Tightening Tensions: Fiscal Policy and Civil Unrest in Eleven South American Countries, 1937-1995

Abstract: Efforts at fiscal consolidation are often limited because of concerns over potential social unrest. From German austerity measures during the 1930s to the violent demonstrations in Greece in 2010, hard times have tended to go hand in hand with antigovernment violence. In this paper, I assemble cross-country evidence from eleven South American countries for the period 1937 to 1995 about the extent to which societies become unstable after budget cuts. The results show a clear positive correlation between austerity and instability. I examine the extent to which this relationship simply captures the fact that fiscal retrenchment and economic slumps are correlated, and conclude that this is not what is driving the effect. Finally, I test for interactions with various economic and political variables. While autocracies and democracies show a broadly similar responses to budget cuts, countries with a history of stable institutions are less likely to see unrest as a result of austerity measures.

I. Introduction

On May 1, 2010, the Greek Prime Minister George Papandreau announced a set of drastic austerity measures. These included public sector pay cuts, pension reductions, and higher VAT, luxury and company taxes. These measures were introduced as part of the EU-IMF bailout package for Greece. May day itself saw clashes between police and demonstrators. On May 5, a general strike paralysed the country. Public transport, government offices, schools, and many businesses were shut. Armed demonstrators fought street battles with police. A branch of Marfin bank burned down after demonstrators threw Molotov cocktails; three employees died. Numerous demonstrators and policemen were injured.

By the standards of anti-government protests, the May 2010 incidents in Athens were mild. Many countries have seen more severe rioting and politically-inspired violence, both recently and in the more distant past. There is a common belief that severe budget cuts make such forms of unrest more likely. In turn, this belief creates an unwillingness on the part of governments to face hard choices, and can lead to delayed – and potentially, all the more severe – adjustments. In this paper, I examine the extent to which social unrest is systematically associated with fiscal austerity. Do riots, anti-government demonstrations, political assassinations, and attempts at revolutionary overthrow become more common if governments push through tax hikes and spending cuts?

I analyse this question for eleven South American countries for the period 1937-1995. The continent's notoriously volatile politics, combined with large swings in fiscal conditions, make it a particularly appealing laboratory for exploring the link between fiscal adjustment and social instability. From the popular protests that led to the fall of the de la Rúa administration in Argentina to the 'Caracazo' in Venezuela, austerity measures have played a prominent role in numerous cases of mass protest (Sonntag, Maingón, and Biardeau 1992; Handelman and Sanders 1981). Cuts in expenditure are particularly strongly correlated with violent forms of protest and attempts to overthrow the government. Fiscal adjustment through tax increases is less strongly associated with unrest than expenditure cuts. This suggests an additional reason why the type of budget adjustment that is may be associated with better macroeconomic

performance (Alesina et al. 2002) is not very common in practice.[1] The relationship between austerity and unrest is apparent in countries with both autocratic and democratic regimes –countries do not need a minimum level of political development to show a clear-cut correlation between unrest and fiscal contractions.

There is also evidence that the relationship between fiscal adjustment and antigovernment violence has strengthened in recent decades. Until the 1970s, the link is weaker in the data than after this date. It seems likely that improving institutions, greater freedoms to associate and for the press, and a higher degree of democratic participation after the 1970s in a number of countries have resulted in mass protests becoming another form of 'bargaining' with the government.

Related literature includes work on the nature and timing of fiscal adjustments, as well as the causes of social unrest. That immiseration is the driving force behind violent upheavals is a common theme in the political science literature since at least the days of Karl Marx. The Weimar Republic's demise in the 1930s is often cited as a warning. In a bid to gain competitiveness on world markets, the German government under Chancellor Brüning cut public expenditure (including civil servant pay) and introduced major tax hikes (Bracher 1978). Street fighting between Communists and Nazi Party supporters, riots and political murders followed, and arguably prepared the ground for Hitler's *Machtergreifung* in 1933.[2] More generally, several authors have examined the interplay of fiscal consolidation and social unrest in interwar Europe (Eichengreen 1996; Feldman 1997; Maier and Knapp 1975; Wirsching 2003). France in particular in the 1930s showed signs of political violence increasing in times of fiscal austerity.

This paper also connects with research on the determinants and feasibility of fiscal adjustment. Research by Alesina et al. (2002) suggests that fiscal contractions can be expansionary. Related work by Alesina, Perotti and Tavares (1998) also argues that there is no 'penalty' for the government – it neither loses popularity, nor are its chances of re-election reduced. Sharp adjustments may even be rewarded by the

[1] Cf. also the recent reassessment in by the IMF (2010).
[2] The extent to which economic factors drove voters into the arms of the Nazi Party is controversial (Falter 1991; King et al. 2008).

electorate. This is in line with the finding by Kraemer (1997) that fiscal expansions in Latin America prior to elections do not increase a government's chances of staying in power.

