracy is fraught with conceptual and mechanical problems or inaccuracies.[7]

4 Results

Below we show that there is ample, but not incontrovertible, evidence for a sizeable positive relationship between openness and democracy. For the interwar and post-1960 period, our econometric evidence suggests that switching from complete economic autarchy to the median level of (PPP-adjusted) openness could, in the long run, raise a country's polity score by as much as three or four points. In other words, in the year 2000, such opening up to trade could have transformed Russia, Venezuela or Indonesia into a full-fledged democracy with a polity score equivalent to that in the US, France or Great Britain.[8] The relationship is also statistically significant and positive but less precisely estimated prior to 1913. Still, the point estimates suggest that a change in openness seems to have a similar impact over all three historical periods.

Though our results are fairly robust, some specifications suggest that we have found a spurious correlation. We use various panel techniques and also year-by-year cross-sectional regressions to identify the coefficient on openness. Our regressions are forced to rely on cross-sectional variance for identification and hence the data reveal more about the long-run equilibrium rela-

tionship of interest than the dynamic impact of opening up on democratization.

In a panel setup that allows for general country fixed factors or country fixed factors and persistence in regime choice, the relationship disappears in statistical and substantive terms. We believe this is because our variables of interest, including our instrument, do not sufficiently vary over time within countries. This impedes us from disentangling the impact of opening up to trade from the influence of unknown fixed factors or country specific unobservables. We do however make an attempt to control for certain identifiable fixed factors and still find a positive relationship.

Some Preliminaries

As described above, we use the estimated gravity model separately for each year of our sample to predict dyadic trade relative to output as in equation (3). The results from this "first stage" regression are reported in Tables 1 and 2. The gravity model itself fits the data very well, the signs and sizes of the coefficients make economic sense and are mostly comparable to other studies. One difference between the earlier periods and the latter periods is that land areas are either positively correlated or unassociated with trade.

As instruments, the predicted values of openness seem extremely powerful. Indeed Tables 3 and 4 show that predicted openness is always extremely highly statistically significant in a regression of actual openness on this variable. In fact, the t-statistic on predicted openness is always larger than 2.7. In the year-by-year regressions it is usually much larger than this in the later years. It is often on the order of six or larger in the 1960-2000 period, and in the pooled data it is never smaller than 16 and as large as 42. The predictive power and the correlation between our instrument and openness is relatively weaker but still quite strong when including controls for country size as column (3) from Table 3 shows.

We have chosen to present estimates of the panel models and then to present regressions for single selected years for comparison. For the post-1960 period and from 1870 to 1913 we provide results every five years. For the interwar period, more data was available for certain years, and so we present results from those years.[9]

Our key results use various panel data techniques which provide different ways to look at

the data. Our main results use three common specifications: country "random effects", country "fixed effects" and a partial adjustment model which allows for a lagged dependent variable. We also ran GMM and instrumental variables regressions on the first differenced data to control for fixed effects and to allow for the lagged dependent variable. A word about each type of model and our justification for using it is in the econometric appendix.

Pooled Data Results

With these considerations in mind, we estimate equation (1) both controlling and not controlling for endogeneity. Table 5 lists various specifications. First observe that a univariate OLS regression of polity on openness shows a statistically significant and positive relationship in all three time periods.[10] Comparing instrumental variables estimates from column (2) to OLS estimates in column (1) for all three sub-tables suggests the OLS coefficient is biased slightly downward. This could happen for example if openness had measurement error and only roughly proxied democracy-enhancing interactions. Alternatively it could simply be sampling error as Frankel and Romer suggested.

To check the robustness of the univariate results, we included two measures of a nation's size. Column (3) shows that including controls for size increases the two stage least squares point estimates. In the 1960-2000 period and the interwar period, our coefficient is positive and highly statistically significant. In the pre-World War I period, the coefficient is significant at the 93 percent level. Using the coefficients from column (3), the magnitudes of the partial effects given a one standard deviation change in openness in the pre-World War I period, the Interwar period and the post-World War II period are four, five and three polity points respectively. This long-run comparability is interesting in its own right and could be suggestive of a structural relationship between the two variables.[11]

In contrast to these results, columns (4) through (6) which control for fixed country effects provide no evidence for any link between openness and democracy.[12] The coefficient on openness is positive but much smaller than in the random effects specifications and is not statistically significant at any conventional level. For skeptics of a positive relationship, the interpretation of columns (4) through (6) is that correlation between openness or natural openness and un-

observable variables or factors not included in say column (3) are responsible for generating the already discussed positive coefficient. However, one should not immediately accept the idea that the positive relationship found in the random effects models is spurious.

The obvious reason that the fixed effects specification does not work is that for many countries our instrument for openness does not vary too much over time. Dickey-Fuller tests for predicted openness showed that for the vast majority of the countries we could not reject the notion that the levels were stationary. Most of the variation appears to be across countries rather than within countries. In this case it would not be wise to expect good identification from a fixed effects regression. In other words, the instrument seems highly collinear with the included fixed factors. It is itself based on factors which are time-invariant or are slowly changing. Moreover, it is a prediction of actual openness which also changes fairly slowly over time. At the same time, it does not seem sensible to say that our measure of proximity and geography are correlated in any substantive way to other unobserved or omitted factors. So a plausible conclusion is that there is a mechanical problem here.

Nevertheless in columns (1) and (2) of Table 6 we drop the country dummies and include a number of time-invariant controls that the fixed effects could be capturing. These include the absolute difference between a country's latitude and zero, a measure of ethnolinguistic fractionalization (from Roeder 2001) as measured in the year 1985, indicators for petroleum and commodity exporting countries and regional indicators. We focus on the 1960-2000 period as such data is only readily available for these years. In column (1) we see that the coefficient on openness is much smaller than in Column (3) of Table 5, but it is still positive and highly significant.[13] However, when we control for country size, the coefficient on openness diminishes in size and statistical significance so that it is statistically indistinguishable from zero. This is likely to be for the same reasons that plague the fixed effects regressions of Table 5. Moreover we would expect proximity to be negatively correlated if at all correlated with size. But instead the coefficient appears to be upward biased when omitting size controls.

Other notable results on the these new control variables suggest that countries further from the equator are more democratic while exporters of commodities and possibly petroleum may

be less democratic after controlling for other factors. Also the data confirm that, conditional on a number of variables, the Middle East and Sub-Saharan regions are the least democratic in the world compared to the US and Canada while the Latin American/Caribbean countries, East Asia and Western Europe are somewhat less so relative to these two North American countries. Because it is not obvious why our instrument would be correlated with these fixed factors, except for the fact that these are slowly moving over time, and because these factors explain almost 60 percent of the variation in our instrument, Table 6 makes us more comfortable with the idea that trade openness has a role in determining political outcomes rather than unobservable factors or other obvious underlying fixed characteristics of countries.[14]

We also present two other types of dynamic specifications in Table 5. The "partial adjustment" model of columns (7) through (9) shows that the long-run impact of a change in openness is roughly approximated by the simple non-dynamic specification. For instance column (9) shows for the post-1960 period that the long-run coefficient is comparable to the estimate of column (3). It is calculated as 0.1 ($= \frac{0.004}{1-0.96}$). For the interwar period, the long-run marginal impact appears larger than what column (3) would imply. Prior to World War I, the magnitude of the coefficient on openness varies between -0.002 and 0.006 and does not appear significant. For the latter two periods however, these specifications suggest that there is a dynamic process underway and that adjustment of the polity level to changes in openness is cumulative rather than immediate as one might expect.

The Arellano-Bond/GMM and Anderson-Hsiao/IV estimates are in columns (10) and (11) of Table 5. We find very mixed results when we eliminate fixed factors in this way. Most of the time the coefficient is statistically indistinguishable from zero which echoes the results from the other fixed effects specifications. In the GMM specification, we could not reject the null hypothesis of no second order autocorrelation in the transformed error terms, and so we rule out the possibility that this problem has caused our estimator to be inconsistent. The reason we find a coefficient statistically indistinguishable from zero is again unclear. It is known that the Arellano-Bond procedure can produce weak estimates in a panel context with high persistence in the dependent variable. The problems of invariance in the instrument cited above also creep

in here, so it is unclear how worthwhile these specifications are given the data structure.

In columns (3) through (6) of Table 6 we also control for the possibility of heterogeneous coefficients by region during the 1960-2000 period. It is possible that cross-regional differences in the relationship could seriously bias our aggregated estimates. We include separate slope coefficients on openness for a number of geographical regions. This is under the assumption that certain unobserved cultural or geographical variables could influence the connection between openness to trade and democracy in a similar way throughout the region. Our regions, as seen in Table 6, are South East and East Asia, Eastern Europe and Central Asian states, Middle East and Northern Africa, South Asia, Western Europe, Sub-Saharan Africa, Latin America and the Caribbean, and North America (consisting only of the United States and Canada).[15]

There appears to be a particularly significant positive relationship in Western Europe, North America, Latin America, South Asia and post-1989 Eastern Europe.[16] The same cannot be said for the Middle East/North Africa nor for Sub-Saharan Africa. In both regions, the estimated coefficient is usually negative and statistically different from zero. If we include lagged values of the polity score, the coefficient signs stay the same, but we can only reject the null hypothesis of no relationship for Latin America, Western Europe and the US and Canada.[17]

Besides showing some regional differences in the relation, another lesson from Table 6 is that primary commodity and petroleum exporters do not benefit from the pressures to democratize arising from international trade.[18] It would therefore tend to suggest that each dollar of international commerce is not equally beneficial for the process of democratization. This evidence would be compatible with the idea that increased competition in goods markets or Stolper-Samuelson effects in a two-factor model could force more competition in the political sphere.

4.1 Robustness: Year By Year Results

Results: 1960-2000

We present simple specifications similar to those above for various years so that the reader can see if the panel results are masking underlying changes in the relationship over time.[19] For various baseline years, Table 7 shows that there is a positive relationship between openness

and democracy which is statistically significant at conventional levels between 1960 and 1975. Simple OLS suggests the coefficient decreases over time from 0.23 in 1960 to a low of about 0.05 in 1995.[20]

Table 8 reports our year by year instrumental variables regressions. The relationship between international trade and democracy is positive but the coefficient tends to become less statistically significant over time. Up to 1980 it is significant at greater than the 90 percent level. The coefficient also changes magnitude somewhat from year to year and shows a tendency to be trending downwards (as in the OLS results) over time.

In all years, the relationship is fairly substantive. In 1960, when the estimated coefficient is at its maximum of 0.28. This seems substantive. A one standard deviation increase in openness, or a move from autarchy to the median level of openness of 12 percent, would imply an increase in the polity score of three and a half points. This is equal to almost one half of the polity score's standard deviation. According to the polity rankings in 1960, this would have been equivalent to seeing the likes of Brazil or Turkey become as democratic as the US, the UK or the Netherlands.

In the year 2000, when the coefficient is at its estimated low, the marginal effect of opening up from autarchy to the median level of openness (i.e., 18 percentage points) would have been to increase the polity score by a much smaller but still substantive 0.72 points. This implies a beta coefficient of about 0.13. In that year this would have been similar to moving from a polity score of 8, as in Mexico or Senegal, to one with a polity score of 9 as in France, South Africa or India.[21]

Robustness

We included size variables in Table 9. The difference between the results here and the previous table is largest in 1960 and 1965. Controlling for country size also increases the statistical significance of the coefficient on openness in most years. Besides eliminating the already discussed bias, it appears to alleviate the excessive influence Singapore exerts on the results.

Ordered probit specifications for selected years appear in Tables 11 and **??**. As mentioned

above, this specification of the dependent variable is technically more correct, but whether the parameterization makes a difference in practice to the substantive results is the question. We follow techniques adapted from Rivers and Vuong (1988) to control for endogeneity. Our results are qualitatively similar to the two-stage least squares results. The coefficient is larger in earlier years and openness is associated with more democracy. In contrast to the linear regressions, the coefficient is also statistically significant at greater than the 95 percent level in all years except 1970.[22]

Finally, our regressions use "generated instruments" as instruments rather than the geographic information itself. As in Wooldridge (2002 p. 117) the usual two-stage least squares standard errors are asymptotically correct under the assumption the parameters from the gravity equation are consistent and the correlation between the geographic information and the error term is zero. Nevertheless, we simulated the change in the standard error of the openness coefficient for small changes in the underlying geographic data.[23] This allows us to gauge how much sampling error could be affecting the standard errors. To save on computation time, we chose to carry out such a simulation for 1960 and 1995. Doing so barely altered the standard errors on the coefficient on openness. For example, our simulations yielded an increase of 0.001 in the standard error of the openness coefficient in both years.

Results: 1920-1938

For the 1920s and 1930s, our regressions support the idea that naturally open countries or places where trade was more important were less likely to fall to authoritarianism. Table 7 shows that during the interwar period there is a highly statistically significant and positive relationship between openness and democracy when not controlling for endogeneity. The results here show that the coefficient on openness is much larger than that in the pre- and post-War eras. In many years the coefficient is between 0.3 and 0.5. The marginal effect of a one standard deviation change in openness is measured as roughly four which is similar to that in the early post-1960 period.

Table 8 reports the instrumental variables regressions. The relationship between international trade and democracy is positive, highly statistically significant and larger than nearly all

the year by year estimates after 1960. The estimated coefficient of 0.53 in 1928 implies a move from the median level of PPP-adjusted openness of 21 percent to 10 percent (a one standard deviation decrease) would imply a decrease in the polity score of roughly six points. In Finland for example openness fell from 31 percent in 1928 to 19 percent in 1931. The polity score fell from ten to four between these years. Of course other countries experienced falls in measured openness during the worldwide depression, but the econometrics suggest the countries with the largest falls in trade would be expected to succumb to increasing authoritarianism.

For this sub-period we also tried other specifications of these baseline regressions. We included controls for size in Table 9 and obtained larger more statistically significant coefficients on openness then those in Table 8. Here there is almost a one-for-one relationship between openness and the polity score. Ordered probit results produce positive coefficients (and increases in the polity score for increases in openness) that are also highly statistically significant in all years of the interwar period.

Results: 1870-1913

For the relatively limited nineteenth century sample, Table 7 shows that in many of our benchmark years there is a statistically significant and positive relationship between openness and democracy.[24] Simple OLS suggests the coefficient on openness equals roughly 0.1.[25] Statistical significance is higher in the latter years of this period suggesting that this first wave of globalization (which dates from at least the mid-nineteenth century) took time to provoke the initial stimulus to democracy's first major advance.

Table 8 reports instrumental variables regressions. The relationship between international trade and democracy is positive and statistically significant at better than the 90 percent level in four out of the nine years presented. In most years, the OLS coefficient seems to be biased downward compared to the instrumental variables regressions. Since data were only available for these benchmark years, we are unable to tell if the coefficient is becoming increasingly significant over time or whether these results are sample-based.

The estimated coefficient of 0.1 implies that a move from autarchy to the median level of openness of 38 percent would yield an increase in the polity score of roughly four points.

According to the polity rankings in 1910, this would have been equivalent to seeing countries like Spain, Portugal or Denmark gain a polity score equal to the US or Canada.

We tried other specifications of these baseline regressions to test their sensitivity. Ordered probit results in Table **??** find some evidence that there is a positive relationship between democracy and openness. While the coefficient is positive and the marginal effects are too, in many years these are only statistically significant at about the 85 or 90 percent confidence level. One might attribute these imprecise results to the fact that the number of degrees of freedom are so small. Indeed, given the theoretical arguments and the other empirical evidence, we feel cautiously inclined to trust the point estimates and to downplay the large standard errors here.

5 Conclusions

In this study we attempt to gauge the causal impact of trade openness on the level of democracy. To do so we construct a measure of "natural" openness and use it to see if countries that are more naturally open are more democratic. Indeed we find that open countries have consistently been more strongly democratic between 1895 and 2000.

Our methods suggest that an autonomous move from autarchy to the average level of openness, perhaps through the ending of inward looking trade policies or the signing of trade agreements to lower tariffs, could raise a country's democracy measure by somewhere between three and five points over the long-run. This is a substantial increase. To put this in perspective, this would have been comparable to seeing countries like Argentina, South Korea, Brazil or Romania (all with polity scores of 8) achieve a polity score similar to the US, the UK or France in the year 2000.

Interestingly there is evidence that the strength of the relationship is fairly constant over time, and changes in openness also seem to have a long-run impact on the level of the polity score rather than an immediate short-run effect. Further evidence has shown that there may be variation by region in the impact. Unfortunately, we cannot totally rule out that a set of as yet un-identified fixed or slowly changing country-level variables is responsible for the move to democratization.

Since our definition of democracy is based on the Polity IV data set it may not capture all aspects of a democratic system. For the cautious reader, our results might be interpreted as saying that openness raises competition in the recruitment of the executive, more open participation in choosing the executive and more checks and balances against an executive. It would be interesting to find out through which channels openness is affecting the polity score.

Given the components that the polity score measures, this study may shed light on the kind of theoretical model one would need to explain this process. The results may be in line with a story that argues that openness and more fierce competition in goods markets creates similar pressures in the political system. This is something we intend to look at in future research from a theoretical and historical perspective.

Overall, the long-run patterns suggest a similar story for the period between 1870 and 1913, again between 1920 and 1939 and finally between 1960 and 2000. We believe there is adequate information available to argue that international trade or, at the very least, fundamental factors that drive openness to trade can help increase the process of building and consolidating democracy. Nevertheless, more research needs to be done to analyze the relative strength of this channel versus other factors.

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Notes

[1] *The Washington Post* (29 January 2001).

[2]Bernard Avishai, "America's invisible export," *Civilization*, April-May ???? 2000, p. 84.

[3]For example, it is compelling to think that the level of democracy is positively related to schooling levels. However, schooling itself is likely to be influenced by the political regime.

