

SOCIAL SPENDING AND DEMOCRACY: SOME EVIDENCE FROM SOUTH AMERICA *

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Abstract

Social spending programs are important political issues, and it would be interesting to know how political systems affect the amount spent by the public sector. Much of the cross-country data is difficult to interpret, because richer countries simultaneously have different political systems (they tend to be more democratic) and more generous government budgets for old age, medical, and other social programs. Since South American countries seem to have a much weaker association between economic and political situations, we can mitigate this collinearity by comparing South American countries with each other and with the world. All of our data show that democracies spend the same or somewhat less on social programs as economically and demographically similar nondemocracies. Pension spending has grown relative to nonpension social spending (1960-90), but some of our evidence suggests that this change in the composition of spending has been more pronounced in countries that were initially nondemocratic.

Resumen

Los programas de gasto social son políticamente importantes, por lo que es interesante saber la manera en que los sistemas políticos afectan los montos gastados por el sector público. La información de corte transversal es de difícil interpretación porque las naciones más ricas tienden a tener simultáneamente sistemas políticos distintos (tienden a ser más democráticas) y presupuestos fiscales más generosos para programas sociales. Dado que América del Sur

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parece tener una asociación más débil entre sus situaciones políticas y económicas, es posible mitigar la colinealidad al comparar naciones de este continente entre sí y con otras naciones en el mundo. Nuestros resultados muestran que regímenes democráticos gastan lo mismo o menos en programas sociales que regímenes no democráticos con características económicas y demográficas similares. A pesar de que los gastos en pensiones crecieron respecto a otros gastos sociales entre 1960 y 1990, parte de nuestra evidencia sugiere que este cambio en composición fue más pronunciada en países inicialmente no democráticos.

Keywords: *Social programs, government budgets, System of government.*

JEL Classification: H1, H50.

1. INTRODUCTION

Social Security, welfare, and other social programs are highly political components of government policy: political careers have been made and lost on the basis of an official's (or a political candidate's) perceived stance on these questions. The inseparability of social programs and politics has motivated a number of political-economic theories of the emergence of growth of public spending on social programs. Although there are differences among the various political economic theories, the institution of voting is at the center of nearly all of them. For example, Browning (1975) models voting cohort-by-cohort, and argues that the political support for the elderly derives from a majority voting coalition of the old and the middle aged¹. Tabellini (1992) models a majority voting coalition of the old and poor who use their joint voting power to create programs to benefit the elderly and the poor. But is there in fact any obvious connection between social spending policies and the institution of voting? The purpose of our paper is to revisit this question.

Cutright (1965), Jackman (1975), and Pampel and Williamson (1989) are three earlier studies that compare democracy and social programs across countries, and point out that more democratic countries have social programs that are older and spend a larger fraction of GDP. However, all of these authors point out that, even if democracy had no direct impact on social spending policy, significant differences between democratic and nondemocratic countries are to be expected given that democratic countries are often economically and demographically unusual². They use cross-country multiple regressions to try to disentangle democracy and economic development as determinants of social spending. We propose to use a new country-panel data set to revisit this, with special emphasis on several South American countries where the correlation between economic development and political institutions is much weaker. One of the newer datasets is Mulligan and Sala-i-Martin's (1999) large country panel data set of measures and indicators of

¹ Cooley and Soares (1999) update this argument using modern dynamic game theory.

² For example, economic prosperity may permit a country to become democratic, as suggested by Barro (1998) and many others.

the *design* of Social Security systems, which permit us to explore not only social spending differences between democracies and nondemocracies, but also differences in the use of payroll taxes, retirement tests, etc.

Section 2 reviews some of the political-economic theories of social spending, Section 3 introduces our data. Case studies for five South American countries are shown in Section 4. Section 5 reports regression results for a broad cross-section of countries and Section 6 concludes.

2. WHY DEMOCRACY MIGHT MATTER, OR NOT

Many positive theories of social spending have been proposed in the literature. In this section we argue that political economic models built on voting are distinct from positive theories built on preferences or economic efficiency, in that the voting-based theories presume that democracy leads to different program design, increases government budgets, and enhances the link between age or income distribution and social spending.

2.A. Public Decisions by Voting: Democracies are Different

Some political economic studies of Social spending and redistribution have featured the institution of voting. Many of these studies do not mention whether nondemocratic governments should be expected to have social programs, but since they use and emphasize voting in their explanation, they implicitly assume that social spending would be less likely to grow without democracy³. An important reason why there can be redistribution in the voting models is that votes do not express intensity of policy preferences, so that large groups can be subsidized at the expense of smaller ones, even if the redistribution has large aggregate net costs. For example, even though Social Security costs taxpayers at least as much as it benefits the elderly, the program is politically successful in Browning's (1975), Cooley and Soares' (1999), and Nataraj's (2001) voting models because the old and the middle aged form a majority voting coalition which cannot be defeated by the young regardless of the intensity of costs they bear. As emphasized by Meltzer and Richard (1981) and Tabellini (1992), the skewness of the distribution of taxable income can be an important determinant of Social spending in a voting model, because it measures the amount that the old can gain by forming a coalition with the poor or measures the size of the coalition that the poor can form themselves⁴. Hence, the models not only suggest that democracies should spend more on social programs, but that the largest democratic programs should be those in countries with the most skewed

³ After all, why should voting be featured in a model if it were not relevant for the question at hand?

⁴ More precisely, the average taxable income in the economy determines the amount of revenue that can be raised from income taxes, and the median income determines the amount of taxes that the median voter would lose by siding with the old in favor of an income redistribution scheme. The ratio of mean to median income is therefore not only a measure of income distribution skewness, but also an indicator of the net gain from redistribution to the coalition of old and poor.

income distribution. Furthermore, since obtaining a majority is so critical in a democracy, social spending should be especially sensitive to the size of the elderly population in a democracy.

Olson, McGuire, and Niskanen have a series of theoretical papers⁵ comparing the economies and policies under dictators and democracies. They do not explicitly model the voting process but, when it comes to the democracies, explain how they follow Meltzer and Richard (1981) and other previous authors who explicitly model majority voting over broad-based income taxes to finance transfers to a majority of the population. Nondemocracies, in their view, are different because the transfers go to a relatively small group—namely, the dictator and his friends—and because the taxes are somewhat less than broad-based because the dictator and his friends do not have to pay them. Because the democratic public decision-maker (the median voter) is required to pay a share of the taxes, and the dictator and friends do not, the dictator acts as a leviathan—taxing up to the point where tax base shrinkage is so severe that no additional revenue can be raised—and has a larger budget than a democracy would. Because a democracy's tax base does not *have* to be broad based, and dictators may not be able to fully escape their own taxes, we doubt that the breadth of taxes is necessarily a fundamental difference between democracies and nondemocracies. More importantly, Olson, McGuire, and Niskanen's models may support our conclusion above that *Social Security* budgets would be larger in a democracy, unless nondemocratic Social Security programs were benefitting only a small group of the dictator's allies. We can investigate this final caveat, at least in part, in the empirical analysis with more detailed study of the design of Social Security in particular countries, and by looking at the likelihood that a democracy vs. nondemocracy means tests Social Security benefits or uses broad based payroll taxes.

In many of the democratic models, Social spending serves in part the purpose of redistributing from rich to poor. Obviously, such a purpose is ill served if the payroll tax financing these programs is "capped" so that the payroll tax rate applies only on the first x units of a person's earnings, where x is the "cap", and a zero rate applies above that. For this reason, we might expect democracies to be less likely to cap their payroll taxes. The Olson, McGuire, and Niskanen studies may also suggest that dictators would be capping their payroll taxes, at least if the very rich were among the dictator's allies.

2.B. Efficiency Theories of Government: No Systematic Democracy Effect

A number of positive theories of public policy ignore politics all together, and suppose that observed public policies are those enhancing economic efficiency. According to this approach, the key explanatory variables are economic and demographic ones, since those are some important variables determining efficiency⁶. Another literature (eg., Wittman 1995) has argued that democratic

⁵ For example, Olson (1993), Olson and McGuire (1996), and Niskanen (1997).

⁶ There are a variety of reasons to expect that economic variables like the level of GDP, and demographic variables like the age-composition of the population would determine (or be associated with) which public policy is most efficient. See, for example, Mueller's (1989, chapter 17) review of government growth theories. See also below.

institutions are efficient. This literature does not always spell out in detail what are the variables that determinate efficiency, or whether nondemocratic political institutions are also efficient, but their arguments do suggest that the better positive theory of public policy is built on efficiency, not on political factors. Conversely, political factors – such as the mechanism by which public decisions are made – are presumed to be much less important determinants of public policy. One of many examples of this approach is Barro (1979), who builds a positive theory of the public debt by suggesting that it is efficient for tax distortions to be smoothed over time and showing what kinds of public debt policy would achieve that smoothing. Hence, he argues that the timing of government expenditure, and the state of the economy, are the key determinants of the amount and growth of government debt. Because he emphasizes the economic variables, Barro downplays the importance of the institution of voting (or other political institutions) for determining the public debt, unless perhaps those political factors were otherwise determining the key economic variables: the state of the economy and the timing of government spending.