If we take these findings at face value, they raise the question why fiscal adjustment are ever delayed – without a penalty at the ballot box or in the national accounts, why aren't fiscal adjustment implemented instantly and vigorously? The findings in this paper imply that the 'typical' cost of adjustments may be low, measured in terms of growth or electoral success. At the same time, the expenditure cuts of the type favored by Alesina et al. (2002) sharply raise the risk of major social upheaval – at least in South America during the period 1937-95. This is in line with the argument in a classic paper by Alesina and Drazen (1991). They argue that stabilizations are often delayed because social groups engage in a 'war of attrition'. For the argument to work, adjustment has to be costly, and while it is postponed, parties fight over which group will bear its brunt. While Alesina and Drazen do not address unrest and its causes directly, it is straightforward to think of street protests and mass violence as part of the negotiation process that ultimately decides the shape and size of austerity measures. Part of the answer is suggested by studies that examine the relative 'strength' of the ruling government. Stein et al. (1999) argue that in Latin America, more fragmented political systems – as proxied by the size of electoral districts – are associated with greater levels of public spending.[3] A government's parliamentary backing has a similar effect. Also, Woo (2003) found that instability and unrest are systematically associated with higher levels of public debt. This implies that countries with more debt are either less stable politically, or that instability makes it harder to achieve budget discipline. Amorim Neto and Borsani (2004) find that government stability is associated with greater fiscal prudence, as is the level of parliamentary support and a conservative orientation of the ruling party.

The study closest in spirit to ours is Paldam (1995). He studies 9 balance of payments crises in 7 South American countries. Most of these were associated with attempts to lower inflation. Governments (sometimes with IMF help) pushed through spending cuts, and saw a rise in protests in response. Paldam uses an event-study methodology,

[3] There is also evidence that countries with 'presidential' systems have smaller governments (Persson and Tabellini 2005).

and compares the 26 weeks before the announcement of budget adjustments with the 55 weeks thereafter. His outcome variables include strikes, protest demonstrations, and changes in government composition (or regime change). Surprisingly, Paldam finds that protests *decline* after adjustment measures are introduced (before returning to pre-adjustment levels later). At the same time, there is a spike in government changes some 10 weeks after new budget measures are brought in. Paldam also argues that democratic regimes experience more violent protests than autocracies. For Africa, Morrison, Lafay and Dessus (1994) analyse IMF interventions and fiscal adjustments. They find that economic stabilization programmes can be politically risky. Within six months of an adjustment programme, strike activity increases.[4] The study finds that increases in relative prices – through new taxes, the end of food subsidies, devaluations, and public tariff changes – are likely to raise the level of political agitation. On the other hand, expenditure cuts – especially those for public investment – have no discernible effect. Another study by the OECD examined the effects of aid and monetary adjustments on strikes and demonstrations (Haggard, J. D. Lafay, and Morrisson 1995). It finds that increases in aid reduce unrest, and that IMF and monetary tightening increase it.

Other related literature also includes work on the interaction between distributional outcomes, political change, and the potential for political violence. Acemoglu and Robinson (2000) argue that the 'West' extended the franchise to heed off the threat of revolution. Boix (2003) builds a more general model in which inequality and asset specificity modify the trade-off between opting for violence or accepting the status quo. In either case, if the threat of violent overthrow is credible, it seems plausible that various forms of violent mass-protests can be used as a form of collective bargaining over distributional outcomes.

In the social psychology literature, the importance of comparison effects and of low social distance between favoured and unfavoured groups has generally been emphasized (Berkowitz 1972). Other papers analyse the importance of peer effects in overcoming participation thresholds (Cole 1969). This suggests that the larger the network of potential protesters, the more probable it is that they participate in mass

[4] It should be noted that the estimated coefficients are small (around 0.15, and the authors do not test for significance).

actions. For this reason, we will control for the availability of television and telephones in our empirical analysis.

We proceed as follows. Section II summarizes our data, and section III presents the main results. The following section examines the robustness of these findings, and section V concludes.

II. Data and Context

Neither quantifying violent protests nor the measurement of fiscal adjustments are simple tasks.[5] In this paper, I use data collected by Banks (1994) on the number of political assassinations, general strikes, riots, and anti-government demonstrations. These were compiled from the 1960s onwards as part of a large-scale data collection effort at the University of Binghamton. It is based on information on political and economic conditions originally published in *The Statesman's Yearbook*. It was first published in 1863, following suggestions by Prime Ministers Robert Peel and William Gladstone, and was meant to contain 'A Statistical, Genealogical, and Historical Account of the States and Sovereigns of the Civilised World'. We also use data on economic variables from the Banks dataset, based on data from the UN Statistical Yearbook, and Pick's Currency Yearbook. Finally, data on institutional quality comes from the Polity IV dataset (Marshall, Jaggers, and Gurr 2010).

On average, for each state during a 10 year period, there were 6.9 riots, 6 anti-government demonstrations, 4 assassinations, and 3.4 attempts to overthrow the government in violent fashion ("revolutions") in our data.[6] The probability of unrest did not remain constant over time. We plot the patterns in figures 1 and 2. The most striking feature of each time series is its volatility – the number of riots or assassinations may be low for several years, before suddenly reaching a very high level in a single year. Riots were more common in South America in the 1950s and 1960s than in later years. While the average frequency in 'normal' years has not changed much from the 5-8 recorded in the immediate post-war era, there are fewer

[5] For methodological considerations, cf. IMF (2010).
[6] The countries included in our study are Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Suriname, Uruguay, and Venezuela.

peaks. In the period 1937-1970, there were 9 years with more than 10 riots in the sample; after 1970, there was only one.

Politically motivated assassinations show the opposite pattern. There were relatively few in the immediate post-war period. Typical years show zero or one murder of a politician, and bad years, two to three. After the 1970s, this changed dramatically. Even 'quiet' years now register 3-5 assassinations, and there are two peaks with murder frequency surging above 10 p.a.