[4]An important point that Frankel and Romer made is that controls for size were necessary. Smaller countries are naturally more proximate to other countries and also engage in more international and less intra-national trade. If trade and exchange in general (i.e., the overall size of the economy), rather than international trade affected the amount of democracy, our instrument could be negatively correlated with the error term and therefore possibly biased downward. Therefore, key controls may be population and land area.

[5]We make land area and distance a time-varying variable. In principle, if the area of a country changes, then the geographic center of a country may also change. It turns out that we do not have too many observations with full data that change bilateral distance or area within our samples.

[6]We assume a heteroscedastic error process for equation (2). If we do not then $\widehat{T}_{it}$ will be multiplied by a pair-specific residual, and this would affect our regressions of interest. Assuming homoscedasticity makes it so that a constant pre-multiplies all of the instruments and hence will not affect our instrumental variables regressions.

[7]Treir and Jackman (2003) provide a recent analysis of some important issues and provide measures of the latent value of democracy. These variables could be of interest as a dependent variable in further study.

[8]We are aware that this comparative static is only an approximation. One problem with this is that categorical coding of the dependent variable makes it generally technically incorrect to suppose that incremental changes are uniform across the interval. Ordered probit analysis we undertake below helps us to be more precise about this.

[9]We have in fact carried out these specifications every five years between 1870 and 1910 (the only years for which we have data) and for all years between 1920 and 1939 and 1960 and 2000. Reporting only benchmark years does not change the qualitative results reported below.

[10]Our results differ from Bussman (2001) because she uses different instrumental variables than we do. Her results appear to rely mainly on population growth rates to instrument for openness. Contrary to Li and Reuveny (2003) we find a positive coefficient. This is possibly because of their use of fixed effects with a lagged dependent variable which is a mis-specification given the structure of the data. They also include other variables likely to be endogenous but do not correct for this problem either.

[11]Singapore is an extreme outlier for the 1960-2000 sample. In each year it massivley influences the results compared to its relative importance on the global scene. Taking Singapore out

changes our results drastically: in the specification of column (3) the coefficient is estimated at 0.21 and has a standard error of 0.01 while the other coefficients are qualitatively similar.

[12]We do not run a panel "fixed effects" regression with the lagged value of polity as in Li and Reuveny (2003). The presence in equation (1) of fixed effects indicators coupled with a lagged dependent variable would present an econometric problem even if there were no autocorrelation in the error term. To see why, one uses the notion that the fixed effects panel estimator can be written as a model where all the regressors are in terms of deviations from individual mean values. One immediately sees that the error term in this specification is a function of all periods' error terms, and because of this, the lagged dependent variable is correlated with this error term.

[13]In a regression of our instrument on the fixed factors included in Table 6 column (2) and year indicators, the R-Squared is roughly 0.6. This is another way to say that the instrument is fairly fixed over time and the root of our multicollinearity problems.

[14]We also included the average polity score of each country's Politically Relevant International Environment (PRIE) and output per capita. We instrumented the latter with distance from the equator. We define the PRIE as the US, the UK, France, and the USSR (or Russia after 1990). We include China if the country is in Asia. In the PRIE score we also include the polity score of all countries that are less than 601 miles from the home country. In the year-by-year specifications with this variable we ran, we found that openness is positively related and statistically significant at better than the 90 percent level up to1980. Output per capita is always positive and significant as is the PRIE polity score. In a panel specification openness is negative and significant or negative and insignificant depending on the particular specification. Still, the lack of convincing instruments for output per person and the econometric identification problem associated with neighborhood effects as outlined in Brock and Durlauf (2003) persuaded us not to report these specifications. While we are aware that the non-linear ordered probit model may identify the regional effects, we are cautious because of the remaining "selection" issues and because the instrument for openness does not seem related to the regional average choices.

[15]Prior to 1990 the countries for which we have data in the Eastern Europe region are Poland, Hungary, Romania and Turkey.

[16]If we leave out Singapore, East Asia also has a large, statistically significant and positive relationship.

[17]We also allowed for different slopes by region both for openness and lagged polity. The results are qualitatively similar to those of Table 6 where we allow for regional variation in the coefficient on openness.

[18]When we control for whether a country is a primary commodity exporter or a petroleum exporter by interacting these variables with openness in the baseline two-stage least squares regression, results show that these types of countries have significantly lower polity scores.

[19]Below we present ordered probit results for selected years. This type of model, strictly speaking, may be more appropriate for the structure of our dependent variable. We are also comfortable using continuous dependent variable techniques because, as the number of categories becomes large, ordered probit and linear models produce very similar results and because the predictions we get from our model are very nearly within the bounds of the actual outcomes.

[20]Again, Singapore is an extreme outlier. In each year it overly influences the results compared to its relative importance on the global scene. Taking Singapore out changes our results slightly up to 1980 and significantly after 1980. When we take it out, the coefficient on openness is highly statistically significant up to 2000 and does not show a secular decline.

[21]We also ran instrumental variables regressions with a quadratic term for openness including Singapore adding the square of predicted openness to our instrument list. Results are qualitatively very similar to (un-reported) results which left Singapore out. The total partial effect (evaluated at the mean of openness) ranges from a high of 0.50 in 1970 to a low of 0.14 in 2000. Nevertheless, the sum of the coefficients in the polynomial are statistically significant only from 1970 onwards which suggests a more linear relationship prior to the 1970s when global trade had yet to fully take off.

[22]As mentioned above, we used the binary data from Alvarez et. al. in an instrumental variables probit model including simply openness but also controls for country size and GDP per capita. Their data is available from 1960 to 1990. The results show a highly significant and positive relationship between democracy and openness. It would appear that the general positive correlation is not too sensitive to the way in which we code the democracy variable.

[23]Essentially we allow each variable in the gravity equation to increase by 0.001 and generate a new value of predicted trade. We then redo the instrumental variables regression to see how the standard error of our coefficient changes. See Frankel and Romer (1999) for a precise explanation.

[24]The countries in our 1910 sample are Great Britain, France, USA, Belgium, Switzerland, Italy, Germany, Denmark, Norway, Sweden, Austria, Russia, Spain, Portugal, Greece, Australia, Canada, Japan, Brazil, Mexico, Chile, Argentina and New Zealand.

[25]There are also a few outliers in this period with openness greater than 110 percent. Excluding the Netherlands from 1880, Switzerland in 1880 and Chile from 1880 to 1890 changes the simple linear model results drastically. The coefficients on openness are larger and more significant after 1890. However, including a quadratic for openness yields OLS results very similar to those found excluding these outliers.

Econometrics Appendix

Our random effects models assume that one part of the error term is idiosyncratic to the country, and, most importantly, that the country error is uncorrelated with the instrument, and other included or excluded regressors. Our fixed effects specifications allow us to relax this strong assumption and model any unobserved heterogeneity with a country specific intercept. The other benefit of this type of model is that it uses the variance over time in the data *within* a country to estimate the average relation between changes in openness to changes in democracy. The drawback is that if the regressors are uncorrelated with the country specific error component the estimates are inefficient and would tend to over-reject the null hypothesis of no correlation.

The partial adjustment model pools the data but allows for the influence of past outcomes by including the lagged value of the polity score. One natural interpretation of the partial adjustment model is that a country has a conditional target or optimal level of democracy, but that it is costly or difficult to adjust towards this level. The model hence allows for estimation of a short run-impact and a long-run impact on the level of democracy.[26] For all of these specifications we make sure to use heteroscedasticity and autocorrelation robust standard errors.

We also present a generalized method of moments (GMM) estimation technique for dynamic panels with fixed effects made operational by Arellano and Bond (1991). This type of technique is precisely for panel data models that have the structure of equation (1) but which might include lagged values of democracy to control for the importance of historical regime choice. Note that if previous levels of democracy matter, a fixed effects panel regression is not valid in this case because of the correlation between the error term and the lagged values induced by the within transformation.

To obtain unbiased estimates of the coefficients, one first writes equation (1) in first differences as follows

$$\Delta Democracy_{it} = Democracy_{it} - Democracy_{it-1} = \tag{4}$$

$$\widetilde{\beta}_0 + \widetilde{\delta}\left(\Delta \text{Openness}_{it}\right) + \sum_{k=1}^{T} \widetilde{\gamma}_k \left(\Delta Democracy_{it-k}\right) + \Delta u_{it}$$

where the "Δ" is the difference operator, and we use the "˜" to distinguish the coefficients estimated in this model from those of equation (1). Notice that the variables that are constant over time (e.g., the country fixed effects) fall out of the equation, and so we control for these factors by taking the first differences. The lagged dependent variable terms are correlated with the new error term since the lagged error term appears in the differenced error term. To get around this, one uses plausible instruments for the lagged values of the dependent variable. Assuming we restrict the lag structure to include only the first-lagged difference of the democracy measure, then any previous lag from period $t-2$ and before would be viable. These values are highly correlated with lagged democracy but are uncorrelated with the error term.[27]

The GMM estimates gain efficiency by using a large number of "moment" restrictions and solve for the parameters on the basis of those restrictions. In particular the moment restrictions here are that the expectations of the cross products of the lagged values used as instruments and the error terms are zero. We use up to the fifth lag of the dependent variable as an instrument, the level and first difference of predicted openness and the second lag of actual openness in the instrument set. Our justification for including the second lag of actual openness is that this variable can be considered predetermined and hence not correlated with the error term.[28] We use *Stata* and also reproduced our results in *Ox.* The details on estimation methods are given in the *Stata User's Manual*.

Anderson and Hsiao (1982) performed a similar regression using only the second lag as an instrument for the lagged difference. Arellano and Bond (1991) pointed out that using many more lags as instruments could increase the efficiency of the estimation. We present Anderson Hsiao type estimates for comparison.

Data Appendix

Democracy

1870-2000: We use the polity measure from the Polity IV data set. We classify this variable as missing if there is an interruption, interregnum, or transition. See the discussion in the text and the Polity IV manual for insight into how this variable is constructed.

Openness

1870-1913: Exports and imports were taken from Barbieri (1996), López Córdova and Meissner (2003) and Mitchell (1992, 1993 and 1995) . GDP come from the data set underlying López Córdova and Meissner (2003). Some additional nominal GDP and total trade values were taken from the data set used in Obstfeld and Taylor (2003). Nominal imports and exports were divided by the nominal value of GDP to arrive at an openness measure.

1917-1940: Exports and imports in dollars were taken from Barbieri (1996) and Mitchell (op. cit.). Nominal GDP data come from Eichengreen and Irwin (1995), Mitchell (op. cit.), Obstfeld and Taylor (2003), and Ritschl and Wolf (2003). Real PPP-adjusted GDP is available from Maddison (2001). For real-PPP adjusted openness we inflated current values of exports and imports to 1990 values using the US CPI from www.freelunch.com. We then divided these values by Maddison's GDP values.

1960-2000: Total trade in dollars comes from Rose (2003) supplemented by data from the IMF *International Financial Statistics* and the World Bank's *World Development Indicators*. We reflated trade using a US CPI available from www.freelunch.com. We divided these real values of trade by GDP values from the *Penn World Tables* supplemented by the *World Development Indicators*. To make the PPP adjustment, we used the GDP price level factor from the *World Development Indicators* to account for local deviations of the price levels.

Gravity Regression Components

Bilateral Trade

1870-1913: Bilateral trade comes from López Córdova and Meissner (2003). We divided current dollar value bilateral trade by nominal current dollar values of GDP. Using PPP-adjustments made the regressions of interest infeasible.

1917-1940: Bilateral trade comes from Barbieri (1996) supplemented by Ritschl and Wolf (2003). We converted trade to real 1990 values using a CPI for the US and divided these values by Maddison's PPP-adjusted GDP.

1960-2000: Bilateral trade comes from Rose (2003) supplemented by the IMF's *Direction of Trade Statistics*. We use the average of exports and imports as reported by both countries in a country pair rather then the average of all four possible values as in Rose (2003). We converted trade to real values as described above and divided by PPP-Adjusted GDP.

GDP

See previous notes on openness.

Population

1870-1913: Data come from López Córdova and Meissner (2003).

1917-1940: Populations come from Mitchell (op. cit.) supplemented by data from Eichengreen and Irwin (1995).

1960-2000: Population comes from the World Bank's *World Development Indicators.*

Land Area This is measured as the logarithm of square kilometers.

1870-1913: López Córdova and Meissner (2003)

1917-1940: Stinnett, Tir, Schafer, Diehl, and Gochman (2002)

1960-2000: Rose (2003)

Bilateral Distance

1870-1913: López Córdova and Meissner (2003)

1917-1940: Eichengreen and Irwin (1995)

1960-2000: Rose (2003)

Shared Border Indicators

1870-1913: López Córdova and Meissner (2003)

1917-1940: Eichengreen and Irwin (1995)

1960-2000: Rose (2003)

Landlocked Indicators

1870-1913: López Córdova and Meissner (2003).

1917-1940: Eichengreen and Irwin (1995)

1960-2000: Rose (2003)

Island Indicator

All years come from Rose (2003)

Common Language

1870-1913 and 1917-1940: López Córdova and Meissner (2003)

1960-2000: Rose (2003)

Table 1: Gravity Equation Results, 1870-2000

Regressors	*Year*								
	1960	*1965*	*1970*	*1975*	*1980*	*1985*	*1990*	*1995*	*2000*
distance	-0.65	-0.72	-0.94	-1.10	-1.14	-1.24	-1.30	-1.17	-1.27
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.03)	(0.03)
ln (area) country i	-0.10	-0.07	-0.17	-0.11	-0.14	-0.15	-0.13	-0.14	-0.07
	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
ln (area) country j	-0.12	-0.12	-0.19	-0.12	-0.14	-0.21	-0.23	-0.25	-0.12
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
ln (population) country i	-0.34	-0.35	-0.08	-0.11	-0.08	-0.05	0.00	0.01	-0.14
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
ln (population) country j	0.74	0.75	0.92	0.83	0.88	1.00	1.08	1.10	0.95
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
landlocked	-0.19	-0.19	-0.43	-0.50	-0.65	-0.74	-0.94	-1.13	-0.91
	(0.06)	(0.05)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.05)	(0.04)
island	0.38	0.42	0.27	0.19	0.10	0.29	0.14	0.20	0.46
	(0.05)	(0.05)	(0.06)	(0.06)	(0.05)	(0.06)	(0.06)	(0.05)	(0.05)
border	0.15	0.14	0.42	-0.04	0.16	0.12	0.28	0.79	0.80
	(0.13)	(0.12)	(0.13)	(0.14)	(0.14)	(0.14)	(0.14)	(0.13)	(0.11)
common language	0.41	0.45	0.45	0.44	0.33	0.34	0.30	0.52	0.55
	(0.06)	(0.05)	(0.06)	(0.06)	(0.06)	(0.07)	(0.07)	(0.06)	(0.05)
constant	-6.33	-6.25	-10.11	-8.22	-8.25	-9.70	-11.34	-12.52	-9.27
	(0.46)	(0.42)	(0.44)	(0.43)	(0.40)	(0.45)	(0.47)	(0.39)	(0.32)
Number of obs	4477	5699	8040	8817	9657	10051	10842	13005	11942
R-squared	0.44	0.43	0.35	0.33	0.34	0.31	0.33	0.36	0.46

Notes: Dependent variable in the "Gravity Eqaution" is the log of total bilateral trade divided by GDP. See the text for precise definitions.

Table 2: Gravity Equation Results, 1870-1939

Regressors	*Year*					
	1920	*1925*	*1928*	*1932*	*1935*	*1938*
distance	-0.61	-0.34	-0.51	-0.51	-0.42	-0.48
	(0.10)	(0.07)	(0.08)	(0.07)	(0.06)	(0.06)
ln (area) country i	0.22	0.09	-0.01	-0.02	-0.00	0.02
	(0.05)	(0.04)	(0.04)	(0.04)	(0.03)	(0.03)
ln (area) country j	0.07	-0.06	-0.04	-0.06	-0.04	-0.02
	(0.06)	(0.04)	(0.05)	(0.04)	(0.03)	(0.04)
ln (population) country i	-0.52	-0.49	-0.35	-0.35	-0.48	-0.51
	(0.07)	(0.05)	(0.06)	(0.05)	(0.04)	(0.05)
ln (population) country j	0.49	0.54	0.66	0.65	0.51	0.52
	(0.08)	(0.06)	(0.06)	(0.05)	(0.04)	(0.05)
landlocked	-0.23	-0.27	-0.22	-0.16	-0.18	-0.32
	(0.19)	(0.12)	(0.14)	(0.12)	(0.09)	(0.12)
island	0.70	0.41	0.00	0.04	0.48	0.50
	(0.16)	(0.12)	(0.13)	(0.12)	(0.09)	(0.10)
border	0.37	0.61	0.10	0.03	0.21	-0.11
	(0.30)	(0.19)	(0.22)	(0.19)	(0.15)	(0.19)
common language	0.99	0.90	1.21	1.24	1.14	1.01
	(0.25)	(0.18)	(0.22)	(0.20)	(0.16)	(0.18)
constant	-2.18	-3.77	-4.89	-5.29	-3.00	-2.67
	(1.23)	(0.88)	(0.99)	(0.86)	(0.70)	(0.80)
Number of obs	396	488	640	716	693	698
R-squared	0.38	0.43	0.36	0.38	0.48	0.42

Notes: Dependent variable in the "Gravity Eqaution" is the log of total bilateral trade divided by GDP. See the text for precise definitions.