In the field of Social Security and welfare, Sala-i-Martin (1996, 1997) builds positive theories based on economic efficiency. He is quite explicit (eg., 1996, p. 288) about his claim that efficiency is the reason for public programs, so that we expect no Social spending difference between democracies and nondemocracies once we understand what are the economic determinants of efficiency. Pogue and Sgontz (1977), Laitner (1988), and Becker and Murphy (1988) describe elderly care activities and investments in youth that traditionally occur in a family context, but in more modern economies might be provided as well or better by the government. In other words, they view social spending as a reaction to family activities and, unless family activities themselves depend on the process by which public decisions are made, do not offer a prediction as to how Social Security might be different in democracies and nondemocracies.

The main lesson is that the theories that explain social programs as an optimal response to economic inefficiencies do not predict size or design differences among programs depending on whether they are in democratic or non-democratic countries once the measures of the relevant inefficiencies are held constant.

2.C. Implications for Country-Correlations

In summary, we have argued that voting models of Social Security are different from positive theories built on preferences or economic efficiency, in that the voting-based theories presume that democracy leads to different social program design, increases social program budgets, and enhances the link between age or income distribution and social spending. The economic efficiency approach presumes that voting, and other political institutions are relatively minor determinants of the program size and its design. Preference-based approaches might be consistent with differences between democracies and nondemocracies, but to date do not predict the nature of these differences.

All of these approaches have implications for the amount spent as well as for *how* this money is spent. If, for example, social spending is intended to alter the operation of the labor market, then we expect revenues to be collected and

disbursed in such a way to affect the behavior of employers and employees. Or, if it is intended to redistribute from rich to poor, then taxes and benefits should be administered in a “progressive” way. These administrative considerations are connected to a study of democracy and social security because administrative differences between democratic and nondemocratic governments can tell us whether these two types of governments differ in their motives for having social spending programs.

3. OUR DATA

3.A. Measures of Social Security Program Spending and Design

Our study includes three types of variables⁷: those that measure the size and design of SS programs around the world, those that estimate the degree to which a country is democratic, and economic and demographic variables. Our main sample consists of 90 countries with available measures of democracy, the fraction of the population aged 65+, (ppp adjusted) real GDP per capita, and “sufficient” information on public pension spending.

We have several variables that estimate the size and design of Social spending programs. One such measure is annual public spending on old age pensions, as a share of GDP, and as reported by the International Labor Organization (hereafter, ILO)⁸. A second measure of social spending includes spending on public pensions plus “family allowances”, “unemployment benefits”, “employment injury benefits”, and “sickness-maternity benefits”⁹. We have utilized ILO reports for the years 1960-90.

There are 128 countries reporting some public pension spending in at least one of the years 1960-90, plus 22 additional countries for which we know that no Social Security program existed during at least some of those years. Of the 128, most countries have missing data for some of those years; we work with each country’s averages for the periods 1960-90, 1960-74, and 1975-90, where the averages are calculated using whatever years are available for the country¹⁰.

⁷ Summary statistics for the variables are shown in the Appendix.

⁸ In its publication *Cost of Social Security*, the ILO reports spending by “Social Security and Assimilated Schemes” and “Family Allowances” in national currency units. It also reports pension spending as a fraction of spending by “Social Security and Assimilated Schemes” and “Family Allowances”. To calculate public pension spending/GDP, we take the product of these two reports, and divide by the GDP reported by the ILO in national currency units.

⁹ Our research has shown that, for OECD countries where more detailed country-comparable data is available since 1980, ILO reports are very similar to OECD calculations of spending on public old age, disability, and survivor pensions, exclusive of pension schemes for civil servants. We have the impression that the data for nonOECD countries is pretty accurate, although we have not conducted a systematic analysis of this point.

¹⁰ Our Appendix shows which country-years are missing from the ILO pension spending data. Using the Social Security Administration’s (1995) report of each country’s Social Security program’s first year, we have found that much of the missing ILO data derives from the fact that some countries did not have Social Security during each of the years

In general, the Appendix shows how we have nearly all years for European and North American countries, and for some Asian countries. The 1960's, and to some extent the 1970's, are missing for most of the other countries, including many for which we believe a Social Security program existed. 104 of the 128 countries report positive public pension spending in at least 5 of the years 1960-90 and on this criterion are eligible for inclusion in our main 90 country sample.

Spending is only one indicator of the nature and intensity of public support for the elderly. But, regardless of whether one looks at elderly support from an economic or political perspective, it is also relevant *how* Social Security revenue is collected and distributed. Based on reports of the U.S. Social Security Administration, Mulligan and Sala-i-Martin (1999) have compiled a three year (1958, 1975, and 1995) cross-country panel data set of such indicators of Social Security design. Those indicators include whether there is a Social Security payroll tax how the payroll tax is shared between employer and employee, whether the payroll tax is capped, whether the elderly must exit employment to collect public pension benefits, whether benefits are earnings tested, or means tested, and whether benefits are credited for delayed retirement. Hence, we can address the question of whether democratic and nondemocratic governments administer their programs in similar ways, even when they spend similar amounts on them.

3.B. Indicators of Democracy

In order to measure the nature of political institutions, we use the results of the POLITY IV project which calculates for 181 countries going back as far as 1800, among other things, a democracy index taking integer values 0-10 (which we divide by 10 to put on a 0-1 scale), and a 0,1,2,3 indicator of the extent to which government executives are chosen through competitive elections (which we divide by 3). The democracy index includes as one component the elections indicator, plus rules for political participation, and the transfer of executive power. The POLITY data are available for only 94 of the 104 countries for which we have sufficient Social spending data. The data are missing during years of occupation, political interruption, or political transition (eg., occupation by foreign powers, a collapse of central political authority, or an executive guided process of institutional planning).

Figures 1 and 2 show how difficult it can be to interpret a correlation between democracy and social spending, and how a study of South American countries can be helpful. Figure 1 is a world map of social spending as averaged over the period 1960-90, with lighter (darker) colors indicating less (more) spending as a fraction of GDP¹¹. The more obvious pattern in the data is that Social spending's share of GDP is greater when countries are further from the equator.

1960-90. We therefore fill in the ILO pension data with zeros for each year since 1960 and before the first year of Social Security (these years are also shown in the Appendix, are typically for African and Middle Eastern countries prior to 1975). We also fill in zeros for nonpension social spending for the same years if it was the case that the nonpension social programs did not yet exist. Adding these zeros to the data has a minuscule effect on our regression results, because countries with young social spending programs are spending practically zero in the years since their program began.

¹¹ Countries not in the sample are colored white.

FIGURE 1
SOCIAL SPENDING/GDP, 1960-1990, %

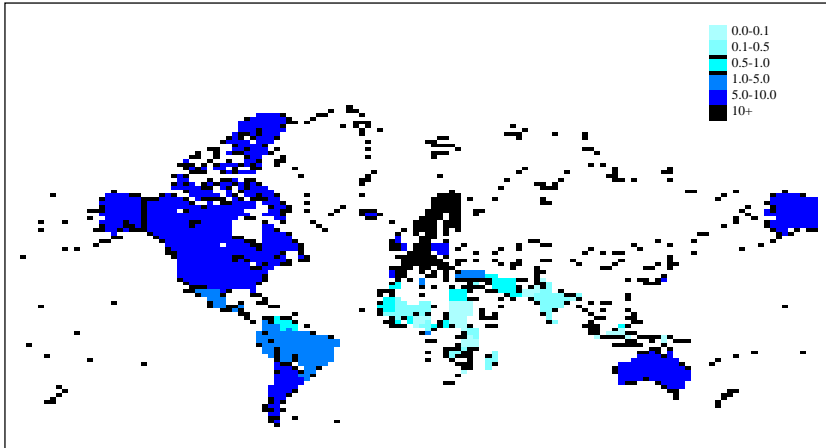


FIGURE 2
DEMOCRACY INDEX, 1960-1990

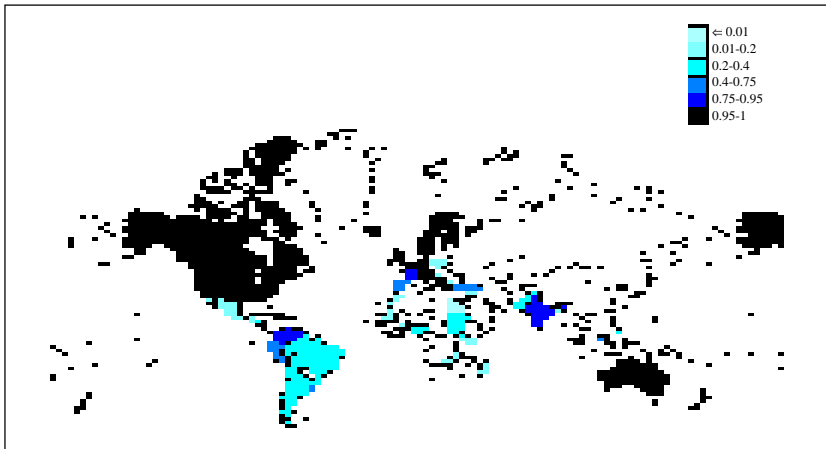


Figure 2 is a world map of the democracy index, averaged over the years 1960-90 for each country. Like social spending, democracy indices tend to be higher away from the equator. So many other variables –like GDP per capita, urbanization, or education– follow a similar pattern that we are concerned that it can be difficult to separate the importance of the various potential determinants of Social spending, and to interpret the cross-country correlation between democracy and social spending.