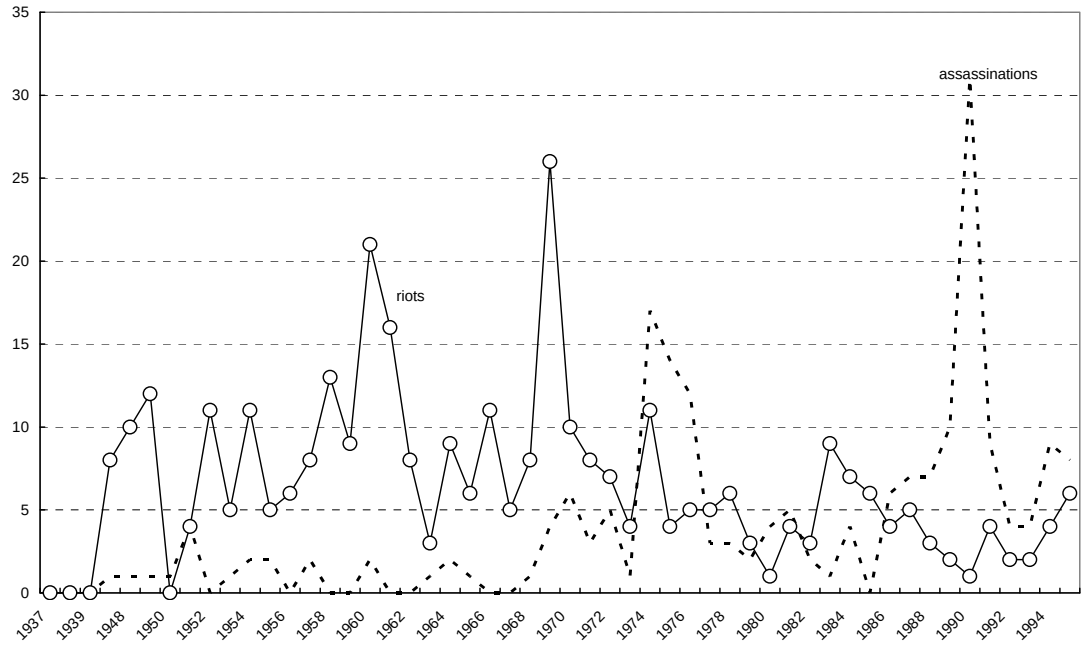

Figure 1: Riots and Assassinations in South America, 1937-1995

The history of anti-government demonstrations and of coups and revolutions – attempted or successful – is similarly volatile. Figure 2 gives an overview. Anti-government demonstrations have been on an increasing trend since the 1930s. For most of the 1950s and 1960s, there were 3-5 of them per year, with values above 5 a rare occurrence. Since 1970, there have been more than 10 years with more than ten anti-government demonstrations, with an all-time peak of 25 in 1984.

Attempts at revolution have been on a declining trend. The immediate post-war era saw a high number, with 12 recorded attempts at overthrowing the existing government in 1948. The 1950s and 1960s also continued to be marked by violent

attempts at overturning the established order, with revolutionary episodes in the early 1960s and early 1970s. Since the mid-70s, revolutions have become rare, with no years registering a frequency higher than 5.

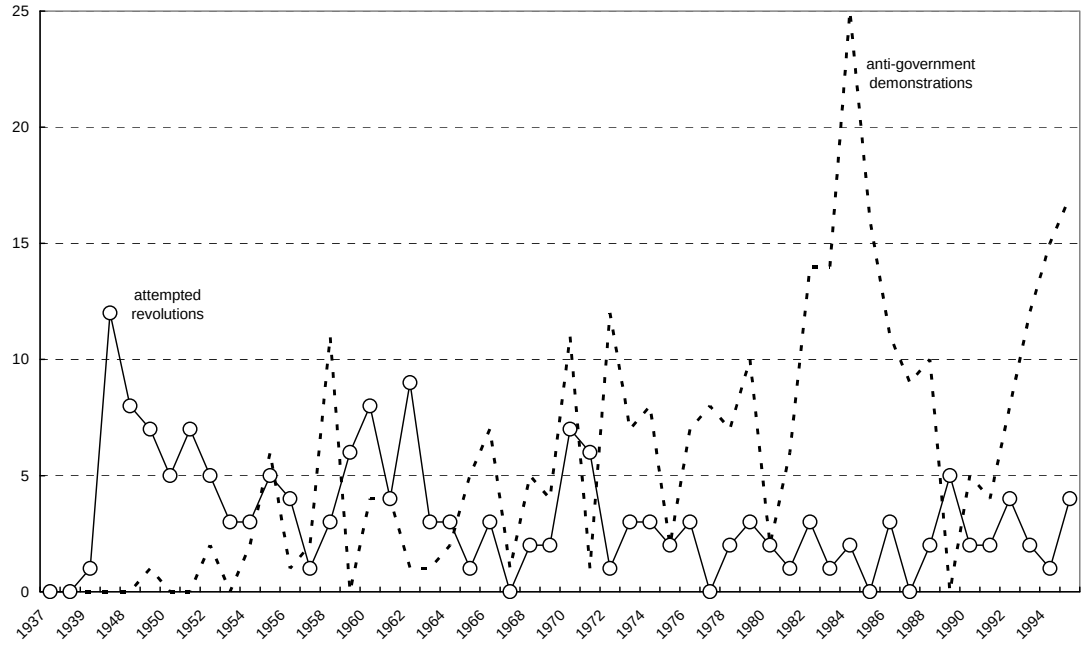

Figure 2: Revolutions and Demonstrations, Mean Sample Value by Year, in South America, 1937-2005

The Banks dataset contains an aggregate measure of unrest – the "weighted conflict index" (wci). It combines the different series on unrest in the Banks dataset by adding them up with different weights. Assassinations, for example, receive a weight of 24, while purges count almost four times as much (86). Anti-government demonstrations receive the highest score (200). The weights were not chosen based on statistical analysis; they reflect the assessment of Banks and his team. In subsequent analysis, this indicator is used.