Regressors	*Year*								
	1870	*1875*	*1880*	*1885*	*1890*	*1895*	*1900*	*1905*	*1910*
distance	-0.46	-0.50	-1.04	-1.00	-1.02	-0.93	-0.78	-0.67	-0.71
	(0.18)	(0.14)	(0.15)	(0.16)	(0.14)	(0.12)	(0.12)	(0.12)	(0.10)
ln (area) country i	0.06	0.01	0.16	0.14	0.11	0.09	0.05	-0.09	-0.02
	(0.08)	(0.07)	(0.08)	(0.08)	(0.07)	(0.06)	(0.07)	(0.06)	(0.05)
ln (area) country j	0.03	0.05	0.10	0.07	0.09	0.12	-0.07	-0.13	-0.03
	(0.09)	(0.07)	(0.08)	(0.09)	(0.08)	(0.07)	(0.07)	(0.06)	(0.05)
ln (population) country i	-0.43	-0.32	-0.24	-0.27	-0.33	-0.24	-0.21	-0.11	-0.17
	(0.13)	(0.10)	(0.12)	(0.12)	(0.11)	(0.09)	(0.10)	(0.08)	(0.07)
ln (population) country j	0.45	0.47	0.53	0.48	0.48	0.53	0.74	0.77	0.73
	(0.10)	(0.09)	(0.11)	(0.11)	(0.09)	(0.08)	(0.08)	(0.07)	(0.06)
landlocked	-0.97	-1.33	-1.41	-1.05	-0.77	-0.66	-0.65	-0.84	-0.41
	(0.45)	(0.34)	(0.43)	(0.42)	(0.34)	(0.26)	(0.25)	(0.26)	(0.22)
island	1.43	1.25	0.17	-0.21	0.12	0.41	-0.18	0.07	0.40
	(0.27)	(0.23)	(0.29)	(0.29)	(0.25)	(0.23)	(0.24)	(0.19)	(0.16)
border	1.29	1.91	0.73	0.45	0.48	0.59	0.68	0.89	0.53
	(0.40)	(0.32)	(0.42)	(0.42)	(0.37)	(0.33)	(0.35)	(0.36)	(0.30)
common language	1.36	0.80	1.19	0.82	0.76	0.79	0.53	0.65	1.01
	(0.44)	(0.32)	(0.43)	(0.44)	(0.38)	(0.33)	(0.34)	(0.32)	(0.28)
constant	-3.33	-3.13	-1.64	-0.87	-0.57	-1.93	-0.80	0.36	-1.05
	(1.13)	(0.93)	(1.17)	(1.21)	(1.07)	(0.91)	(0.95)	(0.89)	(0.78)
Number of obs	173	245	290	293	330	386	416	481	451
R-squared	0.50	0.52	0.37	0.34	0.40	0.42	0.41	0.39	0.49

Notes: Dependent variable in the "Gravity Eqaution" is the log of total bilateral trade divided by GDP. See the text for precise definitions.

Table 3: First Stage Regression Results, 1870-2000

Regressors	*Year*								
	1960	*1965*	*1970*	*1975*	*1980*	*1985*	*1990*	*1995*	*2000*
Predicted Openness	2.28	2.35	3.73	4.6	5.06	3.88	3.93	3.49	3.51
	(0.43)	(0.46)	(0.76)	(1.20)	(1.52)	(1.24)	(1.51)	(1.54)	(0.79)
constant	4.56	5.06	3.7	2.18	-0.29	3.1	4.3	6.58	0.9
	(1.84)	(1.94)	(2.70)	(5.91)	(9.19)	(5.25)	(7.18)	(8.99)	(5.29)
Number of obs	76	90	97	103	104	105	105	117	115
R-squared	0.58	0.48	0.47	0.4	0.44	0.42	0.29	0.26	0.4

NOTES: Dependent variable is the real value of total exports and imports divided by PPP-adjusted GDP. Predicted openness comes from the predicted values of the gravity equation presented in Table 1. Heteroscedasticity consistent errors are reported in parentheses.

Regressors	*Year*					
	1920	*1925*	*1928*	*1932*	*1935*	*1938*
Predicted Openness	0.83	1.01	0.84	1.08	1.06	0.95
	(0.22)	(0.12)	(0.28)	(0.25)	(0.12)	(0.25)
constant	15.20	7.92	15.06	5.77	5.25	8.10
	(4.88)	(2.65)	(3.46)	(1.92)	(1.60)	(2.51)
Number of obs	22	26	27	29	29	29
R-squared	0.37	0.61	0.22	0.36	0.66	0.57

NOTES: Dependent variable is real value of total exports and imports divided by PPP-adjusted GDP. Predicted openness comes from the predicted values of the gravity equation presented in Table 2. Heteroscedasticity consistent errors are reported in parentheses.

Regressors	*Year*								
	1870	*1875*	*1880*	*1885*	*1890*	*1895*	*1900*	*1905*	*1910*
Predicted Openness	0.95	0.98	0.86	1.16	1.15	1.52	1.36	1.16	1.18
	(0.39)	(0.37)	(0.23)	(0.34)	(0.30)	(0.29)	(0.29)	(0.25)	(0.28)
constant	13.40	15.35	20.11	17.15	17.41	11.78	12.93	17.62	9.77
	(8.42)	(10.12)	(7.76)	(7.71)	(8.25)	(7.01)	(5.62)	(5.31)	(6.49)
Number of obs	18	19	17	19	19	21	21	22	23
R-squared	0.34	0.32	0.24	0.20	0.28	0.35	0.47	0.48	0.62

NOTES: Dependent variable is total exports and imports divided by GDP. Predicted openness comes from the predicted values of the gravity equation presented in Table 1. Heteroscedasticity consistent errors are reported in parentheses.

Table 4: First Stage Regression Results for Pooled Data, 1870-2000

Variable	*Random Effects*	*Partial Adjustment*	*Random Effects Omitted Variables*	*Fixed Effects*
	(1)	*(2)*	*(3)*	*(4)*
Predicted Openness	3.65	3.53	3.57	1.68
	(0.10)	(0.11)	(0.13)	(0.13)
ln(population)	---	---	-3.68	---
			(0.35)	
ln (land area)	---	---	1.01	---
			(0.36)	
Polity *t-1*	---	0.34	---	---
		(0.06)		
Constant	-2.26	-2.29	43.45	-6.4
	(3.08)	(3.04)	(5.55)	(13.28)
Number of obs	4184	4084	4184	4184
R-Squared	0.40	0.41	0.43	0.83

Notes: Sample is 1960 to 2000. Dependent variable in all columns is real openness. Time dummies are not reported. Auto-correlation and heteroscedasticity consistent standard errors are reported in parentheses.

Variable	*Random Effects*	*Partial Adjustment*	*Random Effects Omitted Variables*	*Fixed Effects*
	(1)	*(2)*	*(3)*	*(4)*
Predicted Openness	0.88	0.68	0.58	0.23
	[0.06]	[0.06]	[0.08]	[0.04]
ln(population)	---	---	0.54	---
			[0.30]	
ln (land area)	---	---	-3.73	---
			[0.61]	
Polity *t-1*	---	0.66	---	
		[0.07]		
Constant	13.97	15.53	74.56	14.35
	[2.69]	[2.41]	[13.31]	[1.45]
Number of obs	522	518	522	522
R-Squared	0.50	0.62	0.57	0.9

Notes: Sample is 1920 to 1940. Dependent variable in all columns is real openness. Time dummies are not reported. Auto-correlation and heteroscedasticity consistent standard errors are reported in parentheses.

Variable	*Random Effects*	*Partial Adjustment*	*Random Effects Omitted Variables*	*Fixed Effects*
	(1)	*(2)*	*(3)*	*(4)*
Predicted Openness	1.76	1.35	1.9	0.35
	(0.24)	(0.36)	(0.28)	(0.30)
ln(population)	---	---	-2.32	---
			(3.23)	
ln (land area)	---	---	-6.26	---
			(4.99)	
Polity *t-1*	---	0.001	---	
		(0.56)		
Constant	-8.91	138.89	-8.97	32.58
	(10.07)	(94.63)	(12.56)	(10.59)
Number of obs	190	170	190	190
R-Squared	0.31	0.32	0.33	0.79

Notes: Sample is 1870 to 1910 with country year observations every five years. Dependent variable in all columns is real openness. Time dummies are not reported. Auto-correlation and heteroscedasticity consistent standard errors are reported in parentheses.

Table 5: Openness and Democracy: Panel Estimates for Three Periods

	Post World War II Sample: 1960-2000										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Variable	OLS	2SLS	2SLS	OLS	2SLS	2SLS	OLS	2SLS	2SLS	GMM	2SLS
Openness	0.08	0.13	0.13	-0.02	0.02	0.02	0.0003	0.004	0.004	-0.005	-0.14
	(0.01)	(0.01)	(0.01)	(0.01)	(0.03)	(0.02)	(0.001)	(0.002)	(0.003)	(0.006)	(0.10)
ln(population)	---	---	1.07	---	---	0.24	---	---	0.04	---	---
			(0.13)			(0.86)			(0.03)		
ln (land area)	---	---	-0.32	---	---	---	---	---	-0.01	---	---
			(0.13)						(0.02)		
Polity *t-1*	---	---	---	---	---	---	0.96	0.96	0.96	0.94	0.61
							(0.00)	(0.004)	(0.004)	(0.02)	(0.11)
Constant	-0.07	-0.93	-13.85	-11.46	-3.38	-3.54	-0.11	-0.03	-0.56	0.13	-0.55
	(1.13)	(1.16)	(2.76)	(5.03)	(5.01)	(13.6)	(0.22)	(0.20)	(0.48)	(0.12)	(0.48)
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummies	No	No	No	Yes	Yes	Yes	No	No	No	---	---
Number of obs	4184	4184	4184	4184	4184	4184	4084	4084	4084	3941	3622

Notes: Dependent variable in columns (1)-(9) is the Polity score. The dependent variable in columns (10) and (11) is the first difference of the Polity score. Auto-correlation and heteroscedasticity consistent standard errors are reported in parentheses in columns (1)-(9). Heteroscedasticity consistent standard errors are reported in parentheses in columns (10) and (11). Time dummies are not reported.

	Interwar Sample: 1920-1940										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Variable	OLS	2SLS	2SLS	OLS	2SLS	2SLS	OLS	2SLS	2SLS	GMM	2SLS
Openness	0.38	0.38	0.47	-0.02	-0.12	-0.15	0.02	0.03	0.06	0.03	0.48
	(0.03)	(0.04)	(0.06)	(0.04)	(0.14)	(0.13)	(0.01)	(0.01)	(0.02)	(0.02)	(1.44)
ln(population)	---	---	1.18	---	---	-6.17	---	---	-0.01	---	---
			(0.48)			(4.45)			(0.12)		
ln (land area)	---	---	-0.17	---	---	---	---	---	0.03	---	---
			(0.21)						(0.05)		
Polity *t-1*	---	---	---	---	---	---	0.98	0.97	0.63	0.77	0.02
							(0.01)	(0.02)	(0.03)	(0.08)	(1.17)
Constant	-2.21	-4.13	-23.19	11.43	12.53	110.09	0.17	-0.54	-1.2	-0.03	5.35
	(1.32)	(0.88)	(8.48)	(1.35)	(1.66)	(73.13)	(0.46)	(0.25)	(2.25)	(0.03)	(15.8)
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummies	No	No	No	Yes	Yes	Yes	No	No	No	---	---
Number of obs	522	522	522	522	518	522	518	518	518	481	466

Notes: Dependent variable in columns (1)-(9) is the Polity score. The dependent variable in columns (10) and (11) is the first difference of the Polity score. Auto-correlation and heteroscedasticity consistent standard errors are reported in parentheses in columns (1)-(9). Heteroscedasticity consistent standard errors are reported in parentheses in columns (10) and (11). Time dummies are not reported.

	Pre-World War I Sample: 1870-1910										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Variable	OLS	2SLS	2SLS	OLS	2SLS	2SLS	OLS	2SLS	2SLS	GMM	2SLS
Openness	0.02	0.07	0.10	0.0005	-0.14	-0.17	-0.002	0.006	-0.0004	0.02	0.13
	(0.01)	(0.03)	(0.06)	(0.01)	(0.15)	(0.16)	(0.003)	(0.006)	(0.01)	(0.02)	(0.08)
ln(population)	---	---	0.48	---	---	-4.15	---	---	-0.05	---	---
			(1.25)			(6.29)			(0.24)		
ln (land area)	---	---	0.44	---	---	---	---	---	-0.09	---	---
			(0.75)						(0.14)		
Polity *t-5*	---	---	---	---	---	---	0.96	0.95	0.95	0.66	0.62
							(0.02)	(0.02)	(0.02)	(0.06)	(0.4)
Constant	0.37	-3.12	-17.95	3.96	9.27	81.99	0.67	0.29	2.64	0.2	0.29
	(0.89)	(1.79)	(26.1)	(0.86)	(5.84)	(106.92)	(0.19)	(0.30)	(4.93)	(0.1)	(0.26)
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummies	No	No	No	Yes	Yes	Yes	No	No	No	---	
Number of Obs	190	190	190	190	190	190	170	170	170	147	108

Notes: Dependent variable in columns (1)-(9) is the Polity score. The dependent variable in columns (10) and (11) is the first difference of the Polity score which for this sample is recorded each five years. Auto-correlation and heteroscedasticity consister standard errors are reported in parentheses in columns (1)-(9). Heteroscedasticity consistent standard errors are reported in parentheses in columns (10) and (11). Time dummies are not reported. For this Pre-World War I sample, the observations are for country years every five years beginning in 1870.

Table 6: Instrumental Variables Estimations with Omitted Variables and Regional Coefficients, 1960-2000

Variable			*Variable*	*Regional Variation in Coefficients*			
	(1)	*(2)*		*(3)*	*(4)*	*(5)*	*(6)*
Openness	0.06	-0.01	East Asia Pacific x Openness	0.04	0.01	0.001	0.0006
	(0.01)	(0.01)		(0.01)	(0.01)	(0.002)	(0.002)
ln (population)	---	-0.19	Eastern Europe/CIS x Openness	0.13	0.07	0.01	0.01
		(0.13)		(0.03)	(0.04)	(0.01)	(0.01)
ln (land area)	---	-0.75	Middle East/North Africa x Openness	-0.13	-0.17	-0.01	-0.01
		(0.12)		(0.02)	(0.03)	(0.01)	(0.01)
Distance from Equator	0.15	0.18	South Asia x Openness	0.4	0.2	-0.004	-0.01
	(0.02)	(0.02)		(0.10)	(0.11)	(0.02)	(0.03)
Ethnolinguistic Fragmentation	3.76	5.5	Western Europe x Openness	0.19	0.17	0.01	0.01
	(0.58)	(0.61)		(0.01)	(0.01)	(0.002)	(0.003)
Primary Commodity Exporter Dummy	-2.04	-1.81	Sub-Saharan Africa x Openness	-0.12	-0.16	-0.01	-0.01
	(0.31)	(0.32)		(0.02)	(0.03)	(0.01)	(0.01)
Petroleum Exporter Dummy	-1.08	0.36	Latin America/Caribbean x Openness	0.14	0.09	0.01	0.01
	(0.50)	(0.53)		(0.02)	(0.02)	(0.004)	(0.01)
East Asia Pacific	-3.71	-5.21	USA/Canada x Openness	0.34	0.35	0.02	0.02
	(0.96)	(0.95)		(0.03)	(0.03)	(0.008)	(0.01)
Eastern Europe/CIS States	-7.99	-11.46	ln(population)	---	0.37	---	0.03
	(0.98)	(1.06)			(0.16)		(0.04)
Middle East/North Africa	-12.43	-15.22	ln (land area)	---	-0.52	---	-0.02
	(0.97)	(1.02)			(0.12)		(0.03)
South Asia	-3	-6.25	Polity t-1	---	---	0.94	0.94
	(1.06)	(1.14)				(0.01)	(0.01)
Western Europe	-2.12	-4.13	Constant	-0.23	1.12	0.02	-0.14
	(0.93)	(0.93)		(0.99)	(3.21)	(0.21)	(0.66)
Sub-Saharan Africa	-7.75	-11.22					
	(0.99)	(1.09)					
Latin America/Carribean	-2.17	-5					
	(0.97)	(1.03)					
Constant	-0.36	14.12					
	(1.46)	(3.08)					
Number of obs	4184	4184	Number of obs	4184	4184	4084	4084

NOTES: Dependent variable is the Polity score. Estimations assume a "random effects" error term. Auto-correlation and heteroscedasticity consistent standard errors are reported in parentheses in columns. Year indicators are not reported. Omitted category in the regional dummies is "North America" which includes Canada and the US.

Table 7: Democracy and Openness, OLS Regressions, 1870-2000

Regressors	*Year*								
	1960	*1965*	*1970*	*1975*	*1980*	*1985*	*1990*	*1995*	*2000*
Openness	0.23	0.21	0.17	0.08	0.05	0.08	0.07	0.04	0.05
	(0.06)	(0.05)	(0.08)	(0.04)	(0.04)	(0.06)	(0.05)	(0.03)	(0.03)
constant	-2.5	-3.56	-3.49	-2.99	-2.13	-1.56	0.4	3.2	3.37
	(1.28)	(1.21)	(1.45)	(1.21)	(1.35)	(1.31)	(1.31)	(1.08)	(1.00)
Number of obs	76	90	97	103	104	105	105	117	115
R-squared	0.15	0.13	0.11	0.05	0.05	0.05	0.06	0.04	0.08

NOTES: Dependent variable is the Polity score as described in text. GDP in the openness variable is adjusted for purchasing power parity. Heteroscedasticity consistent errors are reported in parentheses.

Regressors	*Year*					
	1920	*1925*	*1928*	*1932*	*1935*	*1938*
Openness	0.14	0.36	0.39	0.58	0.51	0.46
	(0.04)	(0.08)	(0.08)	(0.16)	(0.11)	(0.09)
constant	2.24	-4.37	-5.41	-3.88	-6.89	-6.28
	(1.81)	(2.52)	(2.58)	(2.77)	(2.89)	(2.67)
Number of obs	22	26	27	29	29	29
R-squared	0.37	0.5	0.51	0.31	0.35	0.39

NOTES: Dependent variable is the Polity score as described in text. GDP in the openness variable is adjusted for purchasing power parity. Heteroscedasticity consistent errors are reported in parentheses.