But notice how the South American democracy indices are an exception to this basic pattern. Within South America, the higher democracy indices are for

countries closer to the equator (Columbia, Ecuador, Peru, and Venezuela), although even these countries are not nearly as democratic as the U.S. and several OECD countries who are scored 1.0 for each of the years 1960-90. The Figure does not show how South America is also unusual for its changes over time in the degree of democracy. As we explain below, Chile and Uruguay are arguably the two countries in the world with the greatest democracy reductions since 1960. Because South America has these changes over time, and the geographic location of democracy is so different than for the world as a whole, we believe it provides scholars with an excellent opportunity to study the cross-country relation between Social spending and political institutions.

3.C. Economic and Demographic Variables

Public pensions are paid to old people, and are a big fraction of Social spending, so it may be important to know how many people are old. For this purpose we use the share of population who is 65 years old or older. This variable comes from the ILO (1996) and is available only at ten year intervals. We construct each country's averages for the periods 1960-90, 1960-75 and 1976-90.

We expect some economic variables to affect the program regardless of the exact political model of Social spending, although one could think that these effects to be different for democracies and nondemocracies. Furthermore, we expect political institutions to be correlated with economic variables, so it is important to have good measures of the latter in order to better estimate the effect of democracy *per se* on social spending. Fortunately, there has been significant progress in recent years in the measurement of some key economic variables. The Penn World Tables now report a broad cross-country panel of comparable indicators of standards of living, including real GDP per capita, which we utilize for the years 1960-89. Four of the 94 countries who have sufficient pension spending data and are included in POLITY do not have either real GDP or demographic data, so our main sample has 90 countries.

The shape of the income distribution is important for some of the voting-based theories of social spending. We therefore utilize some of the recent improvements in the construction of cross-country comparable indicators of income inequality, and income distribution skewness. In particular we use data elaborated by Deininger and Squire (1996) to obtain multiple income distribution measures of good quality for a broad cross-section of countries¹². Specifically, we use their Gini coefficient.

4. CASE STUDIES

The world maps show how the simple correlation between democracy and economic development is high, but less so in South America. We look for South American examples of a dramatic change in political regime (either from de-

¹² See Deininger and Squire (1996) for some explanation of how their income distribution measures are most often derived from comprehensive coverage of the population, and comparable concepts of income and expenditure.

mocracy to dictatorship or vice versa) and then check to see if a change is followed by dramatic alterations in the size or the design of the Social Security program. In order to select countries for case analyses, we begin with two time averages –1960-74 and 1975-90, for each of the 10 South American countries in our sample– of the POLITY democracy index and take those countries for which the two averages indicate significant secular changes. Chile and Uruguay are the two countries with largest democracy index reductions over the time period¹³.

We then tried to find economically and demographically similar countries for comparison. There are seven other South American countries, but none of them could be characterized as particularly democratic during the period 1960-90. Argentina is relatively democratic, and the most similar to Uruguay in terms of GDP and age, so we include Argentina for comparison with Uruguay. Based on GDP and age, we include Brazil and Peru for comparison with Chile and each other.

4.A. Democracy in Argentina, Brazil, Chile, Peru, and Uruguay

Uruguay probably has the most experience with democracy since 1960 (POLITY scored it 0.8, 0.9, or 1 in more than half of the years), and is the only one of the five countries getting a perfect score at some point (1989 and 1990). Chile is probably the least democratic (POLITY scored it 0 in terms of elections and overall democracy in half of the years) although, for the purposes of understanding public policy, it may be useful to think of Chile as somewhat more democratic than scored by POLITY because Pinochet planned a transition to democracy several years before the first 1980's election. Chile and Peru probably have the largest changes from democracy to nondemocracy and back, since these two countries are the only ones scored 0 in terms of elections and overall democracy for several consecutive years in the middle of the period.

For the 1980's alone –1980's is the period when we have the most social spending data for these countries– the democracy rankings are different. Peru is the most democratic in the 1980's, but had ended a twelve year period of nondemocracy in 1979. By comparison with Peru, perhaps Brazil is less democratic because its 21-year military rule lasted until 1985. Of the five countries, Uruguay is one of the least democratic in the 1980's, since its nondemocratic regime was in power for the first half of the decade, and dated back to the early 1970's. According to the dates of transition, Argentina (1985) looks only slightly more democratic from Uruguay (1983), but we point out that (according to the POLITY codes) Uruguayan executive elections were not fully competitive until 1989. Furthermore, Argentina had the more recent democratic experience prior to 1980: 3-4 years of democracy in the 1970's¹⁴.

Chile is a complicated case for our analysis because it began the 1980's with a dictator who planned a several year transition to democracy. Thus, it can be persuasively argued that during the transitional years, policies were enacted

¹³ We also point out that none of the nonSouth American countries in our 90 country sample have such a dramatic democracy index reduction, except for Bangladesh.

¹⁴ The democratic years during the 1970's were unstable politically.

by a “democratic” regime. Moreover, there were a number of other significant economic reforms coincident with the change in politics and Social Security, and our Social Security spending data is particularly unreliable.

4.B. 1980’s Social Spending in Four Countries

Much of the South American Social Security spending data reported by the ILO is for the 1980’s, so most of our South American analysis pertains to that period. We compare Uruguay with Argentina because they are pretty similar in terms of the age of their populations (as compared to Brazil and Peru, both Argentina and Uruguay have about twice the fraction of their population over age 65) and in terms of GDP per capita (just above \$4000 per year). We see in the last column of Table 1 how Uruguay spent about the same as Argentina on nonpension social programs in the 1980’s. Uruguay spent more on public pensions, but based on population age alone we would have expected a difference¹⁵. So the levels of social spending in these two countries are consistent with no democracy effect.

Social spending does grow less in Argentina than in Uruguay. In Uruguay, nonpension spending is pretty constant while pension spending grows, but in Argentina nonpension spending falls while pension spending is pretty constant. Even if political situations were the same, we expect Argentinian pension spending to grow less because it ages less during the decade. The different rates of aging may also be consistent with less nonpension spending growth in Argentina because, as we show below, older countries around the world seem to spend more on nonpension social spending. Hence, the social spending growth rates are also consistent with no democracy effect.

Peru is quite similar to Brazil in terms of the age of its population (and in terms of the rate of aging during the 1980’s), although it is poorer than Brazil and the other countries we study. If Peru’s greater 1980’s democracy created more social spending, it is not obvious in our data because it is not large enough to counteract the effect of income¹⁶. If anything, comparing all four countries suggests that Brazil’s pension spending is the outlier because it spends so much more than Peru and is so similar to Argentina despite being half as old. Since Brazil is arguably less democratic in the 1980’s than Peru or Argentina, its data may suggest a negative effect of democracy on pension spending.

ILO provides a relatively long history of Social Security spending for Uruguay and Brazil, which we display in Figure 3 (note that Uruguay data are missing 1967-74, and are suspicious for 1987). The Figure also has vertical lines to show when the two countries changed democracy-nondemocracy status (“D”=democratic). Although the missing data makes it hard to be sure, it does not appear that there was significant SS spending growth during the democratic

¹⁵ Another part of this difference may be attributed to a data error. ILO reports Uruguayan public pension spending of 13.6% of GDP in 1987, as compared with 7.2 and 8.6 % of GDP in 1986 and 1988, respectively. The 1980-89 average Uruguayan public pension spending percentage without the year 1987 is 6.7.

¹⁶ Our regression analysis below (and those of previous studies) show how the level of income is an important determinant of the size of the social security program.

TABLE 1
SOCIAL SPENDING, ECONOMICS, AND POLITICS IN FOUR SOUTH AMERICAN
COUNTRIES, 1980's

| | Brazil | Peru | Uruguay | Argentina |
|---|-------------------|------------|---------------------------|------------|
| Politics | | | | |
| nondemocratic years | -1985 | -1979 | -1985** | -1982 |
| democratic years | 1986- | 1980- | 1985- | 1983- |
| Economics and Age-Demographics (1980-89) | | | | |
| Average GDP per cap (1000s) | 4.0 | 2.7 | 4.3 | 4.1 |
| pop share aged 65+ (avg percentage) | 4.2 | 3.8 | 11 | 8.5 |
| 1981 Gini coefficient* | 55 | 49 | 49 | 42 |
| Social Spending Programs | | | | |
| nonpension social spending/GDP (avg percentage) | 1.6 | 1.1 | 1.8 | 2.0 |
| nonpension spending growth | negative | no trend | no trend | negative |
| pension spending/GDP (avg percentage) | 2.8 | 0.5 | 7.4 | 4.3 |
| pension spending growth | no trend | no trend | some growth throughout | no trend |
| payroll tax | | | | |
| payroll tax is capped | yes | no | no | yes |
| employee payroll tax rate, as share of employer+employee | 0.5 | 0.3 | 0.5 | 0.4 |
| | reduced to 0.3 | | | |
| retirement test | none | throughout | throughout | throughout |
| delayed retirement credit [†] | n/a | none | none | small |

Notes:

* Gini coefficients are not from the same data set. Year was picked so that coefficients for all four countries were available.