In addition, I construct an aggregate measure based on principal components analysis, using a subset of the time series collected by Banks. Arguably, of the eight indicators compiled in the Cross National Time Series database, only five are closely related to the issue were are interested in – social unrest that can reflect opposition to or protests against government spending cuts. These variables are anti-government demonstrations, general strikes, riots, assassinations, and revolutions. In contrast, purges are systematic attempts of the authorities to silence the opposition. Government crises may have many origins, and rarely reflect public unrest as a result

of fiscal adjustments.[7] Finally, acts of guerrilla warfare often reflect long-running military conflict between different ethnic groups, or systematic attempts by foreign powers to undermine the government. While some degree of popular support is clearly necessary for the guerrilleros to succeed, it is not clear that the frequency of guerrilla warfare maps closely into levels of popular support, at least at annual frequency. In addition, it is unlikely that fiscal adjustments in a single year can lead to sufficient disillusionment for such a radical course of action.

I use principal component analysis to extract a common factor to the unrest captured by the five variables of interest -- anti-government demonstrations, general strikes, riots, assassinations, and revolutions. The first principal component explains 38% of the total variance. All factors enter with a positive loading. Riots, assassinations, and general strikes have relative high scoring coefficients. The first principal component ('chaos') and the weighted conflict score from the Banks dataset (wci) are highly but not perfectly correlated – 0.6, significant at the 1% level.

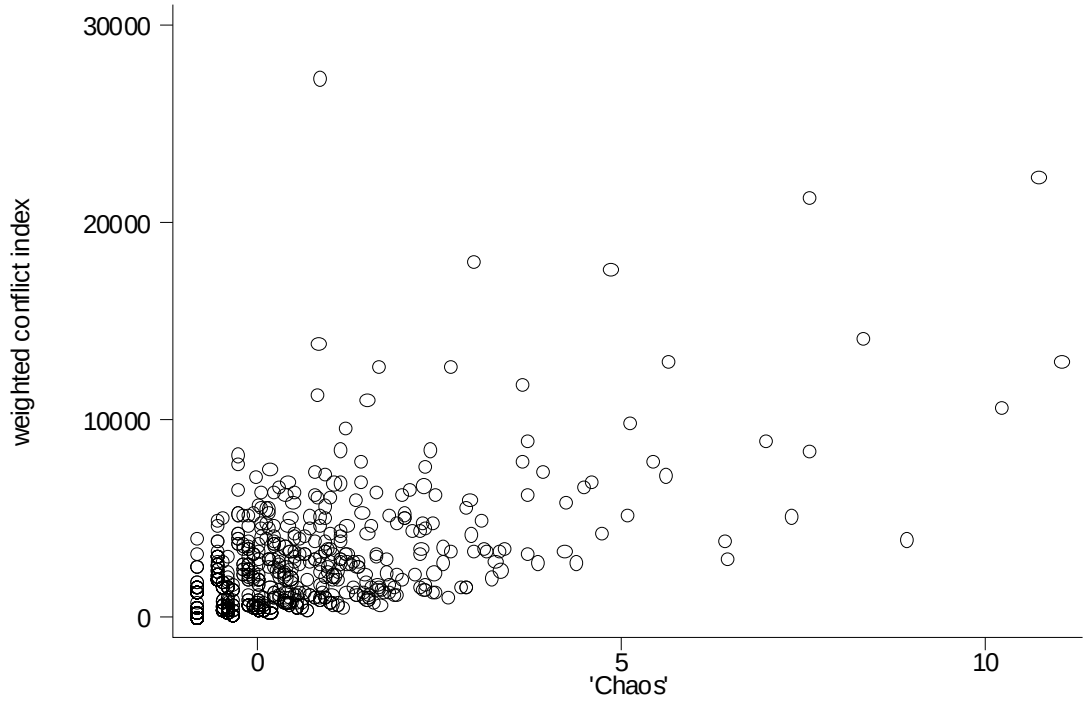

Figure 3: Comparison of indicators – WCI vs 'Chaos'

Figure 3 compares the two aggregate measures of unrest – WCI and 'Chaos'. While they are positively correlated, it is clear that they do not capture exactly the same

[7] There are clearly exceptions to this, such as Argentina in 2001.

variation in the data. For example, Brazil in 1969 registers a WCI score of over 27,000, while only showing a chaos indicator of 0.875. This is because a wave of guerrilla attacks and purges swept the country in 1969 – Banks registers 14 guerrilla actions and 34 purges.

Case Studies – Brazil, Chile, and Argentina

During our sample period, Brazil experienced numerous acts of politically-inspired violence. The 1920s saw several attempts by junior officers to usurp power. In 1930, Getúlio Vargas seized power and established a dictatorship. Following an attempted Communist uprising in 1935, the dictatorship became more autocratic. After Allied victory in 1945, Brazil returned to democracy after a military coup. A sequence of populist governments held power until the 1960s, when another military coup ushered in a 21-year-long military dictatorship. Civilians have governed since 1985, and all change of office has been peaceful since (Levine 2003).