Regressors	*Year*								
	1870	*1875*	*1880*	*1885*	*1890*	*1895*	*1900*	*1905*	*1910*
Openness	0.11	0.07	0.08	0.09	0.08	0.12	0.15	0.12	0.10
	(0.06)	(0.07)	(0.07)	(0.05)	(0.05)	(0.06)	(0.06)	(0.05)	(0.06)
constant	-5.11	-3.03	-2.77	-2.59	-1.77	-3.36	-3.82	-1.74	-0.06
	(2.75)	(3.11)	(3.28)	(2.81)	(2.74)	(2.96)	(3.10)	(2.90)	(2.84)
Number of obs	18	19	17	19	19	21	21	22	23
R-squared	0.19	0.08	0.07	0.13	0.12	0.17	0.23	0.16	0.16

NOTES: Dependent variable is the Polity score as described in text. GDP in the openness variable is adjusted for purchasing power parity. Heteroscedasticity consistent errors are reported in parentheses.

Table 8: Democracy and Openness, Instrumental Variables Regressions, 1870-2000

Regressors	*Year*								
	1960	*1965*	*1970*	*1975*	*1980*	*1985*	*1990*	*1995*	*2000*
Openness	0.28	0.24	0.25	0.18	0.11	0.15	0.13	0.06	0.04
	(0.08)	(0.08)	(0.14)	(0.09)	(0.06)	(0.10)	(0.08)	(0.06)	(0.03)
constant	-3.25	-3.97	-4.87	-5.9	-4.05	-3.01	-1.44	2.45	3.61
	(1.39)	(1.55)	(2.49)	(2.32)	(1.99)	(2.17)	(2.22)	(1.68)	(1.03)
Number of obs	76	90	97	103	104	105	105	117	115
R-squared	0.14	0.13	0.09		0	0.02		0.02	0.08

NOTES: Dependent variable is the polity score as described in text. Instrumental variable for openness is the value of predicted openness as described in the text. Heteroscedasticity consistent errors are reported in parentheses.

Regressors	*Year*					
	1920	*1925*	*1928*	*1932*	*1935*	*1938*
Openness	0.23	0.36	0.53	0.79	0.51	0.43
	(0.07)	(0.11)	(0.17)	(0.23)	(0.14)	(0.10)
constant	-0.54	-4.21	-8.99	-6.61	-6.85	-5.85
	(2.71)	(3.13)	(4.72)	(3.99)	(3.30)	(2.84)
Number of obs	22	26	27	29	29	29
R-squared	0.23	0.50	0.45	0.27	0.35	0.39

NOTES: Dependent variable is the polity score as described in text. Instrumental variable for openness is the value of predicted openness as described in the text. Heteroscedasticity consistent errors are reported in parentheses.

Regressors	*Year*								
	1870	*1875*	*1880*	*1885*	*1890*	*1895*	*1900*	*1905*	*1910*
Openness	0.22	0.15	0.17	0.12	0.12	0.18	0.16	0.11	0.14
	(0.11)	(0.13)	(0.13)	(0.12)	(0.10)	(0.10)	(0.09)	(0.07)	(0.07)
constant	-9.7	-6.2	-5.93	-3.9	-3.07	-5.81	-4.19	-1.67	-1.39
	(4.52)	(5.56)	(5.97)	(5.64)	(4.83)	(4.58)	(4.26)	(3.71)	(3.23)
Number of obs	18	19	17	19	19	21	21	22	23
R-squared	---	---	---	0.11	0.11	0.12	0.23	0.16	0.14

NOTES: Dependent variable is the polity score as described in text. Instrumental variable for openness is the value of predicted openness as described in the text. Heteroscedasticity consistent errors are reported in parentheses.

Table 9: Democracy and Openness, Instrumental Variables Regressions Controlling for Country Size, 1870-2000

	Year								
Variable	*1960*	*1965*	*1970*	*1975*	*1980*	*1985*	*1990*	*1995*	*2000*
Openness	0.52	0.43	0.23	0.23	0.12	0.15	0.09	0.07	0.06
	(0.11)	(0.11)	(0.16)	(0.10)	(0.05)	(0.09)	(0.06)	(0.05)	(0.03)
Ln (population)	2.16	2.91	1.4	1.51	1.08	0.9	1.15	0.2	0.3
	(0.70)	(0.68)	(0.84)	(0.91)	(0.77)	(0.76)	(0.70)	(0.60)	(0.60)
ln (land area)	0.54	-0.91	-0.64	0.01	-0.21	-0.16	-0.64	0.08	0.1
	(0.82)	(0.49)	(0.61)	(0.85)	(0.79)	(0.70)	(0.73)	(0.54)	(0.54)
Constant	-48.07	-41.94	-18.96	-31.51	-19.07	-15.71	-11.06	-1.82	-2.98
	(13.13)	(11.84)	(14.35)	(13.46)	(9.51)	(9.89)	(8.91)	(7.90)	(7.31)
Number of obs	76	90	97	103	104	105	105	117	115
R-squared	0.18	0.21	0.15	---	0.02	0.04	0.08	0.02	0.09

NOTES: Dependent variable is the Polity score as described in text. Instrument for Openness is the value of predicted openness a described in the text. Heteroscedasticity consistent standard errors are in parentheses.

Regressors	Year					
	1920	*1925*	*1928*	*1932*	*1935*	*1938*
Openness	0.69	0.63	1.3	0.91	0.81	0.87
	(0.52)	(0.19)	(0.87)	(0.33)	(0.28)	(0.20)
Ln (population)	5.72	2.85	7.74	1.18	2.71	3.52
	(6.28)	(1.71)	(7.38)	(2.05)	(2.74)	(2.50)
ln (land area)	-0.62	-0.41	-1.08	-0.27	-0.14	0.78
	(0.94)	(0.58)	(1.15)	(0.83)	(0.72)	(0.68)
constant	-101.15	-52.52	-141.45	-24.24	-54.97	-80.78
	(112.41)	(31.83)	(135.05)	(37.97)	(49.06)	(42.62)
Number of obs	22	26	27	29	29	29
R-squared	---	0.46	---	0.23	0.35	0.4

NOTES: Dependent variable is the polity score as described in text. Instrumental variable for openness is the value of predicted openness as described in the text. Heteroscedasticity consistent errors are reported in parentheses.

Regressors	Year								
	1870	*1875*	*1880*	*1885*	*1890*	*1895*	*1900*	*1905*	*1910*
Openness	0.48	0.44	0.16	-0.01	0.07	0.17	0.05	0.01	0.07
	(0.26)	(0.51)	(0.35)	(0.18)	(0.18)	(0.17)	(0.09)	(0.06)	(0.07)
Ln (population)	2.95	3.06	2.37	-0.68	0.32	1.85	-0.2	-1.52	-0.91
	(2.92)	(3.83)	(6.07)	(4.34)	(3.57)	(2.80)	(2.64)	(2.38)	(2.18)
ln (land area)	2.82	2.72	0.22	-0.67	0.39	1.08	-0.28	-0.12	0.78
	(2.03)	(3.97)	(2.45)	(1.63)	(2.30)	(2.35)	(1.84)	(1.49)	(1.49)
constant	-104.57	-103.49	-49.7	21.17	-12.23	-51.56	6.78	29.22	5.49
	(73.72)	(127.39)	(139.81)	(92.17)	(88.15)	(69.04)	(59.64)	(48.80)	(47.31)
Number of obs	18	19	20	21	21	22	22	23	24
R-squared	---	---	0.02	---	---	---	0.04	---	

NOTES: Dependent variable is the polity score as described in text. Instrumental variable for openness is the value of predicted openness as described in the text. Heteroscedasticity consistent errors are reported in parentheses.

Table 10: Ordered Probit "Instrumental Variables" Regressions with Additional Controls, 1960-2000, 1920-1938

	Post World War II Sample: 1960-2000								
Variable	*1960*	*1965*	*1970*	*1975*	*1980*	*1985*	*1990*	*1995*	*2000*
Openness	0.06	0.05	0.04	0.04	0.03	0.03	0.02	0.02	0.02
	(0.02)	(0.01)	(0.03)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Openness Residuals	-0.03	-0.02	-0.02	-0.04	-0.02	-0.03	-0.01	-0.01	-0.004
	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
ln (Population)	0.34	0.41	0.2	0.15	0.12	0.12	0.1	-0.03	0.002
	(0.11)	(0.11)	(0.12)	(0.09)	(0.09)	(0.09)	(0.11)	(0.12)	(0.13)
ln (land area)	0.05	-0.15	-0.06	0.04	0.01	0.02	-0.02	0.06	0.08
	(0.11)	(0.08)	(0.10)	(0.11)	(0.11)	(0.11)	(0.11)	(0.09)	(0.11)
Cutpoint 1	5.04	3.13	0.61	1.86	0.41	1.44	-0.11	-1.63	-0.35
Cutpoint 2	5.84	4.53	1.99	2.68	1.59	1.83	0.30	-0.86	0.00
Cutpoint 3	6.08	4.61	2.15	2.94	1.87	2.60	1.25	-0.48	0.12
Cutpoint 4	6.50	5.15	2.86	3.70	2.48	2.73	1.41	-0.34	0.37
Cutpoint 5	6.63	5.25	2.89	3.80	2.61	2.78	1.49	-0.14	0.53
Cutpoint 6	6.75	5.39	2.95	3.83	2.69	2.81	1.52	-0.01	0.70
Cutpoint 7	6.79	5.42	2.98	3.89	2.74	2.83	1.55	0.11	0.81
Cutpoint 8	6.87	5.45	3.01	3.97	2.77	2.88	1.60	0.21	0.84
Cutpoint 9	7.03	5.59	3.06	4.00	2.87	2.96	1.63	0.29	0.87
Cutpoint 10	7.08	5.69	3.12	4.05	2.92	2.98	1.68	0.31	0.93
Cutpoint 11	7.16	5.76	3.20	4.08	2.95	3.01	1.70	0.38	0.98
Cutpoint 12	7.37	5.80	3.32	4.13	2.98	3.03	1.75	0.41	1.06
Cutpoint 13	7.51	5.90	3.38	4.22	3.00	3.08	1.80	0.57	1.15
Cutpoint 14	7.60	6.01	3.44	4.25	3.06	3.13	1.95	0.79	1.37
Cutpoint 15	7.78	6.12	3.50	4.28	3.08	3.18	2.08	0.99	1.69
Cutpoint 16	7.96	6.27	3.53	4.50	3.17	3.29	2.13	1.23	2.00
Cutpoint 17	8.01	6.44	3.59	4.68	3.23	3.46	2.38	1.56	2.29
Cutpoint 18	---	6.48	3.80	---	3.41	3.66	2.59	---	---
Cutpoint 19	---	---	4.00	---	3.65	---	---	---	---
Number of obs	76	90	97	103	104	105	105	117	115
Pseudo R-squared	0.05	0.05	0.03	0.02	0.02	0.02	0.03	0.02	0.04

NOTES: Dependent variable is the Polity score as described in text. Openness Residuals are the resdiuals of a regression of actual openness on predicted openness, population and land area. Heteroscedasticity consistent errors are reported in parentheses.

	Interwar Sample: 1920-1938					
Variable	*1920*	*1925*	*1928*	*1932*	*1935*	*1938*
Openness	0.15	0.43	0.27	0.42	0.32	0.12
	(0.06)	(0.12)	(0.09)	(0.23)	(0.13)	(0.05)
Openness Residuals	-0.11	-0.31	-0.16	-0.33	-0.23	0
	(0.06)	(0.13)	(0.11)	(0.26)	(0.16)	(0.05)
ln (Population)	0.75	2.12	0.85	1.38	1.53	0.35
	(0.46)	(0.87)	(0.64)	(1.22)	(0.86)	(0.49)
ln (land area)	-0.28	0.06	0.2	-0.02	0.13	0.18
	(0.21)	(0.21)	(0.22)	(0.16)	(0.14)	(0.14)
Cutpoint 1	10.59	43.16	19.53	26.92	30.48	7.56
Cutpoint 2	11.43	43.81	20.25	27.28	31.53	8.46
Cutpoint 3	11.72	44.02	20.49	27.52	31.66	8.63
Cutpoint 4	11.98	44.26	21.07	28.01	31.90	8.93
Cutpoint 5	12.51	44.51	21.26	28.15	32.14	9.31
Cutpoint 6	12.81	44.80	21.47	28.41	32.26	9.44
Cutpoint 7	13.31	45.06	21.72	28.55	32.38	9.58
Cutpoint 8	13.86	45.30	21.96	28.69	32.52	9.73
Cutpoint 9	---	45.58	22.15	28.83	32.66	9.87
Cutpoint 10	---	46.09	22.34	28.95	32.94	10.01
Cutpoint 11	---	---	22.53	29.21	33.12	10.16
Cutpoint 12	---	---	22.90	29.34	---	10.32
Number of obs	22	26	27	29	29	29
Pseudo R-squared	0.22	0.29	0.22	0.12	0.16	0.14

NOTES: Dependent variable is the Polity score as described in text. Openness Residuals are the resdiuals of a regression of actual openness on predicted openness, population and land area. Heteroscedasticity consistent errors are reported in parentheses.

Table 11: Ordered Probit "Instrumental Variables" Regressions with Additional Controls, 1870-1910

	Pre World War I Sample: 1870-1910								
Variable	*1870*	*1875*	*1880*	*1885*	*1890*	*1895*	*1900*	*1905*	*1910*
Openness	0.06	0.04	0.02	0.001	0.02	0.06	0.01	0.01	0.05
	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.04)	(0.03)	(0.02)	(0.02)
Openness Residuals	-0.04	-0.02	-0.01	0.004	-0.01	-0.06	-0.02	-0.01	-0.05
	(0.01)	(0.02)	(0.02)	(0.03)	(0.03)	(0.04)	(0.03)	(0.02)	(0.02)
ln (Population)	0.67	0.34	0.14	-0.17	0.04	0.53	-0.1	-0.31	0.1
	(0.43)	(0.48)	(0.47)	(0.62)	(0.69)	(0.63)	(0.53)	(0.43)	(0.47)
ln (land area)	0.17	0.12	-0.16	-0.21	0.1	0.35	-0.003	0.1	0.52
	(0.23)	(0.33)	(0.31)	(0.34)	(0.42)	(0.42)	(0.38)	(0.32)	(0.29)
Cutpoint 1	14.31	7.09	-0.89	-7.55	1.08	13.95	-2.96	-5.33	8.66
Cutpoint 2	15.05	7.51	-0.42	-7.08	2.11	14.33	-2.53	-4.97	9.02
Cutpoint 3	15.30	7.81	-0.11	-6.79	2.41	15.13	-2.05	-4.51	9.27
Cutpoint 4	15.53	8.80	0.81	-6.06	2.66	15.42	-1.60	-4.20	9.46
Cutpoint 5	16.16	9.10	1.08	-5.80	3.02	15.67	-1.47	-4.07	9.63
Cutpoint 6	16.56	9.24	1.21	-5.68	3.28	16.02	-1.36	-3.94	9.80
Cutpoint 7	16.74	9.39	1.34	-5.45	3.41	16.15	-1.01	-3.58	10.24
Cutpoint 8	16.95	9.55	1.62	-5.33	3.72	16.30	-0.89	-3.46	10.38
Cutpoint 9	17.16	9.73	1.78	-5.07	3.91	16.44	-0.64	-3.35	10.51
Cutpoint 10	17.37	9.92	2.12	-4.92	---	16.76	-0.51	-3.12	10.77
Cutpoint 11	17.58	10.13	---	-4.57	---	16.96	-0.36	-2.86	11.00
Cutpoint 12	17.85	10.36	---	---	---	---	-0.19	-2.71	11.26
Cutpoint 13	18.46	---	---	---	---	---	---	---	11.41
Number of obs	18	19	20	21	21	22	22	23	24
Pseudo R-squared	0.1	0.05	0.03	0.02	0.01	0.03	0.02	0.02	0.05

NOTES: Dependent variable is the Polity score as described in text. Openness Residuals are the resdiuals of a regression of actual openness on predicted openness, population and land area. Heteroscedasticity consistent errors are reported in parentheses.