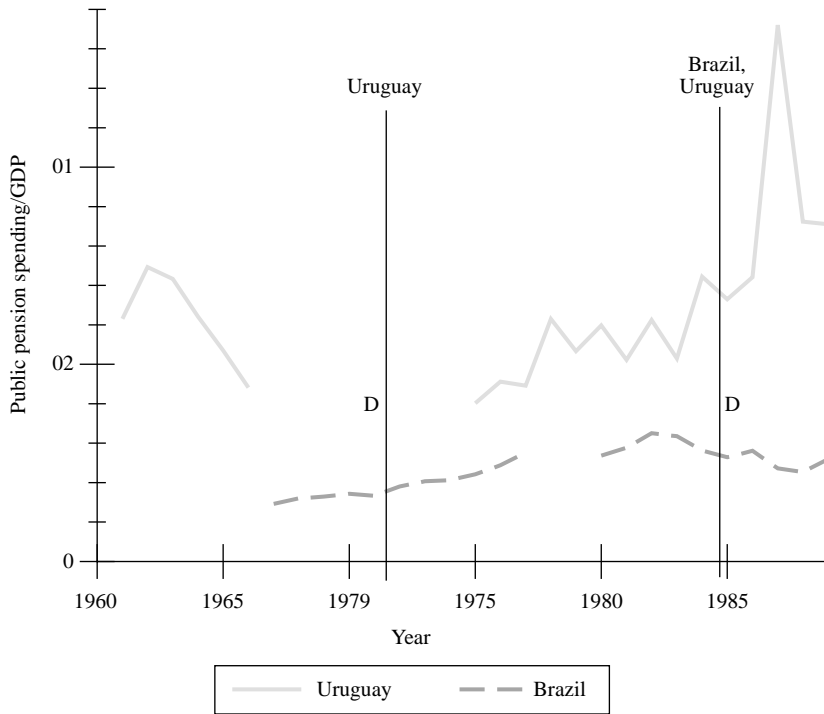
[†] "small" credit refers to a credit that is too small to be actuarially fair for a typical retiree.

** Prior to the 1980's Uruguay was democratic 1952-70.

period prior to 1974, or that the level of spending was unusual during those years. We see some SS spending growth during the nondemocratic years 1974-84 – about the rate the elderly population share was growing. This growth continued (or perhaps increased slightly) during the recent democratic years. Hence, Uruguay's times series do not show us that democratic governments have significantly more SS spending.

Brazil's public pension spending is quite similar in the first and second half of the 1980's, even though the political regimes were quite different. Brazil's spending seems to grow at a normal rate during its nondemocratic period (prior to 1985), once we consider that its elderly population share grew from .037 to .043 between 1970 and 1990.

FIGURE 3
PUBLIC PENSION SPENDING IN URUGUAY AND BRAZIL, 1961-89



Source: ILO.

4.C. Induced Retirement and Payroll Taxation in the Four Countries

At some time since 1960, all four countries made retirement a necessary condition for receiving the public pension, and did not (from an actuarial point of view) sufficiently credit pensioners for delayed retirement¹⁷. Brazil, Peru, and Argentina eliminated this requirement in 1966, 1991, and 1993, respectively, and did not replace it with an earnings test. Uruguay still (as of 1999) requires retirement of pensioners. Notice that two of the countries removing the retirement test (Brazil and Peru) did so during nondemocratic regimes, and one during a democratic regime. It is therefore hard to argue from these four cases that democracies have a different likelihood of using retirement or earnings tests.

Brazil reduced the share of the payroll tax levied on employees (by increasing the employer tax rate without increasing the employee rate proportionally) between 1975 and 1995 which, since Brazil became democratic in between

¹⁷ All of the reports in this section about Social Security benefit rules are from Mulligan and Sala-i-Martin's database, or from SSA (various issues) directly.

those years, by itself suggests that democracies tend to (nominally) tax employers more than employees. However, Brazil was democratic prior to 1963 and (not shown in the Table) had the same employee share (0.5) as in 1975. Furthermore, Peru and Uruguay also changed democratic status between 1975 and 1995, but did not significantly change their employee shares¹⁸.

Brazil and Argentina capped their payroll taxes in all three years 1958, 1975, and 1995. Peru removed its cap some time between 1975 and 1995. The SSA reports do not show that Uruguay had a cap at any time since 1958. Peru's recent removal of the cap might suggest that democracies are less likely to have caps, but this tendency does not show itself in the changes over time in the other three countries.

4.D. Large Budgets in Chile

Chile (not included in Table 1 because we do not have good spending data) shows us how nondemocracies have been known to create, or at least maintain, extremely large Social Security budgets. According to the IMF (ILO), Social Security and Welfare spending under General Pinochet exceeded 10 percent (6 percent) of GDP by 1981. As fractions of GDP, 6-10% is as large or larger than the Social Security budgets of European countries, despite the fact that only 6% of Chile's population was over age 65 (compare to 10-15% aged 65+ in most European countries). It is hard to tell from these data alone whether social spending grew to these levels under Pinochet, or under prior governments. But we do have some evidence that Pinochet's government, even though not immediately held accountable by an electoral process, was unprepared to reduce social spending during the first several years of its regime *even* when it meant increasing already high payroll tax rates. For example, SSA reports that almost 40 percentage points were added to the employer portion of payroll tax rates between 1973 and 1975, and that this increase lasted at least until 1977¹⁹. The reader should note that changes in the employer tax rate does not accurately measure changes in the tax wedge created by the payroll tax, especially in a place like Chile where employer rates were so high. For this purpose, it is better to look at $(\text{employer rate} + \text{employee rate}) / (1 + \text{employer rate})$ which, according to SSA, increases from about 35% in 1973 to 50% in 1975 (exact percentages depend on whether the contributor is a wage earner or a salaried worker). We thank Salvador Valdes for bringing this point to our attention, and refer readers to Barro and Sahasakul (1986) for further explanation of the formula. Hence, the first part of Pinochet's regime shows clearly that an electoral process is unnecessary for the maintenance of large social security budgets²⁰.

¹⁸ Uruguay reduced its employee rate from 15 to 13%, while reducing its employer rate from 15% to 14.5%. We are not sure how this could occur while expenditure was rising significantly, but the SSA (1995) does note that Uruguay's Social Security deficits are financed with general revenue.

¹⁹ Perhaps one explanation for the tax rate increases 1973-75 is the government's desire to maintain social spending while the tax base was shrinking (for example, real GDP per capita fell by 22% during the period).

²⁰ Another interesting observation about Pinochet's public pension programs is that, according to the SSA, he did not change the design of public pensions prior to 1981. In

Foxley et al (1979, p. 129) report that 1969 Chilean social spending was 10-11 percent of GNP (6 of the 10-11 were spent on public pensions). ILO (1961, p. 205) reports that payroll tax revenue and social spending were already pretty high as long ago as 1951 – 10.2 and 8.2 percent of national income, respectively. It is hard to tell how these data might be compared with IMF or later ILO data, but they show a lot of social spending prior to Pinochet, especially when we recognize that only 4.3 and 5.1 percent of the Chilean population were over age 65 in 1950 and 1970. The SSA reports pretty high payroll tax rates in, for example, 1958, 1969, 1971, and 1973: about 20% for pensions and another 20% or more for other social programs. These pension payroll tax rates were similar to those in Argentina and Brazil at the time (Uruguay had higher rates, and Peru lower, by about 10 percentage points), and the Chilean rates for other programs were significantly higher. Arellano's (1985) series on payroll tax rates (employer and employee, all programs combined) for wage earners is 8% in 1952 and already 45% by 1960.

If Chilean social spending growth occurred before Pinochet, was it under a democratic or nondemocratic regime? This is a hard question to answer, for two reasons. First, our data do not clearly indicate when the growth occurred. Arellano shows payroll tax rates quadrupling between 1952 and 1955 (from 8% to 33% – note that there was a major Social Security reform in 1952) and then growing to 50% by 1972, although ILO (1961, p. 205) does not report a dramatic payroll tax revenue increase any time between 1951 and 1957. Second, while the Chilean governments prior to Pinochet were *relatively* more democratic, which of them (if any) should be considered democratic? Consider the period 1952-54, when a major Social Security reform was passed and payroll tax rates quadrupled (according to Arellano). During this time, Chile's president was Ibanez, who was by all accounts a dictator in the 1920's. The POLITY project's democracy score is a mere 0.3 for Chile during these years, in part because Chile's chief executives were not always elected fairly and competitively (ie, elections were "stacked"), executives had a lot of power, and some political parties were outlawed. During *these* years, POLITY ranks Chile as less democratic, and having less competitive elections, than (among our case study countries) Brazil, Peru, and Uruguay.

An early ILO report (1961) suggests that social spending programs were already generous in Chile by 1951. A Chilean Social Security system was created in 1925, although this did not resemble the system as of 1952 because the 1925 system was designed to be fully funded (Foxley et al., p. 124). We are not sure of exactly which year the Chilean system was transformed to pay-as-you-go, but we point out that POLITY gives Chile a democracy score of 0.1 for the years 1925-34, in part because dictator Ibanez's regime (1927-31) came about from rigged elections, military support, and from the repression of political activity²¹. POLITY slightly increases Chile's democracy index to 0.3 in 1935, and notes that its elections were somewhat more competitive. Nevertheless, POLITY clearly characterizes Chile as nondemocratic from 1925 until 1954. Of course, these years also include the Great Depression, so our data do not

1958 and 1975 Chile had the same public pension policy regarding earnings and retirement tests (according to SSA, there were none except for salaried employees), and the payroll tax was not capped.