The conflict series for Brazil is dominated by riots, which occurred with some frequency in the 1950 and 1960s. The years of military dictatorship show relatively fewer incidents overall, and in particular, no attempts at revolutionary overthrow. General strikes are also conspicuous by their absence during the years 1964-85. Increasing austerity measures after 1975 are also known to have been one factor behind the rise in militancy (Frieden 1992). The strikes of the late 1970s have been widely noted for their strength and effectiveness, and were instrumental in bringing military rule to an end (Antunes and Wilson 1994; Payne 1991). The return to democracy saw a rise in protests, including several assassinations in the early 1990s.

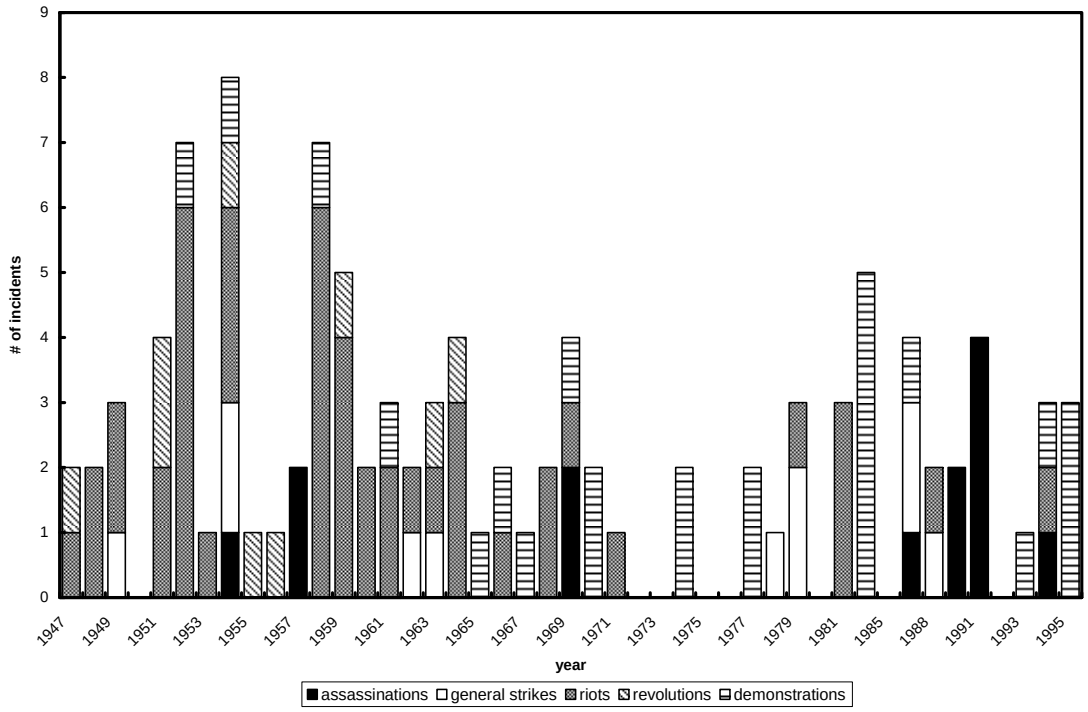

Figure 4: Unrest in Brazil, 1947-95

To what extent can the ebb and flow of political violence and social unrest in Brazil be explained by economic conditions – and in particular, government spending? Historians of labor unrest in Brazil have sometimes disputed the role of economic factors (Sandoval 1993). Undoubtedly, each incident in the dataset has highly specific causes – accidents of timing, of the political constellation, etc. play a role. And yet, we find a negative correlation between expenditure changes and the aggregate measure of unrest constructed before (Chaos). For the sample as a whole, the coefficient is -0.17; for the period before 1965, it is -0.35. Based on the evidence presented so far, there is some reason to suggest that changes in national expenditure have had predictive power for the level of unrest documented for Brazil.