Figure 1: Global Un-Weighted Averages of Democracy and Openness, 1870-1910

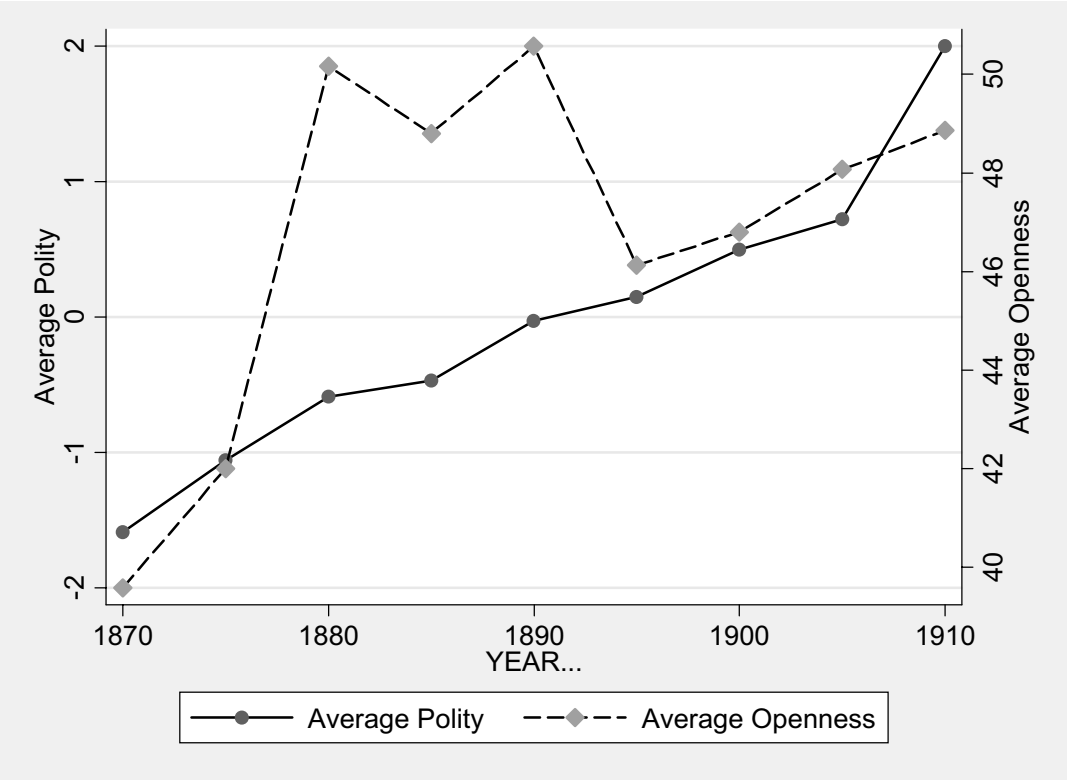


Figure 2: Global Un-Weighted Averages of Democracy and Openness, 1917-1939

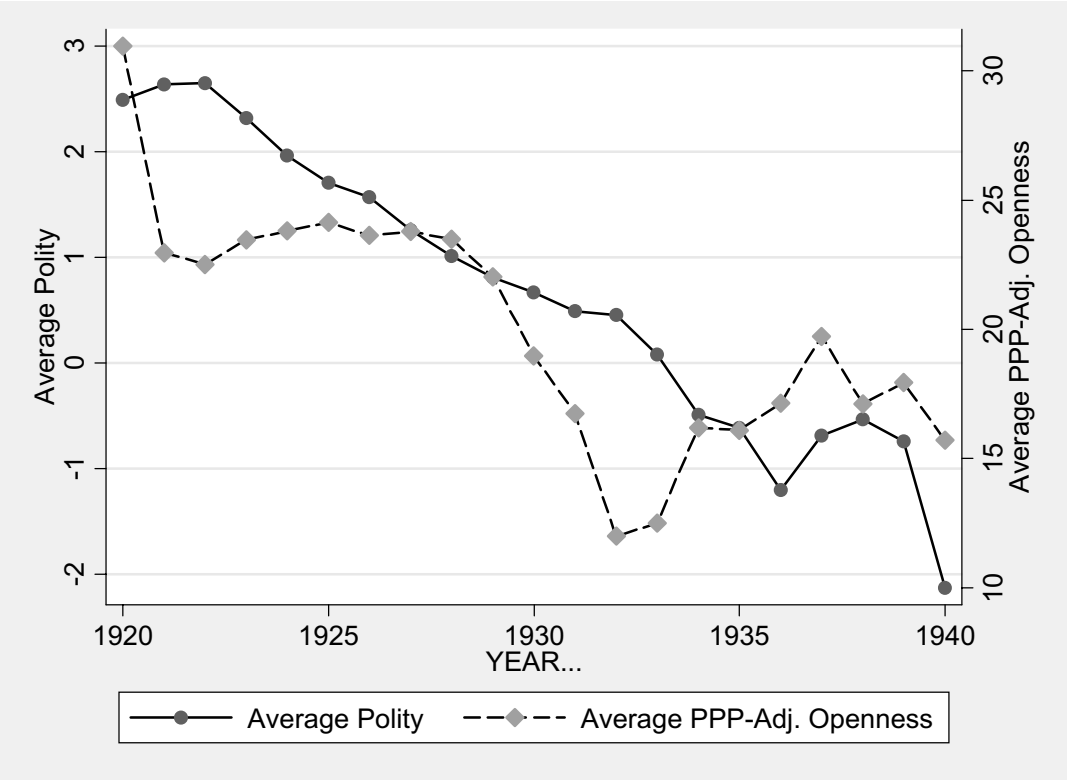
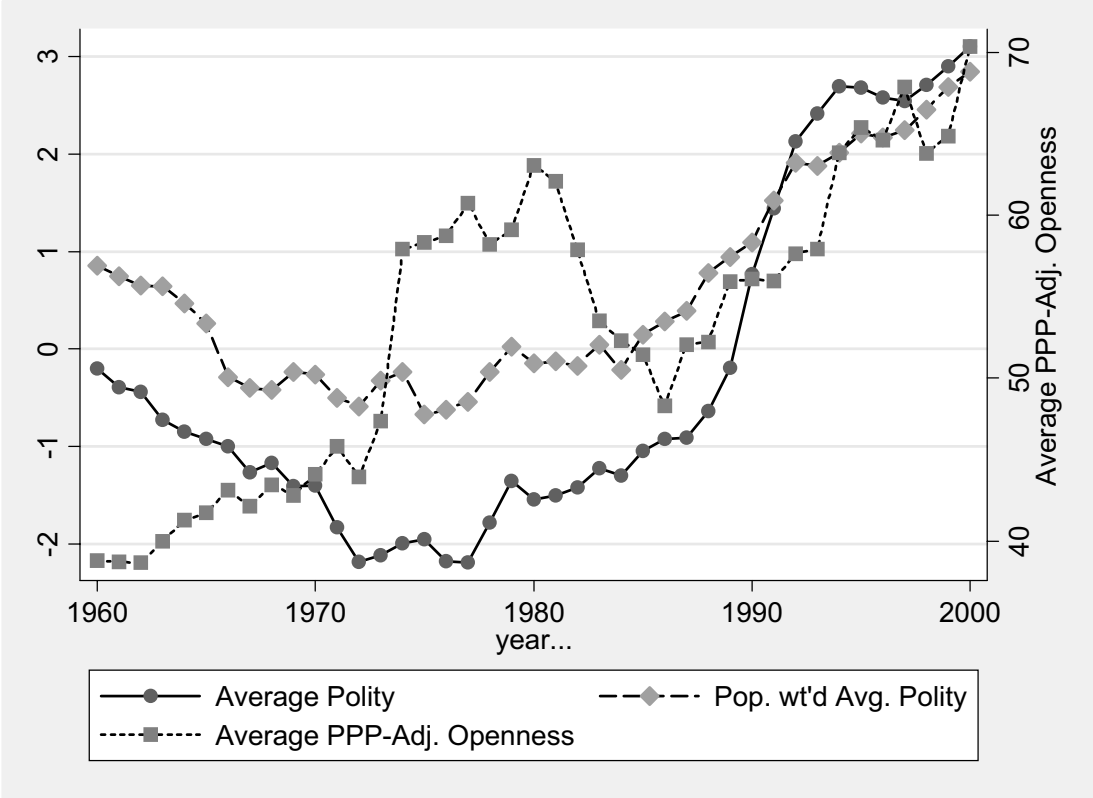


Figure 3: Global Averages of Democracy and Openness, 1960-2000



Pre World War I Sample

Country	Year	Polity	Openness	Predicted Openness	Country	Year	Polity	Openness	Predicted Openness
Argentina	1885	1	91.04	20.06	Denmark	1870	-3	36.19	36.58
Argentina	1890	1	55.36	18.24	Denmark	1875	-3	43.94	38.96
Argentina	1895	1	32.47	14.54	Denmark	1880	-3	44.57	25.42
Argentina	1900	1	41.92	11.47	Denmark	1885	-3	41.24	29.36
Argentina	1905	1	53.61	8.84	Denmark	1890	-3	46.32	34.74
Argentina	1910	1	43.27	14.34	Denmark	1895	-3	48.59	26.74
Australia	1905	10	40.54	6.77	Denmark	1900	-3	49.83	32.33
Australia	1910	10	40.82	18.30	Denmark	1905	2	54.63	36.29
Austria	1870	-4	42.24	10.58	Denmark	1910	5	54.57	39.00
Austria	1875	-4	59.40	10.09	France	1870	-2	28.99	18.26
Austria	1880	-4	63.16	12.03	France	1875	5	38.34	25.27
Austria	1885	-4	51.07	12.43	France	1880	7	39.73	24.12
Austria	1890	-4	56.75	14.47	France	1885	7	33.95	21.70
Austria	1895	-4	52.45	15.74	France	1890	7	39.27	20.11
Austria	1900	-4	33.59	17.08	France	1895	7	32.16	19.64
Austria	1905	-4	32.43	15.64	France	1900	8	40.36	23.25
Austria	1910	-4	30.59	26.41	France	1905	8	26.90	26.24
Belgium	1870	6	46.05	55.95	France	1910	8	35.19	27.16
Belgium	1875	6	60.41	63.30	Germany	1870	-5	28.64	18.70
Belgium	1880	6	68.67	51.75	Germany	1875	-4	22.06	24.92
Belgium	1885	6	62.03	42.54	Germany	1880	-4	31.50	24.89
Belgium	1890	6	65.81	46.61	Germany	1885	-4	28.75	23.03
Belgium	1895	6	67.79	38.11	Germany	1890	1	29.43	21.92
Belgium	1900	6	73.89	42.47	Germany	1895	1	27.17	22.05
Belgium	1905	6	97.68	58.21	Germany	1900	1	29.89	24.10
Belgium	1910	6	109.17	58.13	Germany	1905	1	30.93	26.42
Brazil	1870	-6	28.59	13.84	Germany	1910	2	33.47	30.17
Brazil	1875	-6	26.28	13.06	Greece	1870	9	40.04	33.14
Brazil	1880	-6	28.20	9.49	Greece	1875	9	52.49	33.65
Brazil	1885	-6	22.98	9.93	Greece	1880	10	38.35	18.70
Brazil	1890	-3	22.62	8.47	Greece	1885	10	34.28	22.20
Brazil	1895	-3	38.05	7.80	Greece	1890	10	43.37	23.93
Brazil	1900	-3	35.22	8.01	Greece	1895	10	54.48	18.75
Brazil	1905	-3	29.86	5.95	Greece	1900	10	68.40	22.39
Brazil	1910	-3	28.29	8.73	Greece	1905	10	56.68	23.27
Canada	1870	4	38.72	50.83	Greece	1910	10	46.78	28.18
Canada	1875	4	37.23	32.26	Italy	1870	-4	18.04	13.31
Canada	1880	4	37.52	32.92	Italy	1875	-4	22.39	16.33
Canada	1885	4	31.41	24.92	Italy	1880	-4	21.27	15.22
Canada	1890	9	28.94	23.52	Italy	1885	-4	21.85	16.34
Canada	1895	9	33.19	21.91	Italy	1890	-4	18.82	15.90
Canada	1900	9	41.11	19.00	Italy	1895	-4	19.52	15.50
Canada	1905	9	39.00	12.63	Italy	1900	-1	23.52	18.76
Canada	1910	9	36.73	24.19	Italy	1905	-1	26.53	20.41
Chile	1895	3	52.79	14.58	Italy	1910	-1	30.83	22.68
Chile	1900	3	52.24	11.80					
Chile	1905	3	51.69	10.47					
Chile	1910	3	45.48	17.39					

Pre World War I Sample

Country	Year	Polity	Openness	Predicted Openness	Country	Year	Polity	Openness	Predicted Openness
Japan	1875	1	9.01	18.94	Sweden	1870	-4	30.54	23.21
Japan	1880	1	8.84	5.95	Sweden	1875	-4	34.62	20.82
Japan	1885	1	8.28	4.30	Sweden	1880	-4	38.16	20.19
Japan	1890	1	13.15	5.38	Sweden	1885	-4	42.92	23.29
Japan	1895	1	18.54	8.19	Sweden	1890	-4	46.10	24.34
Japan	1900	1	20.95	6.15	Sweden	1895	-4	39.20	19.55
Japan	1905	1	26.94	8.56	Sweden	1900	-4	40.09	20.85
Japan	1910	1	25.63	14.63	Sweden	1905	-4	40.42	17.93
Mexico	1895	-9	18.03	11.83	Sweden	1910	1	34.88	24.34
Mexico	1900	-9	21.98	11.66	Switzerland	1870	10	107.25	45.84
Mexico	1905	-9	21.58	10.29	Switzerland	1875	10	82.40	30.64
Mexico	1910	-9	16.13	15.13	Switzerland	1885	10	90.99	26.66
Netherlands	1870	-3	89.82	42.90	Switzerland	1890	10	90.25	39.85
Netherlands	1875	-3	98.21	48.60	Switzerland	1895	10	82.26	35.55
New Zealand	1910	10	59.16	23.34	Switzerland	1900	10	86.85	36.81
Norway	1870	-7	33.88	35.18	Switzerland	1905	10	83.55	38.38
Norway	1875	-4	35.54	30.79	Switzerland	1910	10	78.42	70.13
Norway	1880	-4	35.87	27.39	UK	1870	3	44.83	35.49
Norway	1885	-2	36.71	31.69	UK	1875	3	45.58	29.28
Norway	1890	-2	43.48	35.44	UK	1880	7	47.34	14.22
Norway	1895	-2	43.30	25.94	UK	1885	7	45.28	11.21
Norway	1900	10	43.61	26.49	UK	1890	7	46.95	13.97
Norway	1905	10	48.43	21.86	UK	1895	7	41.64	17.39
Norway	1910	10	48.42	30.09	UK	1900	7	41.55	11.78
Portugal	1870	-7	11.53	23.68	UK	1905	8	43.46	16.00
Portugal	1875	-7	12.21	25.26	UK	1910	8	49.63	26.97
Portugal	1880	-5	11.89	19.10	US	1870	8	14.67	12.48
Portugal	1885	-5	9.73	20.89	US	1875	10	14.61	10.24
Portugal	1890	-4	9.64	22.64	US	1880	10	14.32	9.83
Portugal	1895	-4	8.76	18.58	US	1885	10	12.79	8.35
Portugal	1900	-3	11.09	21.50	US	1890	10	12.80	6.65
Portugal	1905	-3	10.71	22.97	US	1895	10	11.39	7.28
Portugal	1910	5	11.19	26.14	US	1900	10	12.37	6.95
Russia	1870	-10	15.99	5.42	US	1905	10	10.72	5.94
Russia	1875	-10	17.47	5.66	US	1910	10	10.09	9.07
Russia	1880	-10	19.33	5.24					
Russia	1885	-10	14.95	5.12					
Russia	1890	-10	16.20	3.87					
Russia	1895	-10	15.48	4.51					
Russia	1900	-10	18.30	5.21					
Russia	1905	-8	20.28	4.35					
Russia	1910	-6	22.51	5.68					
Spain	1870	-1	53.82	17.67					
Spain	1875	-2	65.53	20.00					
Spain	1880	4	80.93	18.35					
Spain	1885	4	76.55	18.72					
Spain	1890	5	102.26	17.90					
Spain	1895	4	89.16	16.27					
Spain	1900	6	24.04	18.79					
Spain	1905	6	22.19	18.95					
Spain	1910	6	20.57	21.80					

Interwar Sample (Selected Years)

Country	Year	Polity	Openness	Predicted Openness	Country	Year	Polity	Openness	Predicted Openness
Argentina	1920	2	32.30047	11.01293	Denmark	1935	10	28.42147	18.02066
Argentina	1925	2	22.44866	10.05485	Denmark	1938	10	31.44788	16.3688
Argentina	1928	2	31.58344	4.908739	Finland	1920	10	31.14848	32.82867
Argentina	1932	-8	18.38628	2.739802	Finland	1925	10	28.05248	27.03953
Argentina	1935	-8	14.59128	4.852636	Finland	1928	10	31.48577	16.13948
Argentina	1938	5	13.58346	4.333468	Finland	1932	4	14.92732	9.016779
Australia	1920	10	36.72851	48.87484	Finland	1935	4	22.90092	16.81315
Australia	1925	10	30.9635	27.93943	Finland	1938	4	28.181	15.61015
Australia	1928	10	31.93664	8.031909	France	1920	9	25.1789	14.39681
Australia	1932	10	15.46165	4.764886	France	1925	9	18.71732	11.74933
Australia	1935	10	23.07502	14.82286	France	1928	9	18.04633	10.01791
Australia	1938	10	23.73367	13.95065	France	1932	10	12.10662	5.706737
Austria	1920	8	36.67087	21.61625	France	1935	10	13.81699	7.639828
Austria	1925	8	22.20946	20.46654	France	1938	10	11.3162	6.129203
Austria	1928	8	24.44472	18.22814	Germany	1920	6	11.00473	10.31163
Austria	1932	8	15.39093	10.94642	Germany	1925	6	25.2726	8.750384
Austria	1935	-9	19.40895	17.01783	Germany	1928	6	28.13314	7.667823
Belgium	1920	9	37.89402	23.11065	Germany	1932	6	18.63021	4.416
Belgium	1925	9	32.73733	22.78155	Germany	1935	-9	18.79601	5.656473
Belgium	1928	9	34.16899	24.78641	Germany	1938	-9	19.01375	4.264195
Belgium	1932	10	24.20234	14.3443	Greece	1932	10	7.045396	6.448625
Belgium	1935	10	29.23129	20.61038	Greece	1935	8	9.492249	11.28056
Belgium	1938	10	35.92855	16.66606	Greece	1938	-8	10.97038	9.766174
Brazil	1920	-3	23.24113	6.792841	Hungary	1920	-1	5.982059	14.30417
Brazil	1925	-3	22.04309	5.433285	Hungary	1925	-1	11.50909	13.29246
Brazil	1928	-3	19.75165	2.872749	Hungary	1928	-1	13.31461	11.26695
Brazil	1932	-6	8.119043	1.595503	Hungary	1932	-1	6.144154	6.821486
Brazil	1935	-7	11.17021	2.449814	Hungary	1935	-1	10.96023	10.55223
Brazil	1938	-7	11.10031	2.175416	Hungary	1938	-1	10.87556	7.978888
Bulgaria	1925	-3	14.31328	17.96353	Ireland	1938	8	33.42023	42.85796
Bulgaria	1928	-3	10.45606	11.78954	Italy	1920	-1	9.833019	8.470244
Bulgaria	1932	-3	5.56136	6.664224	Italy	1925	-6	11.81782	7.845524
Bulgaria	1935	-10	9.416818	11.71022	Italy	1928	-9	12.95589	7.01623
Bulgaria	1938	-10	11.68399	9.819953	Italy	1932	-9	6.616289	4.096504
Canada	1920	9	48.49797	44.20436	Italy	1935	-9	8.000669	5.473645
Canada	1925	10	40.66316	26.04116	Italy	1938	-9	7.68871	4.609803
Canada	1928	10	40.55737	14.05319	Japan	1920	1	16.34831	4.554744
Canada	1932	10	21.90749	7.530413	Japan	1925	1	15.378	4.767857
Canada	1935	10	30.3502	12.64926	Japan	1928	1	15.79589	2.189258
Canada	1938	10	23.74231	10.7379	Japan	1932	1	8.593195	1.343102
Czechoslovakia	1920	7	16.24681	12.40754	Japan	1935	1	9.665244	3.066056
Czechoslovakia	1925	7	23.16344	11.31051	Japan	1938	1	9.186575	2.583419
Czechoslovakia	1928	7	22.78081	9.630163	Mexico	1925	-3	15.4564	9.310863
Czechoslovakia	1932	7	11.81107	5.777999	Mexico	1928	-3	13.68325	5.137839
Czechoslovakia	1935	7	16.55017	8.513637	Mexico	1932	-6	7.637097	2.86789
Denmark	1920	10	45.5032	20.86858	Mexico	1935	-6	9.212982	4.902993
Denmark	1925	10	42.37515	22.59979	Mexico	1938	-6	9.604686	4.075137
Denmark	1928	10	42.7605	17.51132					
Denmark	1932	10	23.92346	10.12856					