²¹ <http://www.countryreports.org/>

permit us to determine whether Chile's growing social spending 1925-51 should be attributed to nondemocracy or to the Great Depression²².

There may have been substantial increases in social spending between 1955 and 1972. During this period, Chile may not have been very democratic by world standards, but democratic by Chilean and South American standards. For example, POLITY scores Chile 0.5 (1955-63) and 0.6 (1964-72) – the highest scores in Chile's history prior to 1989²³. Among our case studies, Argentina, Brazil, and Peru had lower scores than Chile for the 1960's. Hence, whether we associate any Chilean social spending growth 1955-72 with democracy depends on some of the details of how we quantify "democracy."

Chile after 1980 is a more complicated case for our analysis because it began the 1980's with a dictator who planned a several year transition to democracy. Thus, it can be argued that during the transitional years, policies were enacted by a "democratic" regime. Moreover, there were a number of other significant economic reforms coincident with the change in politics and public pensions, our public pension spending data is particularly unreliable, and even good public pension data for the 1980's is hard to compare with that from other countries because Chile "privatized" its public pensions in 1981.

In summary, Chile's history has a lot to tell us about the connection between social spending and democracy. Our Chilean data is of limited quality, and sometimes appears contradictory. Nevertheless, all of our data are consistent with two conclusions that might be drawn by focusing on the key years 1925, 1952, and 1973, and the few years immediately following each of them. First of all, the Chilean governments in these years were not democratic by any standard. Sometimes there were not elections, at other times there were elections but they were stacked and led to the appointment of an executive who was very powerful and often suppressed his political competition. Second, of all of the increase over time in social spending and rates of payroll taxation, much of it occurred in these key years and the few years immediately following. Hence, the Chilean experience suggests that free and fair elections, or even elections of any kind, are not necessary to create, expand, and maintain a Social Security system.

5. REGRESSION ANALYSIS

We now analyze statistically the relationship between the democracy index and pension spending in South American and in a couple of broad cross-sections of countries.

²² The 1924 "Ruido de Sables" is an interesting episode suggesting that nondemocracy was a factor. During that episode, there was a conflict between the Parliament and the military – the former wanted to increase congressional salaries and the latter thought social programs needed more attention! (http://icarito.tercera.cl/enc_virtual/historia/parlamento/parla7.html)

²³ Chile's POLITY democracy score is less than 0.5 in all of the years 1818-1954, except 1888-90 (0.6) and 1891-23 (0.5) but even in these years POLITY notes that there were not fair and competitive elections. Also note that Bollen's (1980) democracy index is higher for Chile than for the U.S. in 1960 and 1965.

5.A. Results from our 1960-90 Cross Section

The first column of Table 2, reporting results from a regression of time-averaged public pension spending over GDP on the time-averaged democracy index in the South American subsample of our main 90 country sample, confirms what the reader may have suspected from the maps: the correlation between social spending and democracy *within South America* is negative or weak. Richer and older South American countries spend more on social spending, as shown in column (2)'s specification. The partial correlation with democracy is negative, and economically and statistically significant. Our discussion above reveals our suspicion with the Chilean spending data, but Table 2's column (3) shows that these basic conclusions are insensitive to the inclusion of Chile.

The fourth column of Table 2 replicates the first column for the full 90-country sample, and reports a very different correlation than found in the South American subsample. Since our democracy index is on a 0-1 scale and social spending is measured as a percentage of GDP, the coefficient of 7.59 indicates quite a large difference between a totally democratic country and a totally non-democratic country²⁴ – 7.59 percentage points of GDP. This result is not new.

TABLE 2
DEMOCRACY AND SOCIAL PROGRAM EXPENDITURE IN
SOUTH AMERICA AND THE WORLD

| social spending categ: independent variables | all (1) | all (2) | all (3) | all (4) | all (5) | pension (6) | pension (7) | nonpen (8) | nonpen (9) |
|---|-----------------|-----------------|-----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| democracy index | -4.63 (4.61) | -6.76 (3.22) | -4.08 (2.07) | 7.59 (1.08) | -1.02 (0.73) | -3.57 (1.66) | -0.93 (0.41) | -3.15 (1.70) | -0.08 (0.50) |
| avg gdp per capita, log | | 2.78 (1.61) | 1.64 (1.02) | | 0.58 (0.33) | 1.51 (0.83) | 0.36 (0.18) | 1.31 (0.85) | 0.23 (0.23) |
| % of pop. aged 65+ | | 0.83 (0.28) | 0.89 (0.17) | | 1.18 (0.08) | 0.80 (0.14) | 0.62 (0.05) | 0.02 (0.15) | 0.56 (0.06) |
| adj-R-sq | .00 | .72 | .87 | .35 | .86 | .87 | .83 | .19 | .76 |
| s.e. | 2.92 | 1.55 | 0.93 | 4.16 | 1.93 | 0.80 | 1.07 | 0.82 | 1.33 |
| # of countries | 10 | 10 | 9 | 90 | 90 | 10 | 90 | 10 | 90 |

Notes:

- (1) dependent variable is public social spending (total, pensions only, or nonpensions only), as a percentage of GDP, averaged over the available years 1960-90.
- (2) OLS standard errors in parentheses
- (3) All regression include a constant term. Coefficients estimates for constants are not reported in the Table.
- (4) 10 country sample is the South American subset of our 90 country sample (Argentina, Bolivia, Brazil, Chile, Columbia, Ecuador, Guyana, Peru, Uruguay, and Venezuela). 9 country sample excludes Chile.

²⁴ We have 17 totally nondemocratic (namely index=0 for all years) countries in our data (Bahrain, C. African Rep., Cameroon, Chad, Ethiopia, Gabon, Indonesia, Iran, Ivory Coast, Kuwait, Liberia, Mali, Niger, Oman, Tanzania, Togo, Tunisia) and 22 totally democratic (namely index=1 for all years) countries (including the U.S., Japan, Papua New Guinea, and several European countries).

Jackman (1975) is an early empirical study of social spending policies and political performance for a sixty-country sample in 1960. In several chapters of his book, he examines the effect of democracy and political stability on a rough measure of social equality: SIPE (Social Insurance Program Experience, which for each country can be interpreted as the number of years since their SS program was created)²⁵ Measuring democracy following the criteria set forth by Dahl (1956), Downs (1957) and Lenski (1966), he finds a strong positive correlation between SIPE and the democracy index. However, we explain in some detail below why he and others do not interpret this correlation as a democracy effect. Pempel and Williamson (1989) study a 32 country panel for the years 1950-80, using social spending measures and the Bollen democracy index. They show how democratic governments have larger social budgets, a cross-country correlation which is not surprising given that Jackman found democratic governments to have more SIPE.

However, both Jackman (1975) and Pempel and Williamson (1989) point out that, even if democracy had no direct impact on Social Security policy, significant differences between democratic and nondemocratic countries are to be expected given that democratic countries are often economically and demographically unusual²⁶ Hence, the simple correlation might not indicate an effect of democracy, but instead proxy for economic and demographic variables that, for example, would affect citizens' policy preferences regardless of the political regime. These authors therefore include log gdp per capita and the fraction of the population over age 65²⁷ in the regression, and show how the partial effect of democracy is zero or negative, rather than positive as with the raw correlation.²⁸ We have a very similar finding in our data, as seen in our fifth column of Table 2, which deviates from the fourth column by including the gdp and elderly population variables in the regression and report smaller (or even negative) democracy coefficients. Comparing the third and fifth columns, we see that the South American sample reveal a similar pattern to the 90-country sample –that income, age, and nondemocracy are associated with more social spending– although the magnitude of the relationships are different.

Peter Lindert (1994) is, to our knowledge, the first economist to explore the relation between social security spending and democracy with a formal statistical analysis.²⁹ He has a twenty-one-country panel –many of the (now) OECD

²⁵ Jackman and Cutright (see below) calculate each country's SIPE as the cross-program average of years since program creation.

²⁶ For example, economic prosperity may permit a country to become democratic, as suggested by Barro (1998) and many others.

²⁷ Jackman uses an economic development indicator rather than log gdp per capita and elderly's population share.

²⁸ Cutright (1965) also tries to separate the effects of economic development from those of the "political representativeness" of a nation's institutions. He indicates that there is a weak partial relation between SIPE and political representativeness, although it is hard to say whether his results conform with the other studies, since Cutright uses a cross-tabular analysis (rather than multiple regression) and his political representativeness index is not necessarily an index of democracy.

²⁹ Although we infer from a paragraph in Easterly and Rebelo (1993, p. 436), that they looked at a cross-country regression of Social Security spending on GDP, democracy, and other variables, finding no democracy effect.

plus Argentina and Brazil for the period 1880-1930 –a sample evenly split between democracies and nondemocracies– and finds the typical democracy to spend the same fraction of GDP on SS as the typical nondemocracy once GDP per capita, the fraction of the population elderly, and other variables are held constant³⁰ Not long after Lindert, Sala-i-Martin (1996) created a cross-country data set of Social Security programs for the year 1989, and pointed out (p. 288) that Social Security programs have emerged during nondemocratic regimes such as the USSR under Lenin, Spain under King Alfonso XIII, and Japan under Emperor Ito and during democratic regimes such as the 20th century UK, US, and Sweden.