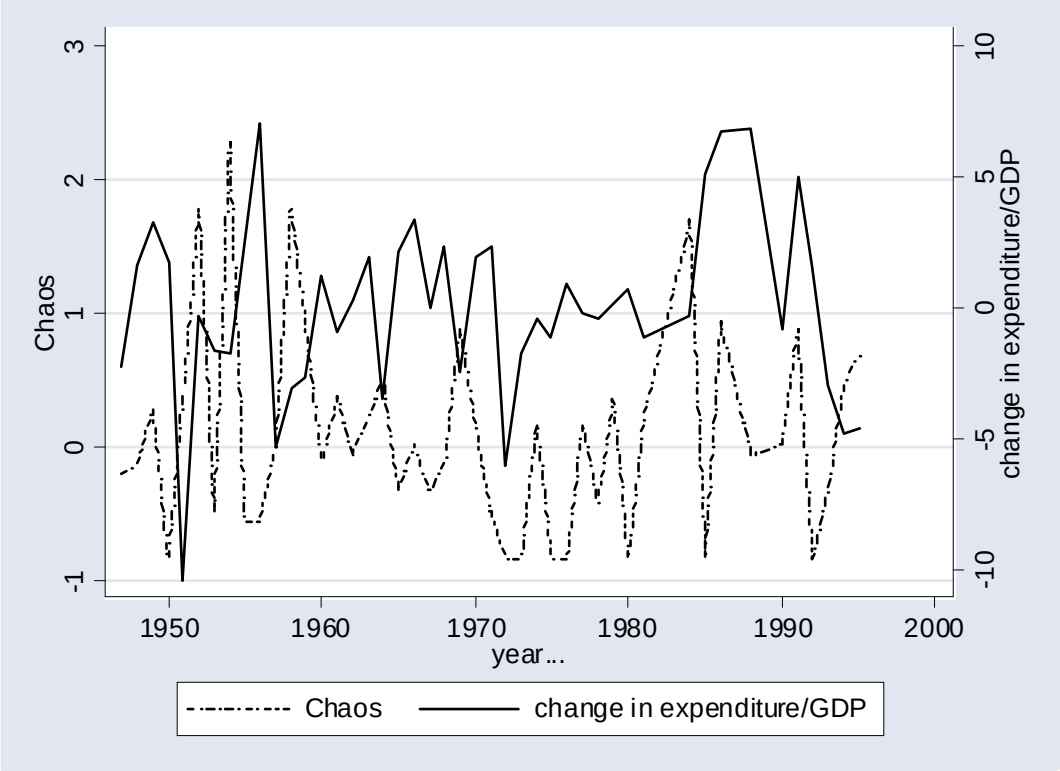

Figure 5: Social unrest and changes in expenditure in Brazil, 1947-95

Chile

Chile's political history was generally less volatile than that of many other Latin American countries. This changed in the 1920s, when Marxist groups gained in influence. A military coup in 1925 ushered in a period of rapid turnover in governments, which lasted until constitutional rule was restored in 1932. The following twenty years saw a variety of coalition governments, many dominated by the 'radical' party (Collier and Sater 2004). Under Jorge Alessandri, elected in 1958, the conservatives gained power once more. From 1964 onwards, a left-leaning government under Eduardo Frei pursued a series of reforms. These included generous social programs, plans for agricultural reform, and large-scale housing projects.

Our data shows only a handful of strikes and riots in Chile in the 1950s and early 1960s. Under the Frei government, unrest increased, with left-wing militants strengthened their position. After the 1970 election, Salvador Allende became President. As well as embarking on a major program of social reform, the state's role in the economy grew. The banking system was nationalized. The Allende years show a rise in the frequency of riots, attempted overthrows of the government, and anti-

government demonstrations. At the same time, government spending increased massively, with particular emphasis on social programs (Collier and Sater 2004). Unrest peaked in the years of the military putsch that overthrew the Allende government and brought General Pinochet to power.

Military dictatorship went hand-in-hand with relatively few incidents in the Banks dataseries (murders of dissidents and activists are not counted). The next wave of unrest arrived between the referenda of 1980 and 1988 that ushered in the end of the Pinochet regime. The year 1983 saw the founding of the Manuel Rodríguez Patriotic Front (MRPF), which attempted to organize armed resistance against the Pinochet regime (Ensalaco 2000). During the period, riots and demonstrations were commonplace, with 15 anti-government demonstrations in 1985 alone. The years after the return to democracy in 1991 then saw a low level of violence, only interrupted by a spike in political assassinations in 1991 itself (including the murder of Senator Jaime Guzman, a former confidante of General Pinochet, by the MRPF).

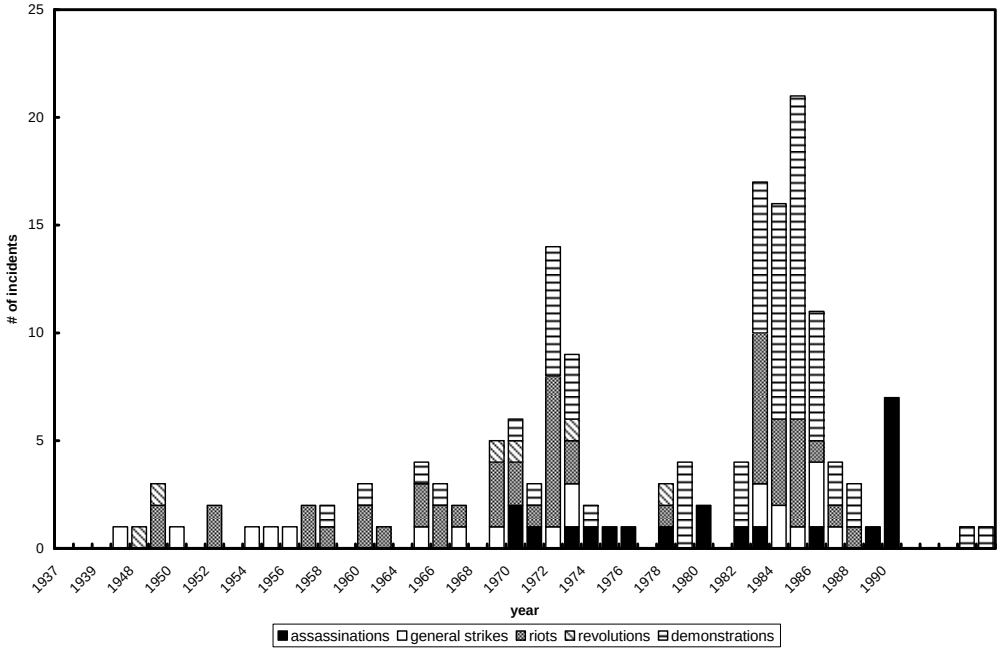

Figure 6: Unrest in Chile, 1937-1995

The link between fiscal austerity and instability is not readily apparent in the case of Chile (Figure 7). Sharp declines in central government spending did not coincide with the peaks in unrest; periods of normal increases in expenditure coincide with major upheaval. While much of the historical literature on Chile has stressed the extent to

which worker militancy was fuelled by economic concerns, there is no systematic evidence in favour of a direct, strong link between budget cuts and unrest (the correlation coefficient is negative – 0.07 – but insignificant).[8]