Interwar Sample (Selected Years)

Country	Year	Polity	Openness	Predicted Openness	Country	Year	Polity	Openness	Predicted Openness
Netherlands	1920	10	46.9003	19.69044	United Kingdom	1920	8	45.71641	14.41412
Netherlands	1925	10	36.28383	18.65312	United Kingdom	1925	10	31.78052	11.36734
Netherlands	1928	10	34.21536	19.2344	United Kingdom	1928	10	29.44017	7.696689
Netherlands	1932	10	22.0736	11.15156	United Kingdom	1932	10	15.63006	4.743555
Netherlands	1935	10	26.12372	16.13372	United Kingdom	1935	10	20.54566	9.523619
Netherlands	1938	10	28.83083	14.04287	United Kingdom	1938	10	21.65252	8.035958
New Zealand	1920	10	46.87957	51.23696	United States	1920	10	15.67878	7.712743
New Zealand	1925	10	53.1498	43.91117	United States	1925	10	9.505532	5.394029
New Zealand	1928	10	51.51109	13.94839	United States	1928	10	9.218752	3.414791
New Zealand	1932	10	14.68312	8.530535	United States	1932	10	4.916252	1.951596
New Zealand	1935	10	39.84856	32.86327	United States	1935	10	5.999125	2.78193
New Zealand	1938	10	40.54767	29.93106	United States	1938	10	6.035499	2.285382
Norway	1920	10	77.83889	30.61182	Yugoslavia	1925	0	13.87826	15.38779
Norway	1925	10	46.42252	26.9153	Yugoslavia	1928	0	10.64164	12.5102
Norway	1928	10	45.22737	16.44175	Yugoslavia	1932	-10	5.799378	7.077874
Norway	1932	10	27.14748	9.436473	Yugoslavia	1935	-9	9.523048	10.24007
Norway	1935	10	34.81701	18.19974	Yugoslavia	1938	-2	10.09096	8.906683
Norway	1938	10	41.1078	17.58537					
Poland	1932	-3	4.618232	4.047227					
Poland	1935	-6	6.81217	5.590607					
Poland	1938	-6	6.584034	4.657726					
Portugal	1938	-9	11.08803	11.12068					
Romania	1928	-4	16.70416	10.34029					
Romania	1932	-4	10.51788	5.845339					
Romania	1935	-4	13.07025	8.984617					
Romania	1938	-6	14.35421	7.715757					
Spain	1920	6	5.57144	12.46374					
Spain	1925	-6	6.851975	11.19629					
Spain	1928	-6	10.30797	8.55805					
Spain	1932	7	2.124342	4.924683					
Spain	1935	7	6.725636	7.330204					
Spain	1938	7	4.673693	6.348251					
Sweden	1920	10	48.00607	21.78519					
Sweden	1925	10	28.16888	18.7813					
Sweden	1928	10	30.8778	12.48291					
Sweden	1932	10	17.51533	7.173621					
Sweden	1935	10	25.8722	12.50541					
Sweden	1938	10	31.66339	11.90075					
Switzerland	1920	10	52.82222	30.36988					
Switzerland	1925	10	31.41808	27.04571					
Switzerland	1928	10	29.60419	31.79447					
Switzerland	1932	10	21.24985	19.47363					
Switzerland	1935	10	26.79552	27.99487					
Switzerland	1938	10	24.02273	20.63077					
Turkey	1925	-6	16.8858	14.56574					
Turkey	1928	-6	13.1908	10.16705					
Turkey	1932	-6	6.193973	5.673948					
Turkey	1935	-7	8.245653	8.450024					
Turkey	1938	-7	9.667449	7.451085					

Post World War II Sample (Selected Years)

Country	Year	Polity	Openness	Predicted Openness	Country	Year	Polity	Openness	Predicted Openness
Albania	2000	5	10.20494	12.88523	Bangladesh	1975	-7	5.058174	7.221774
Algeria	1965	-9	16.68344	2.750696	Bangladesh	1980	-4	6.875679	11.29823
Algeria	1970	-9	17.5331	2.445781	Bangladesh	1985	-7	3.920455	9.337466
Algeria	1975	-9	34.40544	4.182839	Bangladesh	1990	-5	3.975153	15.11732
Algeria	1980	-9	35.36481	5.011811	Bangladesh	1995	6	5.437357	19.22912
Algeria	1985	-9	18.33805	2.911807	Bangladesh	2000	6	5.414884	12.10724
Algeria	1990	-2	19.03811	4.017028	Belarus	2000	-7	17.01031	4.763694
Algeria	1995	-3	16.98655	4.685522	Belgium	2000	10	132.842	33.604
Algeria	2000	-3	16.80082	5.156036	Benin	1960	2	6.906453	1.231961
Angola	1975	-7	21.55005	1.601746	Benin	1965	-7	7.414646	5.671803
Angola	1980	-7	30.32091	2.094745	Benin	1970	-2	9.817938	3.893141
Angola	1985	-7	30.45191	1.20756	Benin	1975	-7	18.9906	6.858974
Angola	1990	-7	30.2708	2.080351	Benin	1980	-7	27.23935	9.265646
Angola	1995	-2	37.75757	2.503667	Benin	1985	-7	16.07046	5.806056
Argentina	1960	-1	6.221035	1.987753	Benin	1990	0	10.77174	8.216723
Argentina	1965	-1	5.61087	1.963278	Benin	1995	6	18.40423	9.121767
Argentina	1970	-9	5.326854	1.303282	Benin	2000	6	20.29157	12.61862
Argentina	1975	6	6.109754	2.027059	Bolivia	1960	-3	8.075013	2.456568
Argentina	1980	-9	9.882546	2.350757	Bolivia	1965	-4	9.848431	2.443026
Argentina	1985	8	5.887529	1.374345	Bolivia	1970	-5	10.49764	1.037366
Argentina	1990	7	8.232652	1.723213	Bolivia	1975	-7	18.77596	1.532527
Argentina	1995	7	11.12897	2.130542	Bolivia	1980	-7	17.83582	1.57831
Argentina	2000	8	11.50956	2.592539	Bolivia	1985	9	11.45945	0.8372459
Armenia	1995	3	10.17207	3.429478	Bolivia	1990	9	11.68302	1.023565
Armenia	2000	5	7.984039	4.713137	Bolivia	1995	9	15.19166	1.127086
Australia	1960	10	15.20001	4.178056	Bolivia	2000	9	11.9225	1.904626
Australia	1965	10	16.07264	4.286716	Brazil	1960	6	6.423042	1.061464
Australia	1970	10	15.46111	1.791598	Brazil	1965	-9	4.427038	1.100692
Australia	1975	10	23.03843	2.789063	Brazil	1970	-9	5.177111	0.9020419
Australia	1980	10	27.83672	2.858709	Brazil	1975	-4	9.056546	1.470088
Australia	1985	10	21.20182	2.201843	Brazil	1980	-4	10.01828	1.754926
Australia	1990	10	24.82795	2.355362	Brazil	1985	7	6.276568	1.068222
Australia	1995	10	26.27955	3.049941	Brazil	1990	8	6.690293	1.41332
Australia	2000	10	24.56171	4.345104	Brazil	1995	8	9.009988	1.721458
Austria	1960	10	18.03312	8.224288	Brazil	2000	8	8.75172	1.553949
Austria	1965	10	20.0745	7.850594	Bulgaria	1995	8	18.45488	11.61418
Austria	1970	10	22.99405	6.619893	Bulgaria	2000	8	19.56905	13.10068
Austria	1975	10	36.056	8.343152	Burkina Faso	1960	-7	1.949852	0.3955595
Austria	1980	10	56.19877	10.01369	Burkina Faso	1965	-7	4.416929	2.325128
Austria	1985	10	36.91787	6.31815	Burkina Faso	1970	-4	5.399835	1.738184
Austria	1990	10	62.39001	6.350204	Burkina Faso	1975	-4	9.862887	2.454927
Austria	1995	10	68.45277	6.558096	Burkina Faso	1980	-7	14.52498	3.363269
Austria	2000	10	64.8131	8.947458	Burkina Faso	1985	-7	7.778168	1.68042
Azerbaijan	2000	-7	9.533804	3.870389	Burkina Faso	1990	-7	9.007529	1.840784
					Burkina Faso	1995	-5	6.667961	2.227701
					Burkina Faso	2000	-3	5.416707	2.710959

Post World War II Sample (Selected Years)

Country	Year	Polity	Openness	Predicted Openness	Country	Year	Polity	Openness	Predicted Openness
Burundi	1965	-5	8.749028	2.383692	China	1975	-8	3.713899	1.943903
Burundi	1970	-7	5.578742	2.748681	China	1980	-7	5.943996	2.689042
Burundi	1975	-7	7.055779	3.724237	China	1985	-7	5.44201	2.193269
Burundi	1980	-7	13.45799	5.237211	China	1990	-7	6.649513	3.959423
Burundi	1985	-7	9.628331	3.177641	China	1995	-7	9.445233	5.468961
Burundi	1990	-7	7.449598	3.123408	China	2000	-7	10.66688	3.438185
Burundi	1995	0	6.768111	3.028305	Colombia	1960	7	9.907256	2.159833
Burundi	2000	-1	3.925636	3.072333	Colombia	1965	7	7.784549	2.229727
Cameroon	1960	-6	7.782956	2.930908	Colombia	1970	7	7.455017	1.662951
Cameroon	1965	-6	10.67311	4.526083	Colombia	1975	8	8.025096	2.910918
Cameroon	1970	-7	14.23587	4.284224	Colombia	1980	8	12.35805	3.739924
Cameroon	1975	-8	16.67673	6.481052	Colombia	1985	8	7.417705	2.28096
Cameroon	1980	-8	31.28128	8.23097	Colombia	1990	8	7.882625	2.898204
Cameroon	1985	-8	15.58198	5.372155	Colombia	1995	7	11.15227	3.905415
Cameroon	1990	-8	16.10198	6.860371	Colombia	2000	7	9.848677	4.284105
Cameroon	1995	-4	11.92361	10.32315	Comoros	1980	-5	15.62777	5.458938
Cameroon	2000	-4	9.601892	11.76678	Comoros	1985	-7	9.742203	3.390871
Canada	1960	10	25.88537	2.833146	Comoros	1990	4	11.63142	5.749448
Canada	1965	10	26.76541	2.851417	Comoros	1995	0	24.23155	7.474323
Canada	1970	10	33.39772	1.66284	Comoros	2000	-1	6.846654	9.887939
Canada	1975	10	41.00433	2.65322	Congo, Dem. Re	1960	0	12.98566	1.917791
Canada	1980	10	43.34467	2.942712	Congo, Dem. Re	1965	-9	10.22188	2.090417
Canada	1985	10	39.44696	1.80001	Congo, Dem. Re	1970	-9	14.26584	1.746737
Canada	1990	10	43.67119	2.28998	Congo, Dem. Re	1975	-9	17.26701	3.508289
Canada	1995	10	53.23531	3.165061	Congo, Dem. Re	1980	-9	14.65602	2.986698
Canada	2000	10	58.70377	3.661216	Congo, Dem. Re	1985	-9	10.3889	2.381913
CAR	1960	-7	4.502999	3.236024	Congo, Dem. Re	1990	-8	11.33743	3.242915
CAR	1965	-7	7.732205	2.651713	Congo, Dem. Re	1995	0	14.18581	3.62134
CAR	1970	-7	6.146824	1.879403	Congo, Rep.	1960	4	23.60973	1.043466
CAR	1975	-7	9.184094	3.028446	Congo, Rep.	1965	-7	37.22097	5.941225
CAR	1980	-7	8.954182	2.932464	Congo, Rep.	1970	-7	27.33271	3.302243
CAR	1985	-7	6.705696	1.700715	Congo, Rep.	1975	-7	50.43943	5.661336
CAR	1990	-7	16.26859	1.494954	Congo, Rep.	1980	-8	81.01597	6.812404
CAR	1995	6	6.642894	1.744744	Congo, Rep.	1985	-8	43.78235	4.022521
Chad	1960	-9	4.174488	3.330802	Congo, Rep.	1990	-8	47.63964	4.210594
Chad	1965	-9	5.077321	3.773063	Congo, Rep.	1995	5	37.65291	5.006509
Chad	1970	-9	6.378058	1.880877	Congo, Rep.	2000	-6	34.29713	5.848446
Chad	1975	-7	8.423039	1.876772	Costa Rica	1960	10	19.44932	6.488048
Chad	1980	0	3.35212	1.254222	Costa Rica	1965	10	21.89669	6.764988
Chad	1985	-7	4.63506	0.9941453	Costa Rica	1970	10	24.69392	3.979581
Chad	1990	-7	4.931574	1.430162	Costa Rica	1975	10	31.52	6.134161
Chad	1995	-4	4.74667	1.539363	Costa Rica	1980	10	34.56829	7.433713
Chad	2000	-2	3.200204	2.128035	Costa Rica	1985	10	22.6678	4.611046
Chile	1960	5	14.6966	2.710871	Costa Rica	1990	10	29.17722	4.695168
Chile	1965	6	14.58681	2.424216	Costa Rica	1995	10	39.53296	5.431695
Chile	1970	6	14.32254	1.553653	Costa Rica	2000	10	43.71656	7.027564
Chile	1975	-7	18.62561	2.570125	Cote d'Ivoire	1960	-9	16.1725	3.66105
Chile	1980	-7	27.82166	2.985343	Cote d'Ivoire	1965	-9	21.96914	5.53559
Chile	1985	-6	15.20418	1.630176	Cote d'Ivoire	1970	-9	17.83623	2.749176
Chile	1990	8	22.01101	2.096311	Cote d'Ivoire	1975	-9	27.44493	5.79584
Chile	1995	8	24.64257	2.837916	Cote d'Ivoire	1980	-9	46.42939	6.294716
Chile	2000	9	22.02055	3.525093	Cote d'Ivoire	1985	-9	21.78136	3.701892
China	1960	-8	1.189196	0.5477618	Cote d'Ivoire	1990	-7	23.56541	5.379291
China	1965	-8	1.981493	0.4745552	Cote d'Ivoire	1995	-6	25.34989	6.246877
China	1970	-8	1.844303	0.7360056	Cote d'Ivoire	2000	4	19.33983	7.161403

Post World War II Sample (Selected Years)