The last four columns of our Table 2 present results for pension and nonpension social spending separately. The pension spending results are similar to those for all social spending: income, age, and nondemocracy are associated with more social spending in both samples, and the coefficient magnitudes are larger in the South American sample. For nonpension spending, we see an age “effect” only in the 90-country sample and a significant democracy effect only in the South American sample.

As explained above, our data suggest that democracies spend more of their GDP on Social Security merely because they are richer and older. Table 3 further explores this point in our 90-country sample by introducing other regressors. Column (1) replicates Table 2’s column (5) for the reader’s convenience. Continent dummies are introduced into the regression in Table 3’s column (2). Introducing the continent dummies does little to the regression coefficients or fit when the regression already includes GDP per capita and elderly’s share³¹ The insignificance of the continent dummies suggest that there is little spatial correlation in the residuals in our spending model, and hence no strong evidence that countries tend to follow policies of their geographic neighbors. Columns (3), (4), (6), and (7) suggest similar conclusions for pension and nonpension programs separately.

Does democratic social spending have a different relation with the age and income distribution? We address this question for our 90 country sample in Table 3’s columns (5) and (8)-(10). Columns (5) and (8) interact the elderly population share (minus 6 percentage points) with democracy (minus one). We have subtracted constants from each of the variables in the interaction term, so that the coefficient on the population share by itself can be interpreted as the

³⁰ Parts of the Lindert (1994) paper (eg., the abstract) suggest that democracy leads to more Social spending, and therefore appear to contract the conclusions of other studies. However, his recent work (2002) explains in more detail how his 1994 findings actually show that more voter turnout is associated with more public pension spending *among democracies*, and that there is not an important spending difference between democracies and nondemocracies. This can be seen in his 1994 Table 2 where, holding constant the economic and demographic variables, the “total social transfers” column shows that the average nondemocracy spends 0.09 percentage points of GDP *more* than the average democracy. We calculate this by adding his democracy intercept term (-1.11) to his female suffrage coefficient (0.36) times the mean democratic female suffrage (0.372) plus his turnout coefficient (1.65) times the mean democratic turnout rate (0.534) to get -0.09.

³¹ The F-stat for the hypothesis of all continent coefficients equal zero is 1.24; the p-value of the test (6 coefficients and 80 degrees of freedom) is 30%.

TABLE 3
DEMOCRACY AND SOCIAL PROGRAM EXPENDITURE IN
A BROAD CROSS-SECTION OF COUNTRIES

| social spending categ: independent variables | all (1) | all (2) | pension (3) | pension (4) | pension (5) | nonpen (6) | nonpen (7) | nonpen (8) | all (9) | all (10) |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|-----------------|-----------------|-----------------|
| democracy index | -1.02 (0.73) | -0.87 (0.77) | -0.93 (0.41) | -0.96 (0.43) | -0.95 (0.45) | -0.08 (0.50) | 0.11 (0.54) | 0.37 (0.54) | -1.00 (0.87) | -0.95 (0.93) |
| avg gdp per capita, log | 0.58 (0.33) | 0.74 (0.40) | 0.36 (0.18) | 0.38 (0.22) | 0.38 (0.22) | 0.23 (0.23) | 0.36 (0.27) | 0.41 (0.27) | 0.72 (0.53) | 0.89 (0.59) |
| % of pop. aged 65+ | 1.18 (0.08) | 1.11 (0.13) | 0.62 (0.05) | 0.59 (0.07) | 0.58 (0.08) | 0.56 (0.06) | 0.52 (0.09) | 0.50 (0.10) | 1.19 (0.11) | 1.11 (0.15) |
| (%65-6)* (democ-1) | | | | | -0.04 (0.10) | | | 0.11 (0.12) | | |
| gini | | | | | | | | | | -0.04 (0.08) |
| (gini-35)* (democ-1) | | | | | | | | | | -0.02 (0.09) |
| recent British colony | | | | | 0.04 (0.32) | | | -0.94 (0.38) | | |
| continent dummies | no | yes | no | yes | yes | no | yes | yes | no | no |
| adj-R-sq | .86 | .86 | .83 | .85 | .84 | .77 | .76 | .77 | .86 | .86 |
| s.e. | 1.93 | 1.91 | 1.07 | 1.05 | 1.07 | 1.33 | 1.32 | 1.28 | 2.04 | 2.06 |
| # of countries | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 65 | 65 |

Notes:

- (1) dependent variable is public social spending (total, pensions only, or nonpensions only), as a percentage of GDP, averaged over the available years 1960-90.
- (2) OLS standard errors in parentheses
- (3) All regression include a constant term. Coefficients estimates for constants and some dummies are not reported in the Table.

democratic population share effect, and the coefficient on democracy by itself can be interpreted as the democracy effect in a country with six percent of its population over age 65³². The coefficient on the interaction term is negative and practically zero, and we see in comparison with columns (4) and (7) that the effects of age and democracy by themselves are unchanged when we include the interaction term. Columns (5) and (8)'s specifications also include a dummy variable indicating countries that were British colonies for at least 50 of the years since 1850; it estimated coefficient is near zero for pension spending but significantly negative to nonpension social spending.

Column (10) explores the relation between Social Security spending and income inequality, using the Gini coefficient. We have the Gini coefficient for only 65 of the 90 countries, so we use column (9) to demonstrate that results are not too different in the smaller sample (compare with column (2)). Column (9) introduces the Gini coefficient, and its interaction with democracy, as predictors of Social Security spending's GDP share, but its estimated coefficient is

³² 6.0 is our 90 country sample average of the percentage of the population over age 65.

negative and practically zero³³ Perhaps this result is not surprising since several researchers (eg., Benabou 1996, Lindert 1996, and Perotti 1996) have failed to find inequality to be associated with bigger government across countries.

Another indicator of the heterogeneity of a country's residents is Easterly and Levine's (1997) index of "ethnolinguistic fractionalization". The index is on a 0-1 scale, and measures the probability that two randomly selected residents speak a different language. Although not shown in our tables, we have included this variable in our spending regressions, and its estimated coefficient is always economically and statistically insignificant³⁴ We do not find any evidence of an interaction between ethnolinguistic fractionalization and democracy either.

The POLITY democracy score is based on the conduct of elections, the power of the executive, and rules for political participation. Perhaps the elections component of the score is the component more relevant to many of the political-economic models of social spending, but we have found that the results in Tables 2 and 3 are quite insensitive to replacing the POLITY democracy score with its elections component.

5.B. Evidence on Social Spending Growth

We also partition our sample in two time periods: 1960-74 and 1975-90. We choose this division because it is an equal split chronologically. Seventeen of the countries in Table 3's sample of 90 countries do not report social security spending or real GDP for more than one or two of the years 1960-74, so we exclude them from the spending growth analysis³⁵ Table 4's column (1) shows how social spending grew more (by 1.55 GDP percentage points) in South American democracies than nondemocracies (as classified in 1960-74), although the 1.55 estimate is not statistically different from zero. Social spending grows significantly more for democracies in the broader 73 country sample – by 4.38 GDP percentage points. But this may derive from the relation between age, aging, and spending growth, because the partial effect of democracy (holding age and aging constant) on social spending is practically zero in both the South American and full samples, as shown in columns (3) and (4). Columns (5) and (6) show how this result is robust to including continent dummies, GDP per capita, and GDP growth as regressors.

³³ Since we use the constants 35 and 1 in the interaction term, the coefficient on democracy by itself can be interpreted as the effect of democracy in a country with Gini-35 (fairly typical, although slightly above average, for Europe) and the coefficient on Gini by itself can be interpreted as the effect of Gini in a democracy.

³⁴ In their study of 17 countries time until adopting Social Security, Cutler and Johnson (2001) find countries with more ethnolinguistic fractionalization to adopt Social Security somewhat *later*. They do not interact democracy with fractionalization.

³⁵ Excluding those seventeen countries (Argentina, Bangladesh, Burkina Faso, Burundi, Central African Rep., Gabon, Honduras, Indonesia, Iran, Ivory Coast, Mali, Madagascar, Peru, and Rwanda eliminated because lack of spending data, and Bahrain, Kuwait, and Bulgaria eliminated because of lack of real GDP data) from Table 3's sample has almost no effect on point estimates, except to increase the democracy coefficient by 0.1 (eg., the democracy coefficient becomes 3.8 in column (1), and -0.79 in column (6)).