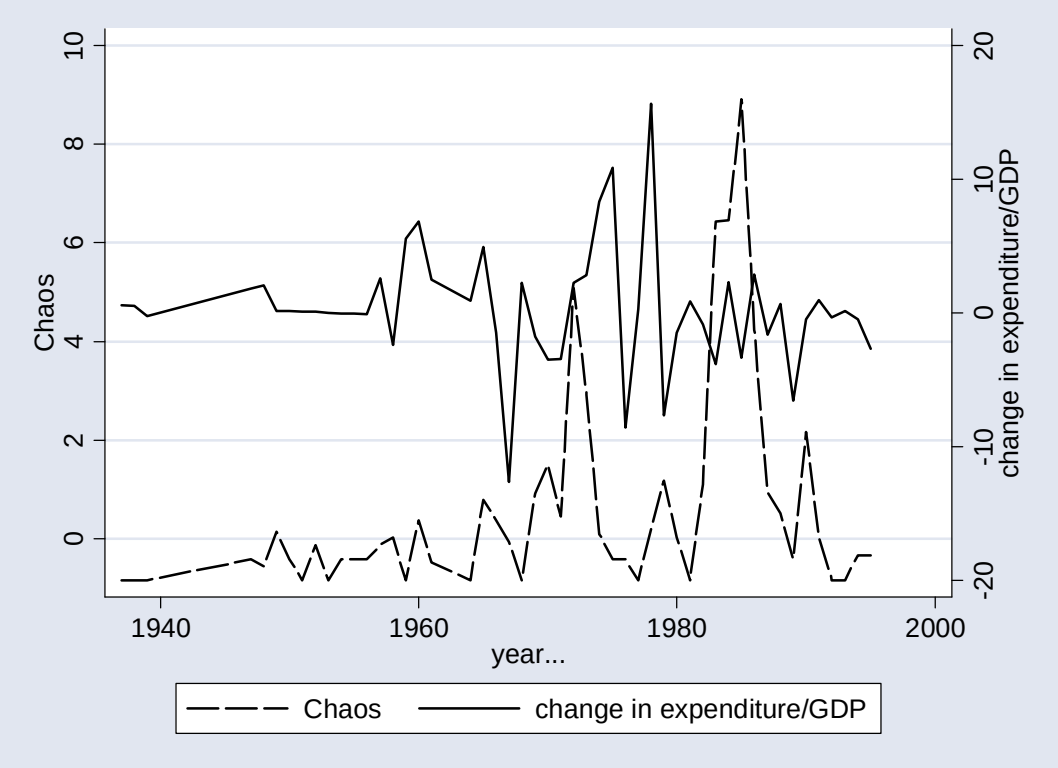

Figure 7: Social unrest and changes in expenditure in Chile, 1937-95

Peru

Peru's history since the 1930s is marked by frequent alterations between civilian and military rule. Levels of violence were heightened by the presence of guerrilla movements, some of them with strong links to the drugs trade. From its founding in the 1930s, the Alianza Popular Revolucionaria Americana (APRA) militated in favour of social reform and an internationalist agenda (Thorp and Bertram 1978). One of its main competitors was the Communist Party of Peru. APRA candidates after World War II won elections, but military intervention stopped them from taking office. From the 1960s onwards, Communist guerrilla movements caused increasing levels of violence. The years 1968-80 saw another period of military government. APRA returned to power when Alan Garcia became president in 1985. A period of hyperinflation and increasing civil war against the Shining Path guerrilla followed.

[8] Salazar (2006).

The administration of Alberto Fujimori, elected in 1990, brought inflation under control. It also dissolved Congress against the constitutional rules, and pushed through major reforms. A crackdown on the Shining Path insurgency was largely successful, but resulted in several massacres.

During its post-war history, Peru experienced two major waves of social unrest according to our measure. Figure 8 plots developments over time. The mid-to-late seventies, as the rule of the military was coming to an end, saw a surge in riots and demonstrations; the late 1980s witnessed numerous political murders. Even at its peak, the overall level of unrest was low compared to, say, Chile. Upheavals in the late 1970s were associated with a debt crisis and a need to refinance external borrowing. IMF support came in exchange for austerity measures. The 1977 agreement on debt refinancing resulted in large price increases for food and gasoline, which promptly provoked large-scale demonstrations (Handelman and Sanders 1981).[9] Paldam (1995) also classifies 1982 and 1990 as years of economic crisis, with inflation high and terrorism widespread. In 1989, several thousand Peruvians crossed the border into Chile to buy bread, which had became largely unavailable in Peru.