Country	Year	Polity	Openness	Predicted Openness	Country	Year	Polity	Openness	Predicted Openness
Croatia	2000	7	23.83109	15.24675	El Salvador	2000	7	21.20786	11.16453
Cyprus	1960	8	41.11693	25.0716	Equatorial Guine	1985	-7	17.75537	3.954421
Cyprus	1965	0	34.95116	22.19382	Equatorial Guine	1990	-7	36.50785	2.681374
Cyprus	1970	7	30.76719	12.04568	Equatorial Guine	1995	-5	67.02522	5.014846
Cyprus	1975	10	42.34834	17.97436	Equatorial Guine	2000	-5	30.99504	7.381762
Cyprus	1980	10	71.82954	22.35472	Estonia	1995	6	42.87362	9.089361
Cyprus	1985	10	40.6908	17.7184	Estonia	2000	6	63.23067	11.82401
Cyprus	1990	10	46.6866	15.24615	Fiji	1970	9	35.1956	4.672609
Cyprus	1995	10	45.4928	15.79231	Fiji	1975	9	43.07488	5.467916
Czech Republic	1995	10	30.32404	5.332127	Fiji	1980	9	52.4075	5.835099
Czech Republic	2000	10	40.4708	6.99051	Fiji	1985	9	28.04593	4.207939
Denmark	1960	10	25.40848	11.86101	Fiji	1990	5	36.3055	2.856872
Denmark	1965	10	28.55131	11.17173	Fiji	1995	5	33.88545	4.522162
Denmark	1970	10	29.90953	9.769664	Finland	1960	10	20.20173	6.888807
Denmark	1975	10	49.67993	13.67384	Finland	1965	10	22.48426	6.653667
Denmark	1980	10	63.45555	18.04731	Finland	1970	10	26.27672	4.174098
Denmark	1985	10	43.49791	12.32238	Finland	1975	10	37.10476	6.59328
Denmark	1990	10	63.4551	13.99535	Finland	1980	10	54.61415	8.178927
Denmark	1995	10	68.45966	15.60848	Finland	1985	10	33.18821	5.11783
Denmark	2000	10	58.99724	16.39973	Finland	1990	10	50.56612	5.73121
Dominican Repu	1960	-9	22.26276	5.11107	Finland	1995	10	67.99305	6.194559
Dominican Repu	1965	0	14.11976	3.575047	Finland	2000	10	62.74402	7.683464
Dominican Repu	1970	-3	16.11509	3.213981	France	1960	5	12.62256	3.933949
Dominican Repu	1975	-3	29.07663	4.954939	France	1965	5	13.98165	3.740594
Dominican Repu	1980	6	22.52895	7.229659	France	1970	8	15.61846	4.687431
Dominican Repu	1985	6	16.5354	4.613072	France	1975	8	28.10893	6.724711
Dominican Repu	1990	6	21.36729	5.337442	France	1980	8	41.34939	9.102731
Dominican Repu	1995	5	19.76622	5.980657	France	1985	8	25.11344	6.327901
Dominican Repu	2000	8	30.2374	6.970548	France	1990	9	38.16945	8.453722
Ecuador	1960	2	10.88542	3.234337	France	1995	9	41.38991	9.707727
Ecuador	1965	-1	12.07337	4.047079	France	2000	9	43.95388	9.370832
Ecuador	1970	0	11.81053	2.467191	Gabon	1960	-7	26.2111	5.498935
Ecuador	1975	-5	20.08617	3.89379	Gabon	1965	-7	26.21894	5.329178
Ecuador	1980	9	19.18234	4.420417	Gabon	1970	-9	21.11328	2.045738
Ecuador	1985	8	17.11858	2.645948	Gabon	1975	-9	76.37008	5.566027
Ecuador	1990	9	12.69516	3.16524	Gabon	1980	-9	61.57986	6.575171
Ecuador	1995	9	21.62432	4.205439	Gabon	1985	-9	49.32569	3.073246
Ecuador	2000	6	19.95048	5.203127	Gabon	1990	-6	46.65167	3.985708
Egypt, Arab Rep	1960	-7	9.666619	3.658893	Gabon	1995	-4	38.41431	4.537556
Egypt, Arab Rep	1965	-7	8.09098	3.592535	Gabon	2000	-4	52.66962	7.344318
Egypt, Arab Rep	1970	-7	5.425135	3.392498	Gambia	1965	8	23.58837	13.81223
Egypt, Arab Rep	1975	-7	14.26172	5.625018	Gambia	1970	8	18.25001	6.204669
Egypt, Arab Rep	1980	-6	16.4014	6.952737	Gambia	1975	8	29.4903	7.305347
Egypt, Arab Rep	1985	-5	10.55483	4.776452	Gambia	1980	8	28.88634	9.564543
Egypt, Arab Rep	1990	-3	9.179618	5.981901	Gambia	1985	7	20.98039	4.964758
Egypt, Arab Rep	1995	-3	8.424991	7.432418	Gambia	1990	8	32.62241	5.76595
Egypt, Arab Rep	2000	-6	8.968399	6.187463	Gambia	1995	-7	20.40327	8.050736
El Salvador	1960	-3	11.54722	5.548048	Gambia	2000	-5	20.28097	9.074589
El Salvador	1965	0	14.13073	5.945513	Georgia	2000	5	4.562387	9.285716
El Salvador	1970	0	10.07339	4.274148	W. Germany	1970	10	19.07086	5.128474
El Salvador	1975	-1	16.25814	6.17003	W. Germany	1975	10	32.39681	7.27417
El Salvador	1980	-2	18.98034	7.77377	W. Germany	1980	10	46.2029	10.27908
El Salvador	1985	6	14.76562	6.187823	W. Germany	1985	10	30.8681	7.431157
El Salvador	1990	6	12.10515	6.929093	W. Germany	1990	10	48.34592	10.10109
El Salvador	1995	7	18.0438	8.777406	W. Germany	1995	10	51.41223	11.45973

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Country	Year	Polity	Openness	Predicted Openness	Country	Year	Polity	Openness	Predicted Openness
W. Germany	2000	10	52.09568	11.2069	Haiti	1985	-9	21.87335	4.628613
Ghana	1960	-8	22.45398	4.839072	Haiti	1990	7	17.91445	5.419894
Ghana	1965	-9	20.03648	4.440508	Haiti	1995	7	10.64919	5.592669
Ghana	1970	3	18.02346	4.027856	Honduras	1960	-1	18.69388	5.809968
Ghana	1975	-7	25.36473	6.315148	Honduras	1965	-1	25.61236	5.726428
Ghana	1980	6	23.85846	7.718016	Honduras	1970	-1	28.73285	3.435907
Ghana	1985	-7	12.14049	4.587241	Honduras	1975	-1	30.552	5.368307
Ghana	1990	-7	17.46645	5.84965	Honduras	1980	1	39.10942	6.645904
Ghana	1995	-1	18.42334	7.126164	Honduras	1985	5	25.69046	4.762208
Ghana	2000	2	16.64584	7.495015	Honduras	1990	6	20.98474	5.329501
Greece	1960	4	9.622781	6.650429	Honduras	1995	6	38.06631	7.124647
Greece	1965	4	10.6382	6.290929	Honduras	2000	7	58.71914	9.384613
Greece	1970	-7	11.5143	5.72604	Hungary	1970	-7	11.10108	4.570787
Greece	1975	8	19.5261	8.630465	Hungary	1975	-7	14.59218	6.434503
Greece	1980	8	27.24886	11.69935	Hungary	1980	-7	19.81627	7.84244
Greece	1985	8	17.71502	7.771007	Hungary	1985	-7	12.72241	4.861618
Greece	1990	10	25.79306	9.001115	Hungary	1990	10	16.14642	4.742931
Greece	1995	10	27.25774	9.226157	Hungary	1995	10	33.19461	4.064514
Greece	2000	10	24.72391	10.22621	Hungary	2000	10	53.73417	5.706715
Guatemala	1960	-5	10.01807	4.109558	Iceland	1960	10	41.65152	18.15089
Guatemala	1965	-5	13.30741	4.66285	Iceland	1965	10	47.57818	21.22732
Guatemala	1970	1	11.48017	3.40232	Iceland	1970	10	41.9389	6.583993
Guatemala	1975	-3	16.21171	5.07467	Iceland	1975	10	52.64701	9.840445
Guatemala	1980	-5	20.00115	6.871211	Iceland	1980	10	73.92455	10.52207
Guatemala	1985	-1	11.0305	4.614889	Iceland	1985	10	46.02562	7.121375
Guatemala	1990	3	11.52978	5.314965	Iceland	1990	10	64.66266	5.758778
Guatemala	1995	3	15.48459	7.380574	Iceland	1995	10	65.12611	6.15621
Guatemala	2000	8	19.79795	8.515749	Iceland	2000	10	62.49524	12.68011
Guinea	1960	-9	2.918694	2.883186	India	1960	9	3.856097	1.22356
Guinea	1965	-9	3.772285	3.322263	India	1965	9	3.460894	0.9741261
Guinea	1970	-9	3.210759	2.004034	India	1970	9	2.030214	1.56556
Guinea	1975	-9	6.042653	3.673587	India	1975	7	3.369269	3.155605
Guinea	1980	-9	7.315527	3.79563	India	1980	8	4.212743	4.426764
Guinea	1985	-7	5.690007	2.837554	India	1985	8	2.675193	3.451741
Guinea	1990	-7	8.265163	4.546802	India	1990	8	2.750732	5.960803
Guinea	1995	-1	7.848546	5.598013	India	1995	9	3.48429	9.181446
Guinea	2000	-1	5.966968	5.971872	India	2000	9	3.069008	5.594627
Guinea-Bissau	1975	-7	18.87323	4.753408	Indonesia	1960	-5	7.333337	1.023006
Guinea-Bissau	1980	-7	30.84844	6.604263	Indonesia	1965	-5	7.708198	1.244111
Guinea-Bissau	1985	-8	15.04384	3.312125	Indonesia	1970	-7	7.95062	1.436865
Guinea-Bissau	1990	-6	24.06726	4.475267	Indonesia	1975	-7	20.0546	2.383636
Guinea-Bissau	1995	5	27.71842	4.779696	Indonesia	1980	-7	21.03065	3.050655
Guinea-Bissau	2000	6	23.33715	5.785572	Indonesia	1985	-7	9.871008	2.277677
Guyana	1970	1	40.45596	3.43668	Indonesia	1990	-7	10.07587	3.274953
Guyana	1975	1	51.65516	4.420127	Indonesia	1995	-7	12.26243	3.560982
Guyana	1980	-7	55.63399	5.849382	Indonesia	2000	7	11.60887	2.722316
Guyana	1985	-7	32.40198	3.231021	Iran	1960	-10	12.34349	2.75787
Guyana	1990	-7	32.98476	3.302014	Iran	1965	-10	13.9763	2.785674
Guyana	1995	6	42.05017	3.519793	Iran	1970	-10	13.77071	2.290223
Haiti	1960	-8	7.875292	5.250326	Iran	1975	-10	32.8213	4.686118
Haiti	1965	-9	7.567201	5.207574	Iran	1980	-2	20.04483	5.505798
Haiti	1970	-9	8.147475	3.887308	Iran	1985	-6	13.21079	3.883082
Haiti	1975	-10	15.45756	5.296972	Iran	1990	-6	15.57476	5.584288
Haiti	1980	-9	20.67121	7.321287	Iran	1995	-6	9.225555	6.195094

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Country	Year	Polity	Openness	Predicted Openness	Country	Year	Polity	Openness	Predicted Openness
Iran	2000	3	8.543612	5.322092	Kazakhstan	1995	-4	10.1317	2.013817
Ireland	1960	10	30.5159	12.13999	Kazakhstan	2000	-4	10.23085	3.049009
Ireland	1965	10	36.89621	12.01217	Kenya	1965	2	18.31694	4.157885
Ireland	1970	10	39.49337	9.148146	Kenya	1970	-7	22.68124	3.37737
Ireland	1975	10	60.63509	12.53942	Kenya	1975	-7	23.00537	5.243502
Ireland	1980	10	99.44477	16.21751	Kenya	1980	-6	32.98623	6.629135
Ireland	1985	10	65.06758	10.88158	Kenya	1985	-7	16.40139	4.103451
Ireland	1990	10	93.87923	12.46804	Kenya	1990	-7	14.00563	5.116
Ireland	1995	10	115.0541	15.51308	Kenya	1995	-5	14.8208	6.842714
Ireland	2000	10	120.3212	17.95111	Kenya	2000	-2	12.80791	6.789375
Israel	1960	10	21.64152	10.81823	Korea, Rep.	1960	8	4.792929	2.727852
Israel	1965	10	24.76574	10.20353	Korea, Rep.	1965	3	5.023286	2.88272
Israel	1970	9	27.95135	7.398439	Korea, Rep.	1970	3	10.95543	3.538942
Israel	1975	9	37.52589	9.703236	Korea, Rep.	1975	-8	22.94084	5.057019
Israel	1980	9	42.97818	13.18422	Korea, Rep.	1980	-8	36.61901	6.703763
Israel	1985	9	32.66224	8.149345	Korea, Rep.	1985	-5	26.7416	5.244554
Israel	1990	9	39.88961	9.763527	Korea, Rep.	1990	6	31.87147	10.02586
Israel	1995	9	44.78437	13.2628	Korea, Rep.	1995	6	39.83961	10.1865
Israel	2000	10	51.39587	17.70921	Korea, Rep.	2000	8	44.44269	8.286187
Italy	1960	10	9.067509	3.727616	Kyrgyz Republic	1995	-3	7.648397	3.205781
Italy	1965	10	11.77668	3.545559	Kyrgyz Republic	2000	-3	6.548505	4.879967
Italy	1970	10	13.99542	4.51904	Latvia	1995	8	28.4541	9.869229
Italy	1975	10	23.41995	6.788847	Latvia	2000	8	35.56527	12.88031
Italy	1980	10	34.14888	9.160341	Lithuania	1995	10	27.48039	10.66932
Italy	1985	10	22.54436	6.379	Lithuania	2000	10	30.61427	13.55781
Italy	1990	10	33.32363	8.067042	Macedonia, FYR	2000	6	26.15221	6.571935
Italy	1995	10	35.14925	8.460267	Madagascar	1960	-1	11.00699	3.759186
Italy	2000	10	34.70543	7.542248	Madagascar	1965	-1	11.37421	4.996234
Jamaica	1960	10	39.91496	9.471842	Madagascar	1970	-1	9.518428	1.877588
Jamaica	1965	10	45.53077	9.977159	Madagascar	1975	-6	15.71698	2.780276
Jamaica	1970	10	45.80603	7.086304	Madagascar	1980	-6	17.38336	3.506664
Jamaica	1975	10	59.39555	8.889388	Madagascar	1985	-6	9.450396	2.777122
Jamaica	1980	10	52.37535	10.10507	Madagascar	1990	-6	9.746294	3.290096
Jamaica	1985	10	33.95759	7.26871	Madagascar	1995	9	10.79406	4.382802
Jamaica	1990	10	38.73684	6.405682	Madagascar	2000	7	11.55998	4.828621
Jamaica	1995	9	48.05768	7.02147	Malawi	1965	-9	20.32536	3.575462
Jamaica	2000	9	47.86749	9.855761	Malawi	1970	-9	17.09194	2.056807
Japan	1960	10	6.821376	2.869904	Malawi	1975	-9	23.25324	2.982059
Japan	1965	10	7.895138	2.687701	Malawi	1980	-9	28.98393	3.067689
Japan	1970	10	8.795151	3.094081	Malawi	1985	-9	14.25105	1.884864
Japan	1975	10	15.87353	4.224085	Malawi	1990	-9	18.35467	1.997507
Japan	1980	10	23.39642	5.238112	Malawi	1995	7	14.71003	2.363513
Japan	1985	10	17.79423	4.775221	Malawi	2000	7	10.9273	3.016029
Japan	1990	10	20.02505	5.815279	Malaysia	1965	10	0.0074972	0.5268914
Japan	1995	10	25.09838	6.372918	Malaysia	1970	1	34.29001	3.609309
Japan	2000	10	24.22419	5.780275	Malaysia	1975	4	44.86462	5.288648
Jordan	1960	-9	40.70528	12.76161	Malaysia	1980	4	60.52245	7.202625
Jordan	1965	-9	36.48967	12.67597	Malaysia	1985	4	43.14675	5.232587
Jordan	1970	-9	28.95151	6.594104	Malaysia	1990	4	56.54672	6.990783
Jordan	1975	-10	62.8259	10.2943	Malaysia	1995	3	85.67622	8.09043
Jordan	1980	-10	77.23464	13.97269	Malaysia	2000	3	82.88441	7.842278
Jordan	1985	-9	51.11803	9.23926	Mali	1960	-7	2.26574	0.5869036
Jordan	1990	-4	36.27912	10.02763	Mali	1965	-7	7.140578	3.114593
Jordan	1995	-2	30.72318	12.16636	Mali	1970	-7	5.547567	1.568015
Jordan	2000	-2	27.618	19.83049	Mali	1975	-7	11.78501	2.198768