TABLE 4
DEMOCRACY AND SOCIAL SECURITY EXPENDITURE GROWTH
IN 73 COUNTRIES, 1960-74 TO 1975-90

| social spending categ: independent variables | all (1) | all (2) | all (3) | all (4) | all (5) | all (6) | all (7) | pens (8) | nonpen (9) | nonpen (10) |
|---|----------------|----------------|----------------|----------------|-----------------|----------------|----------------|-----------------|-----------------|-----------------|
| 1960-74 democracy | 1.55 (1.75) | 4.38 (0.86) | 0.40 (2.41) | 0.54 (0.74) | 0.28 (0.85) | 0.62 (0.85) | 0.75 (1.00) | -0.71 (0.39) | 1.31 (0.63) | -2.02 (0.61) |
| democracy change | | | | | | | 0.37 (1.46) | | | |
| Avg dgp per capita, 1960-74, log | | | | | 0.35 (0.53) | | | | | |
| Avg dgp per capita, gr | | | | | -0.01 (0.01) | | | | | |
| % of pop. aged 65+, 1960-74 | | | 0.10 (0.47) | 0.61 (0.10) | 0.58 (0.12) | 0.65 (0.16) | 0.65 (0.16) | 0.20 (0.07) | 0.46 (0.12) | -0.26 (0.12) |
| % of pop. aged 65+, chg | | | 0.61 (1.21) | 0.50 (0.24) | 0.45 (0.26) | 0.49 (0.26) | 0.47 (0.27) | 0.52 (0.12) | -0.03 (0.19) | 0.55 (0.19) |
| Continent dummies | no | no | no | no | no | yes | yes | yes | yes | yes |
| adj-R-sq | -03 | .26 | -.19 | .64 | .63 | .63 | .62 | .63 | .50 | .22 |
| s.e. | 1.31 | 3.03 | 1.40 | 2.10 | 2.13 | 2.15 | 2.17 | 0.98 | 1.60 | 1.56 |
| # of countries | 8 | 73 | 8 | 73 | 73 | 73 | 73 | 73 | 73 | 73 |

Notes:

- (1) dependent variable is the percentage point change of 100*social spending/GDP, from the period 1960-74 to the period 1975-90, using the available years (see Appendix). "social spending" is measured as pension spending, nonpension social spending, their sum ("all"), or their difference ("pen-non"), as indicated in the first row of the Table.
- (2) for other variables: "chg" ("gr") = change (log change) from the period 1960-74 to the period 1975-90.
- (3) OLS standard errors in parentheses
- (4) All regression include a constant term. Coefficients estimates for constants and dummies are not reported in the Table.
- (5) 8 country sample is the South American subset of our 73 country sample (Bolivia, Brazil, Chile, Columbia, Ecuador, Guyana, Uruguay, and Venezuela).

There are not many countries in our sample with significant changes in the democracy index, and some of those are studied on a case-by-case basis above. Nevertheless, we add the democracy index change to the regression in column (7), and we see how the democracy coefficients are economically and statistically insignificant.

Pension spending has grown 1960-90 relative to nonpension social spending in 57 of our 73 countries. In order to see whether the changing composition of spending is different in democracies, columns (8) and (9) disaggregate social spending into pension and nonpension components. Column (8) shows how age and aging are associated with more pension spending growth, while democracy may be associated with somewhat less pension spending growth. Interestingly, age is associated with more nonpension spending growth (see column (9)), but aging is not. We also see in column (9) how democracies have somewhat more nonpension spending growth. In other words, we have some evidence that the change in the composition of spending has been more pro-

nounced in countries that were initially nondemocratic. Column (10) calculates this result more directly, by measuring the dependent variable as the time change (in GDP percentage points) in pension spending minus nonpension social spending³⁶

Might democracies be different in terms of the reaction of their social spending growth to the economic and demographic variables? We have added various democracy-interaction terms to the models in Table 4, and found point estimates on the interactions terms to be economically and statistically insignificant.

6. CONCLUSIONS

Holding constant the fraction of the population over age 65 and GDP per capita, we find no systematic evidence that democratic governments spend a larger share of GDP on social programs, or differently adjust their total social spending to economic and demographic trends. Cross-country econometric estimates suggest that the effect of democracy may be to *lower* pension spending's share of GDP, although the magnitude of that effect depends on whether we use the South American sample (about 5 percentage points) or the full 90-country sample (about one percentage point). Case studies of five countries show how countries with very different political histories, but similar economic and demographic histories, can have similar social spending programs. One country, Chile, shows that social program budgets can be quite large in a nondemocracy.

Previous empirical studies of other public policies also find that democratic and nondemocratic governments look pretty similar from a public finance perspective. For example, controlling for GDP per capita, Easterly and Rebelo (1993, p. 436) found no relationship between democracy and a number of government tax and expenditure items³⁷ Indeed, the only government budget item in their study that was systematically different between democracies and nondemocracies was the amount of aid revenue received by the government from foreign governments!³⁸ Budget balance implies that recipient countries—which happen to be disproportionately democratic—would tax less, spend more, or both. Perhaps this effect is small because Easterly and Rebelo report no significant tax or spending difference between democracies and nondemocracies.

³⁶ Although not shown in the Table, we have also added British colony dummies to the specifications shown there, and the estimated British colony coefficients are always statistically insignificant. Perhaps this is surprising, since Table 3 shows how British colonies have a different mix of pension and nonpension spending.

³⁷ We infer from their p. 436 and Table 1 that the budget items they studied in connection to democracy include tax revenue, nontax revenue, current revenue, social security contributions, government consumption, government consumption excluding defense and education, public services expenditure, social security expenditure, and transfers expenditure. Most of their budget data is from Barro and Wolf (1989) and the International Monetary Fund (various issues).

³⁸ For a detailed study of the determinants of foreign aid, see Alesina and Dollar (2000). All four authors conjecture that the difference does not derive from a difference in the public decision-making processes of democratic and nondemocratic governments, but rather that donor countries prefer the recipient to be democratic.

Political scientists have long studied the determinants of military policies, and there still is some debate as to whether democracy affects them. Elman (1997) surveys some of the literature, whose findings lean toward some connection between democracy and peaceful foreign policy, at least vis-a-vis other democratic countries. Sen (eg., his 1999 article) has argued that democratic governments are better at preventing famine during a food shortage. There is some evidence that government spending follows an electoral cycle (eg., Alesina, Cohen, and Roubini 1992), and by definition nondemocracies have no electoral cycle³⁹ More research is needed to measure the various effects of democracy on the public economy, but our view is that the democracy effects are quite small in comparison with the effects of demography and the private economy⁴⁰

Since the institution of voting, and political institutions more generally, are so different in democratic countries, our findings suggest that political institutions are quite minor determinants of the size and design of social spending programs. Much more important are economic and demographic variables, such as the aging of the population and economic growth. Social programs may still present highly political issues, because economic and demographic variables may determine the political influence of various groups. For example, an aging population may have more political support for public pension spending, but we believe that this influence would derive from the size and economic activity of the elderly population itself, and that it does not particularly matter for the size and design of social programs what are the details of the political institutions in which the various groups interact or even if voting by the citizenry is part of the political process.

A number of positive theories of the public sector in general, and social spending in particular, are built on models of voting. Are the implications of those models consistent with our findings? We think not, at least for the game theoretic voting models in which the public policy chosen by the voting mechanism is highly sensitive to the rules of the mechanism, because in fact social spending seems to be so insensitive to quite large changes in political institutions. Perhaps voting models are just a metaphor for a variety of public decision mechanisms, including those that are used by dictatorships. But if this is the reason for building a model of voting, then it seems improper to take seriously any implications that are sensitive to the form of the voting mechanism. One important example is the “one-man, one-vote” property of many voting mod-

³⁹ Nondemocratic governments do not turn over on a regular cycle, but might government spending be different near times of (irregularly spaced) transitions? We are not aware of any studies of this question, so perhaps it is premature to conclude that nondemocracies have no analogue to electoral cycles.

⁴⁰ Persson, Roland, and Tabellini (2000), hereafter PRT, look at a sample of democratic countries, and find quite a significant correlation between “constitutional features” and government spending’s share of GDP. Their results are (partially) reconciled with our findings and the findings of other studies of Social Security and democracy by Mulligan and Gil (2002), who show how PRT’s constitutional feature measures are correlated with nonpension Social Spending, but much less so with public pension spending and other forms of government spending. But we are not aware of an explanation of why constitutional features might be correlated with nonpension spending but (according to Easterly and Levine) democracy is not.

els, which makes it difficult for a citizen to express his intensity of preference for policies considered by the public sector. Because intensity of preference does not matter in such models, we get results like de Tocqueville's (1835), Meltzer and Richard's (1981) and Tabellini's (1992) that income inequality should be associated with larger transfer or Social Security budgets, and that income or earnings taxes have the important purpose of raising revenue from the very rich. An important challenge for political economics is to explain why the elderly and other groups have enjoyed political success in nondemocracies as well as democracies.

7. DATA APPENDIX

The table below shows, for our main 90-country sample, which country-years are missing from the ILO pension spending data. Using the Social Security Administration's (1995) report of each country's Social Security program's first year, we have found that much of the missing ILO data derives from the fact that some countries did not have Social Security during each of the years 1960-90. We therefore fill in the ILO data with zeros for each year since 1960 and before the first year of Social Security (typically for African and Middle Eastern countries prior to 1975). Dark boxes are country-years with no Social Security program, and white boxes are country-years with Social Security but no ILO data.

All of the countries in the Table have at least 5 years of ILO data. But if we combine the ILO data with the zeros, there are ten more countries with 5 years of data (including the zero spending years as data points) and with GDP and demographic data. These countries are (with year of first SS law in paren): Chad (1984), Gambia (1981), Ghana (1965), Haiti (1965), South Korea (1973), Liberia (1972), Oman (1975), Papua New Guinea (1980), Thailand (1990), and Zimbabwe (1993). If we average the zero spending years with the positive spending years report by ILO (if any), we get essentially zero spending for all of them: Haiti has the highest estimate, spending 0.02% of GDP. Zero is probably a pretty accurate estimate for most of these countries, except for South Korea, Thailand, and Oman which, if ILO had reported any spending for them, might be significant given their age and level of development. In any case, our regression estimates are similar if we exclude all 10 countries, include all 10, or just include those 7 where we suspect zero to be an accurate spending estimate.



8. REFERENCES

- Alesina, A.; Cohen, G.D., and Roubini, N. (1992). "Macroeconomic Policy and Elections in OECD Democracies". *Economics and Politics*. 4(1), March: 1-30.
- Alesina, A. and Dollar, D. (2000). "Who Gives Foreign Aid to Whom and Why?" *Journal of Economic Growth*. 5(1), March: 33-63.
- Arellano, J.P. (1985). *Políticas Sociales y Desarrollo, Chile 1924-1984*. Santiago: CIEPLAN.
- Barro, R.J. (1979). "On the Determination of the Public Debt". *Journal of Political Economy*. 87(5), October: 940-71.

SUMMARY STATISTICS: CONTINUOUS VARIABLES

| | years | Countries | avg | std dev | median | min | max |
|--------------------------------|----------------|-----------|------|---------|--------|------|-------|
| social spending/GDP, % | 60-90 | 90 | 2.12 | 2.69 | 0.72 | 0.00 | 10.35 |
| public pension spending/GDP, % | 60-90 | 90 | 2.18 | 2.68 | 0.68 | 0.00 | 8.79 |
| years of spending obs. | 60-90 | 90 | 22 | 7 | 23 | 6 | 31 |
| democracy index | 60-90 | 90 | 0.43 | 0.41 | 0.59 | 0 | 1 |
| real GDP, 1985 \$ per capita | 60-89 | 90 | 4290 | 3762 | 3017 | 288 | 13873 |
| elderly per capita, % | 60, 70, 80, 90 | 90 | 6.0 | 3.9 | 4.0 | 1.6 | 14.9 |
| year of first SS law | na | 88 | 1945 | 22 | 1948 | 1889 | 1978 |
| Gini coefficient | 60-90 | 65 | 40 | 9 | 39 | 23 | 61 |
| ethnolinguistic fract. | 60 | 69 | 0.26 | 0.24 | 0.14 | 0 | 0.81 |
| retirement or earnings test | 58, 75, 95 | 65 | 0.78 | 0.35 | 1 | 0 | 1 |
| retirement test | 58, 75, 95 | 65 | 0.62 | 0.43 | 0.83 | 0 | 1 |
| earnings test | 58, 75, 95 | 65 | 0.17 | 0.31 | 0 | 0 | 1 |
| payroll tax is capped | 58, 75, 95 | 64 | 0.64 | 0.41 | 0.67 | 0 | 1 |
| employee sh of payroll tax | 58, 75, 95 | 64 | 0.41 | 0.12 | 0.4 | 0.02 | 0.90 |

Summary Statistics: Dummy variables (percent of sample = 1)
1958 (N=40): retirement test=58, earnings test=25, payroll tax cap=73
1975 (N=60): retirement test=63, earnings test=18, payroll tax cap=66
1995 (N=61): retirement test=61, earnings test=16, payroll tax cap=55

- Barro, R.J. (1998). *Determinants of Economic Growth: a Cross Country Empirical Study*. MIT Press.
- Barro, R.J. and Wolf, H. (1989). "Data Appendix for Economic Growth in a Cross-Section of Countries". mimeo, Harvard University.
- Barro, R.J. and Sahasakul, Ch. (1986). "Average Marginal Tax Rates from Social Security and the Individual Income Tax". *Journal of Business*. 59(4), October: 555-66.
- Becker, G.S. and Murphy, K.M. (1988). "The Family and the State". *Journal of Law and Economics*. 31(1), April: 1-18.
- Benabou, R. (1996). "Inequality and Growth". *NBER Macroeconomics Annual 1996*. Cambridge, MA: M.I.T. Press.
- Bollen, K.A. (1980). "Issues in the Comparative Measurement of Political Democracy". *American Sociological Review*. 45(3), June: 370-90.
- Browning, E.K. (1975). "Why the Social Insurance Budget Is Too Large in a Democracy". *Economic Inquiry*. 13(3), Sept.: 373-88.
- Cooley, T.F. and Soares, J. (1999). "A Positive Theory of Social Security Based on Reputation". *Journal of Political Economy*. 107(1), February: 135-60.
- Cutler, D.M. and Johnson, R. (2001). "The Birth of the Social Insurance State: Explaining Old Age and Medical Insurance Across Countries". manuscript, Harvard University, September.
- Cutright, P. (1965). "Political Structure, Economic Development and National Social Security Programs". *American Journal of Sociology*. 70(5), March: 539-55.

- Dahl, R.A. (1956). *A Preface to Democratic Theory*. Chicago: University of Chicago Press.
- Deininger, K. and Squire, L. (1996). "A New Data Set Measuring Income Inequality". *World Bank Economic Review*. 10(3), September: 565-91.
- Downs, A. (1957). *An Economic Theory of Democracy*. New York: Harper and Row, Publishers, Inc.
- Easterly, W. and Levine, R. (1997). "Africa's Growth Tragedy: Policies and Ethnic Divisions". *Quarterly Journal of Economics*. 112(4), November: 1203-50.
- Easterly, W. and Rebelo, S. (1993). "Fiscal Policy and Economic Growth: An Empirical investigation". *Journal of Monetary Economics*. 32(3), December: 417-58.
- Elman, M.F. (1997). *Paths to Peace: Is Democracy the Answer*. Cambridge, MA: MIT Press.
- Foxley, A. et al. (1979). *Redistributive Effects of Government Programmes: The Chilean Case*. Oxford: Pergamon Press.
- International Labour Organization (1961). *The Cost of Social Security 1949-57*. Geneva.
- International Labour Organization. *The Cost of Social Security*. various issues.
- International Labour Organization. (1996). *Economically Active Population 1950-2010*. 4th edition.
- International Monetary Fund. *Government Finance Statistics*. various issues.
- Jackman, R.W. (1975). *Politics and Social Equality: a Comparative Analysis*. New York: John Wiley.
- Laitner, J. (1988). "Bequests, Gifts, and Social Security". *Review of Economic Studies*. 55(2), April: 275-99.
- Lenski, G.E. (1966). *Power and Privilege: A Theory of Social Stratification*. New York: McGraw-Hill Book Company.
- Lindert, P. (1994). "The Rise of Social Spending, 1880-1930". *Explorations in Economic History*. 31(1), January: 1-37.
- Lindert, P. (1996). "What Limits Social Spending?" *Explorations in Economic History*. 33(1), January: 1-34.
- Meltzer, A.H. and Richard, S.F. (1981). "A Rational Theory of the Size of Government". *Journal of Political Economy*. 89(5), October: 914-27.
- de Mesquita, B.B. and Lalman, D. (1992). *War and Reason*. New Haven: Yale University Press.
- Mueller, D.C. (1989). *Public Choice II*. Cambridge: Cambridge University Press.
- Mulligan, C.B. and Gil, R. (2002). "How Does the Political Process Matter for Public Spending? Reconciling Empirical Results From Democracy and Constitutional Features Literatures". manuscript, University of Chicago, February.
- Mulligan, C.B. and Xavier X. Sala-i-Martin. (1979). "Gerontocracy, Retirement, and Social Security". NBER working paper no. 7117, May.
- Nataraj, S. (2001). "Age Bias in Fiscal Policy: Why Does the Political Process Favor the Elderly?" manuscript, Stanford University, December.
- Niskanen, W.A. (1997). "Autocratic, Democratic, and Optimal Government". *Economic Inquiry*. 35(3), July: 464-79.
- Olson, M. (1993). "Dictatorship, Democracy, and Development". *American Political Science Review*. 87(3), September: 567-76.

- Olson, M. and McGuire, M. (1996). "The Economics of Autocracy and Majority Rule: The Invisible Hand and the Use of Force". *Journal of Economic Literature*. 34(1), March: 72-97.
- Pampel, F.C. and Williamson, J.B. (1989). *Age, Class, Politics and the Welfare State*. Cambridge: Cambridge University Press.
- Perotti, R. (1996). "Growth, Income Distribution and Democracy: What the Data Say". *Journal of Economic Growth*. 1(2), June: 149-87.
- Persson, T.; Roland, G. and Tabellini, G. (2000). "Comparative Politics and Public Finance". *Journal of Political Economy*. 108(6), December: 1121-1161.
- Pogue, T.F. and Sgontz, L.G. (1977). "Social Security and Investment in Human Capital". *National Tax Journal*. 30(2), June: 157-69.
- Polity IV Project. (2000). *Political Regime Characteristics and Transition, 1800-2000*. Electronic data file (version p4v2000). College Park, MD: CIDCM, University of Maryland.
- Sala-i-Martin, X. (1996). "A Positive Theory of Social Security". *Journal of Economic Growth*. (1)2, June: 277-304.
- Sala-i-Martin, X. (1997). "Transfers, Social Safety Nets, and Economic Growth". *International Monetary Fund Staff Papers*. 44(1), March: 81-102.
- Sen, A. (1999). "Democracy as a Universal Value". *Journal of Democracy*. 10(3), 3-17.
- Tabellini, G. (1992). "A Positive Theory of Social Security". mimeo IGIER, Milano, Italy, February.
- United States Social Security Administration. *Social Security Programs Throughout the World*. Washington, DC: Government Printing Office, various issues.
- University of London School of Advanced Study, Institute of Commonwealth Studies. "Former British Colonies and Commonwealth Members". <http://www.sas.ac.uk/commonwealthstudies/library/libcolonies.html>