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Country	Year	Polity	Openness	Predicted Openness	Country	Year	Polity	Openness	Predicted Openness
Mali	1980	-7	13.37237	2.601328	Netherlands	1960	10	28.46348	8.730211
Mali	1985	-7	9.804545	1.644098	Netherlands	1965	10	34.80002	7.865173
Mali	1990	-7	12.13824	1.399496	Netherlands	1970	10	40.4942	10.24846
Mali	1995	7	11.53429	1.413244	Netherlands	1975	10	71.43105	13.85681
Mali	2000	6	9.535738	2.111396	Netherlands	1980	10	101.5222	20.30255
Mauritania	1960	-4	6.789961	0.6762139	Netherlands	1985	10	64.94715	14.95924
Mauritania	1965	-7	19.60027	2.467702	Netherlands	1990	10	88.00331	19.26224
Mauritania	1970	-7	20.0281	1.538879	Netherlands	1995	10	93.52843	20.20005
Mauritania	1975	-7	42.11249	2.808688	Netherlands	2000	10	105.3153	22.41831
Mauritania	1980	-7	36.9236	3.370597	New Zealand	1960	10	24.91263	6.514022
Mauritania	1985	-7	30.20019	2.903577	New Zealand	1965	10	22.53765	6.643503
Mauritania	1990	-7	33.07864	3.300792	New Zealand	1970	10	21.38316	2.62222
Mauritania	1995	-6	37.59013	3.26258	New Zealand	1975	10	28.22603	3.381466
Mauritius	1970	9	17.19674	10.18597	New Zealand	1980	10	41.479	3.538801
Mauritius	1975	9	31.12209	11.45006	New Zealand	1985	10	29.8729	2.527238
Mauritius	1980	9	35.66982	13.61394	New Zealand	1990	10	36.92607	2.296317
Mauritius	1985	10	20.09501	10.74757	New Zealand	1995	10	41.46277	3.157205
Mauritius	1990	10	29.56503	9.338539	New Zealand	2000	10	34.18883	4.417905
Mauritius	1995	10	28.3898	10.61085	Nicaragua	1960	-8	11.15633	6.246082
Mauritius	2000	10	21.31593	14.90138	Nicaragua	1965	-8	16.7395	5.96332
Mexico	1960	-6	5.511243	1.662105	Nicaragua	1970	-8	13.89574	3.235302
Mexico	1965	-6	5.252441	1.758291	Nicaragua	1975	-8	20.82673	5.952403
Mexico	1970	-6	4.701507	1.345844	Nicaragua	1980	0	25.09558	7.010497
Mexico	1975	-6	6.713267	2.212587	Nicaragua	1985	-1	9.812187	4.093815
Mexico	1980	-3	11.57635	2.728493	Nicaragua	1990	6	11.30588	4.743742
Mexico	1985	-3	9.379128	1.737605	Nicaragua	1995	8	17.57162	5.403995
Mexico	1990	0	12.8254	2.398668	Nicaragua	2000	8	24.32329	7.629922
Mexico	1995	4	22.58392	3.024116	Niger	1960	-7	3.247473	2.031286
Mexico	2000	8	34.74159	2.84595	Niger	1965	-7	4.573203	3.741032
Moldova	1995	7	19.01413	4.971312	Niger	1970	-7	5.293753	1.588189
Moldova	2000	7	16.64553	6.894576	Niger	1975	-7	12.14201	2.267262
Morocco	1960	-5	22.26409	5.080342	Niger	1980	-7	29.54637	3.392945
Morocco	1965	-9	13.04312	4.630142	Niger	1985	-7	11.5012	1.713546
Morocco	1970	-9	11.09558	3.689499	Niger	1990	-7	9.205539	1.833227
Morocco	1975	-9	20.77156	5.832486	Niger	1995	8	6.433285	1.963111
Morocco	1980	-8	19.6705	6.649527	Niger	2000	4	6.711242	3.213556
Morocco	1985	-8	11.90205	4.233018	Nigeria	1960	8	10.86616	1.534029
Morocco	1990	-8	16.33485	5.324822	Nigeria	1965	7	14.38764	2.404548
Morocco	1995	-7	15.2458	6.366437	Nigeria	1970	-7	15.75768	2.43252
Morocco	2000	-6	14.91229	6.008366	Nigeria	1975	-7	51.02719	3.84112
Mozambique	1975	-8	8.777319	3.099207	Nigeria	1980	7	61.05993	4.44385
Mozambique	1980	-8	13.32661	2.459795	Nigeria	1985	-7	29.5131	3.235116
Mozambique	1985	-8	5.962046	1.574882	Nigeria	1990	-5	18.03793	4.188563
Mozambique	1990	-7	10.59221	2.862233	Nigeria	1995	-6	21.52547	5.085809
Mozambique	1995	6	12.01419	3.41536	Nigeria	2000	4	28.67021	4.245216
Mozambique	2000	6	7.185162	3.310221	Norway	1960	10	28.33958	8.243348
Nepal	1960	-10	0.1223743	0.1117481	Norway	1965	10	33.90565	7.790496
Nepal	1965	-9	3.200054	2.030951	Norway	1970	10	38.9458	4.779235
Nepal	1970	-9	2.571167	2.684967	Norway	1975	10	61.86951	7.7641
Nepal	1975	-9	3.053094	3.03576	Norway	1980	10	74.69692	9.726044
Nepal	1980	-9	3.817456	5.541593	Norway	1985	10	49.9674	6.099678
Nepal	1985	-2	3.751046	5.526245	Norway	1990	10	72.30333	6.810717
Nepal	1990	5	3.962791	7.485524	Norway	1995	10	70.40775	6.874425
Nepal	1995	5	4.072549	8.244259	Norway	2000	10	61.58909	8.861601
Nepal	2000	6	4.515397	8.742053	Pakistan	1975	8	9.66235	6.918179

Post World War II Sample (Selected Years)

Country	Year	Polity	Openness	Predicted Openness	Country	Year	Polity	Openness	Predicted Openness
Pakistan	1980	-7	12.37321	9.838109	Portugal	1975	3	19.91045	8.207195
Pakistan	1985	-4	8.018463	7.962445	Portugal	1980	9	28.04606	11.13622
Pakistan	1990	8	7.586233	13.54749	Portugal	1985	10	19.45889	7.451881
Pakistan	1995	8	8.136169	22.8233	Portugal	1990	10	37.6025	8.817769
Pakistan	2000	-6	6.542838	16.79354	Portugal	1995	10	41.66642	9.228112
Panama	1960	4	42.97667	7.413976	Portugal	2000	10	37.19226	9.789188
Panama	1965	4	40.81661	6.836222	Romania	1960	-7	9.834428	4.290981
Panama	1970	-7	36.97723	3.8225	Romania	1965	-7	11.31031	4.281852
Panama	1975	-7	72.03187	5.944855	Romania	1970	-7	15.36041	4.95263
Panama	1980	-6	70.8859	7.153761	Romania	1975	-7	21.96803	7.583988
Panama	1985	-6	62.80298	4.213699	Romania	1980	-8	28.50964	10.76281
Panama	1990	8	57.50283	4.459063	Romania	1985	-8	13.97476	7.314612
Panama	1995	9	106.4148	5.398224	Romania	1990	5	9.738678	9.041531
Panama	2000	9	55.0425	7.32016	Romania	1995	5	16.30757	10.19432
Papua New Gui	1975	10	21.24495	3.163217	Romania	2000	8	20.06961	10.19707
Papua New Gui	1980	10	31.18771	3.786322	Russian Federati	2000	7	9.866428	4.314173
Papua New Gui	1985	10	20.8249	2.499558	Rwanda	1965	-5	3.224241	3.569747
Papua New Gui	1990	10	25.53682	2.857142	Rwanda	1970	-5	4.769196	3.399087
Papua New Gui	1995	10	25.79301	3.199504	Rwanda	1975	-7	9.448802	4.54732
Paraguay	1960	-9	8.931369	3.091878	Rwanda	1980	-7	12.17423	5.600947
Paraguay	1965	-9	9.916871	2.999034	Rwanda	1985	-7	7.700539	3.584325
Paraguay	1970	-8	7.692466	1.243377	Rwanda	1990	-7	5.310368	3.631723
Paraguay	1975	-8	13.39956	1.756741	Rwanda	1995	-6	5.796246	4.042955
Paraguay	1980	-8	17.47566	2.049521	Rwanda	2000	-4	3.009084	4.50869
Paraguay	1985	-8	9.231207	1.082118	Senegal	1960	-1	19.42058	4.917959
Paraguay	1990	2	13.74395	1.04762	Senegal	1965	-7	18.8066	5.446254
Paraguay	1995	7	18.7784	1.11674	Senegal	1970	-7	16.29046	2.947813
Paraguay	2000	7	14.81046	1.794919	Senegal	1975	-6	29.81772	4.643187
Peru	1960	4	10.31441	2.557855	Senegal	1980	-2	34.90987	6.87551
Peru	1965	5	11.78768	2.605933	Senegal	1985	-1	18.5476	4.110468
Peru	1970	-7	8.570534	1.695431	Senegal	1990	-1	19.97175	4.539231
Peru	1975	-7	11.07127	2.592314	Senegal	1995	-1	15.56681	5.128782
Peru	1980	7	12.04281	3.116577	Senegal	2000	8	14.27141	5.89123
Peru	1985	7	6.542529	1.865618	Sierra Leone	1965	6	22.72638	6.122929
Peru	1990	8	8.353024	2.320655	Sierra Leone	1970	1	19.11395	4.211331
Peru	1995	1	11.87173	3.20176	Sierra Leone	1975	-6	21.71668	6.607113
Philippines	1960	5	9.51051	3.84533	Sierra Leone	1980	-7	22.1309	4.76448
Philippines	1965	5	10.24863	3.644772	Sierra Leone	1985	-7	8.587905	4.601776
Philippines	1970	2	8.532372	3.306588	Sierra Leone	1990	-7	8.180236	5.067852
Philippines	1975	-9	12.7157	6.174398	Sierra Leone	1995	-7	8.96797	5.830693
Philippines	1980	-9	16.08389	7.328402	Sierra Leone	2000	0	11.35989	5.212791
Philippines	1985	-6	9.432886	6.601404	Singapore	1960	7	73.76536	15.7226
Philippines	1990	8	12.69123	7.643813	Singapore	1965	-2	0.7925808	1.374719
Philippines	1995	8	21.26269	9.174407	Singapore	1970	-2	105.7709	18.87324
Philippines	2000	8	24.70169	8.798085	Singapore	1975	-2	175.1537	19.56253
Poland	1970	-7	7.018445	4.503982	Singapore	1980	-2	285.1678	24.93844
Poland	1975	-7	12.89927	6.94802	Singapore	1985	-2	169.7055	22.25961
Poland	1980	-6	13.64535	9.292522	Singapore	1990	-2	222.2254	20.23288
Poland	1985	-7	7.10605	6.46823	Singapore	1995	-2	261.1766	26.28568
Poland	1990	5	8.77106	8.26055	Singapore	2000	-2	211.3378	26.58046
Poland	1995	9	18.22583	10.20044	Slovak Republic	1995	7	34.7836	5.072157
Poland	2000	9	20.7615	9.639565	Slovak Republic	2000	9	35.95811	7.180467
Portugal	1960	-9	12.59231	5.979117	Slovenia	1995	10	68.78922	17.53461
Portugal	1965	-9	15.16884	5.799217	Slovenia	2000	10	54.06289	25.04471
Portugal	1970	-9	15.21509	5.599865	South Africa	1960	4	12.76488	2.693292

Post World War II Sample (Selected Years)

Country	Year	Polity	Openness	Predicted Openness	Country	Year	Polity	Openness	Predicted Openness
South Africa	1965	4	15.18117	1.803329	Tanzania	1975	-7	24.02127	4.583671
South Africa	1970	4	13.47592	1.222222	Tanzania	1980	-7	23.79567	5.512588
South Africa	1975	4	17.43594	1.482381	Tanzania	1985	-7	11.9878	3.752361
South Africa	1980	4	18.89773	1.475348	Tanzania	1990	-7	14.08998	4.591104
South Africa	1985	4	9.26095	0.8795458	Tanzania	1995	-1	17.15465	6.002407
South Africa	1990	5	10.4733	1.14777	Tanzania	2000	2	13.0322	6.185848
South Africa	1995	9	16.4154	3.403101	Thailand	1960	-7	10.33019	3.781028
South Africa	2000	9	15.83174	3.011671	Thailand	1965	-7	10.30859	3.034356
Spain	1960	-7	4.478786	3.823049	Thailand	1970	2	8.361946	3.268392
Spain	1965	-7	6.796248	3.768247	Thailand	1975	3	13.99936	6.84288
Spain	1970	-7	7.123387	3.87011	Thailand	1980	2	19.76897	8.860982
Spain	1975	-3	13.41665	5.850692	Thailand	1985	2	12.33348	7.016961
Spain	1980	9	21.10898	7.767942	Thailand	1990	3	22.25306	9.895156
Spain	1985	10	15.4121	5.241611	Thailand	1995	9	29.55406	11.21663
Spain	1990	10	26.74747	6.704977	Thailand	2000	9	30.68703	9.571481
Spain	1995	10	30.70121	7.380514	Togo	1960	-6	11.76553	3.078399
Spain	2000	10	33.65166	7.024219	Togo	1965	-6	15.17105	7.097373
Sri Lanka	1960	7	23.62614	7.57317	Togo	1970	-7	11.69969	5.297287
Sri Lanka	1965	7	16.867	6.829903	Togo	1975	-7	34.82341	8.330728
Sri Lanka	1970	8	11.76446	6.073692	Togo	1980	-7	46.74157	10.053
Sri Lanka	1975	8	15.4074	8.840066	Togo	1985	-7	19.62079	6.627984
Sri Lanka	1980	6	20.09706	11.58693	Togo	1990	-7	23.46993	8.026706
Sri Lanka	1985	5	11.8243	10.75508	Togo	1995	-2	32.94091	9.538152
Sri Lanka	1990	5	11.92312	12.40351	Togo	2000	-2	17.48675	11.77121
Sri Lanka	1995	5	15.02902	12.80006	Trinidad and Tob	1965	8	83.67418	12.67387
Sri Lanka	2000	5	15.34079	13.47089	Trinidad and Tob	1970	8	66.38896	6.258977
Sweden	1960	10	26.87065	6.123315	Trinidad and Tob	1975	8	117.4995	9.844082
Sweden	1965	10	30.95274	5.973342	Trinidad and Tob	1980	8	95.65773	11.48931
Sweden	1970	10	34.09658	4.191388	Trinidad and Tob	1985	9	36.9762	8.220861
Sweden	1975	10	55.43949	6.790583	Trinidad and Tob	1990	9	24.32511	6.759301
Sweden	1980	10	72.44095	8.509627	Trinidad and Tob	1995	9	33.4822	7.150323
Sweden	1985	10	46.83682	5.442327	Trinidad and Tob	2000	10	33.05508	11.19618
Sweden	1990	10	65.33585	6.266478	Tunisia	1965	-9	12.17751	7.116873
Sweden	1995	10	71.43388	6.475621	Tunisia	1970	-8	11.7276	4.468246
Sweden	2000	10	71.6885	7.541203	Tunisia	1975	-9	23.95522	7.747509
Switzerland	1960	10	21.3609	11.19832	Tunisia	1980	-9	31.22017	10.17202
Switzerland	1965	10	25.71155	10.41125	Tunisia	1985	-8	15.40085	6.575418
Switzerland	1970	10	30.91895	9.306541	Tunisia	1990	-5	24.66616	7.479656
Switzerland	1975	10	52.2698	10.82877	Tunisia	1995	-3	25.22756	7.800132
Switzerland	1980	10	89.25876	13.08972	Tunisia	2000	-3	21.4006	8.317805
Switzerland	1985	10	55.23109	8.380193	Turkey	1960	7	4.327911	2.681567
Switzerland	1990	10	91.08601	8.419054	Turkey	1965	8	4.006325	2.876546
Switzerland	1995	10	97.84235	9.347342	Turkey	1970	8	3.781205	3.262054
Switzerland	2000	10	87.30923	12.55247	Turkey	1975	9	7.902729	5.099294
Syrian Arab Rep	1965	-7	13.81019	6.222675	Turkey	1980	-5	9.018223	6.830947
Syrian Arab Rep	1970	-9	10.86384	4.815738	Turkey	1985	7	9.904648	4.76594
Syrian Arab Rep	1975	-9	21.13833	7.715132	Turkey	1990	9	11.47155	6.174849
Syrian Arab Rep	1980	-9	28.7047	10.40499	Turkey	1995	8	14.37391	7.067658
Syrian Arab Rep	1985	-9	14.48557	6.593277	Turkey	2000	7	15.46861	6.39817
Syrian Arab Rep	1990	-9	12.0557	8.552224	Uganda	1965	7	22.76659	3.679262
Syrian Arab Rep	1995	-9	15.20447	9.481381	Uganda	1970	-7	24.30047	2.734677
Syrian Arab Rep	2000	-7	12.79234	9.806244	Uganda	1975	-7	16.58533	3.431541
Tajikistan	2000	-1	14.73943	4.605364	Uganda	1980	3	24.1137	3.297862
Tanzania	1965	-7	18.34802	3.295513	Uganda	1985	0	9.091619	2.026289
Tanzania	1970	-7	19.70818	3.006906	Uganda	1990	-7	9.71669	2.092907

Post World War II Sample (Selected Years)

Country	Year	Polity	Openness	Predicted Openness
Uganda	1995	-4	7.859035	2.633551
Uganda	2000	-4	5.081999	3.033814
Ukraine	1995	6	11.99021	6.950203
Ukraine	2000	7	10.73312	6.87105
United Kingdom	1960	10	17.22848	3.983483
United Kingdom	1965	10	18.06411	3.731867
United Kingdom	1970	10	18.51846	4.590456
United Kingdom	1975	10	29.80431	7.016753
United Kingdom	1980	10	43.55734	9.033514
United Kingdom	1985	10	28.86135	6.369348
United Kingdom	1990	10	39.49492	7.872233
United Kingdom	1995	10	40.63808	8.33463
United Kingdom	2000	10	42.18635	7.076252
United States	1960	10	6.334458	1.028755
United States	1965	10	6.543265	1.078335
United States	1970	10	7.860516	0.9476548
United States	1975	10	12.13604	1.634454
United States	1980	10	16.26499	1.922737
United States	1985	10	12.68282	1.249608
United States	1990	10	14.67418	1.729194
United States	1995	10	17.67738	2.270819
United States	2000	10	19.89674	1.862533
Uruguay	1960	8	10.21874	5.413977
Uruguay	1965	8	9.030723	4.738351
Uruguay	1970	8	8.605707	2.564931
Uruguay	1975	-8	12.89736	3.778727
Uruguay	1980	-7	22.89577	4.496386
Uruguay	1985	9	12.62026	2.559302
Uruguay	1990	10	16.05587	2.84337
Uruguay	1995	10	19.23524	3.743132
Uruguay	2000	10	18.34349	5.315161
Venezuela	1960	6	39.56329	4.025164
Venezuela	1965	6	33.0989	3.65086
Venezuela	1970	9	24.34525	2.230312
Venezuela	1975	9	31.63451	3.089068
Venezuela	1980	9	35.67151	4.153916
Venezuela	1985	9	22.03917	2.466951
Venezuela	1990	9	17.69216	3.03839
Venezuela	1995	8	20.15018	3.879554
Venezuela	2000	7	22.99028	4.218592
Zambia	1965	2	36.45863	3.944655
Zambia	1970	0	39.42453	2.085672
Zambia	1975	-9	46.5135	3.055195
Zambia	1980	-9	54.46664	2.798701
Zambia	1985	-9	20.78336	1.669076
Zambia	1990	-9	24.5584	1.629901
Zambia	1995	6	27.54886	1.803933
Zambia	2000	1	19.81021	2.522215
Zimbabwe	1970	4	2.40912	0.4274151
Zimbabwe	1975	4	2.953693	0.5836578
Zimbabwe	1980	5	6.403987	1.376113
Zimbabwe	1985	1	9.826632	1.842136
Zimbabwe	1990	-6	11.49253	1.746508
Zimbabwe	1995	-6	15.24039	1.816768