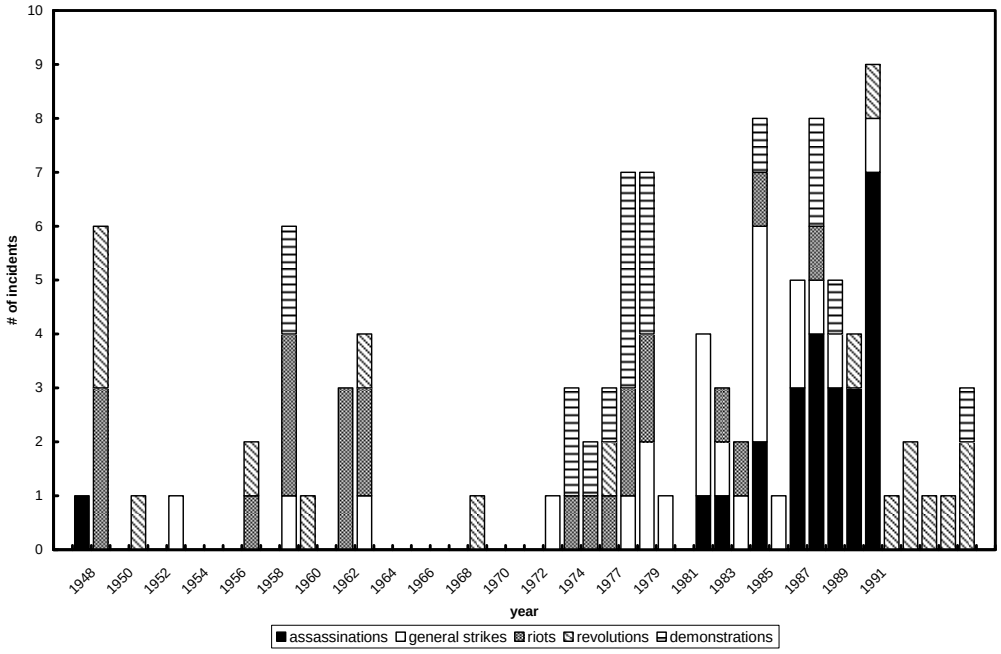

Figure 8: Unrest in Peru, 1937-1995

[9] There is some evidence that the unrest of the summer of 1977 led directly to the transition to democracy, as President Morales decided to stave off the prospect of further unrest by announcing a timetable for restoring constitutional rule.

Figure 9 plots changes in expenditure and our preferred measure of unrest side-by-side. There is also some evidence for an inverse movement of the two series in the late 1960s. In the main, there is little inverse movement for small changes in expenditure. Large fiscal adjustments, on the other hand (such as in the late 1970s) coincided with major increases in unrest. After the overthrow of General Velasco, many of his economic policies were reversed. The fishing industry, newspaper and other firms were denationalized. The government under General Morales Bermúdez also returned government to civilian control, and brought in budget measures to reduce borrowing (Alexander and Parker 2007). Overall, the correlation coefficient of -0.3 (significant at the 4% level) suggests that budget cuts increased labor unrest and anti-government protests.

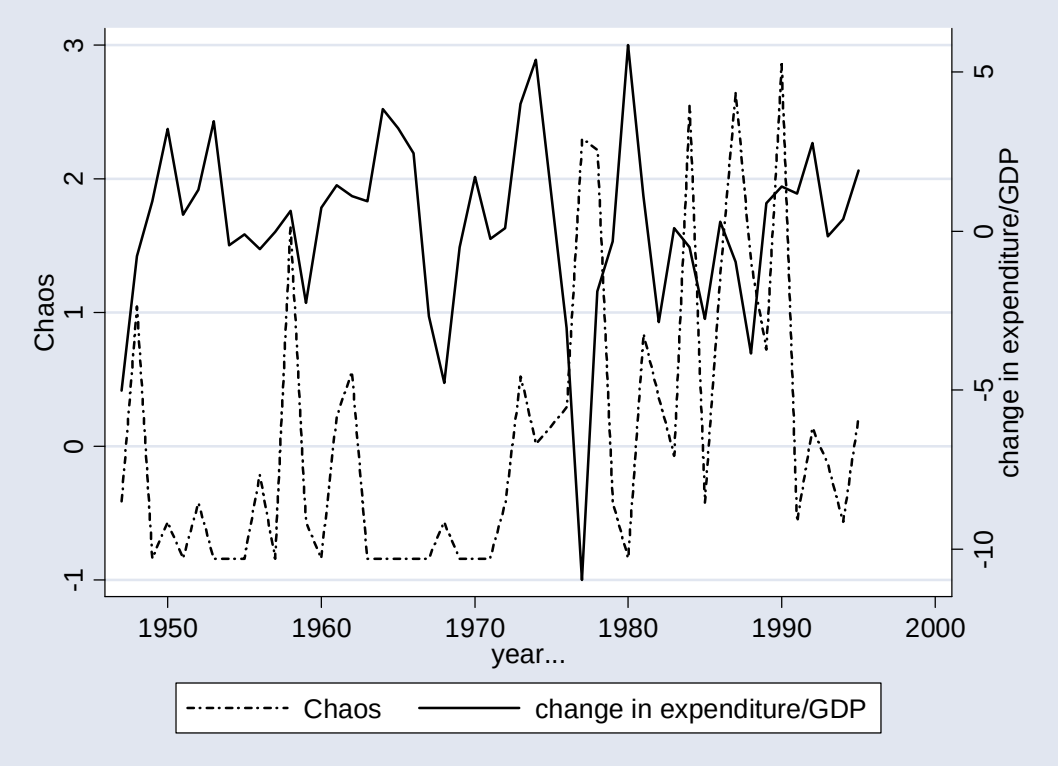

Figure 9: Social unrest and changes in expenditure in Peru, 1937-95

III. Main results

To what extent do budget cuts go hand-in-hand with surging social unrest? This section tests the relationship systematically. I find strong evidence that fiscal austerity is associated with periods of violent protest – the larger the fiscal adjustment, the

greater the risk of riots, demonstrations, assassinations, and revolutions. On the other hand, for general strikes, the patterns we find are weaker. There is also reason to believe that the fiscal adjustments most likely to lead to social unrest are the ones not driven by poor growth – changes in policy stance, not bad times, are most likely to create instability and chaos.

Figure 3 plots the basic relationship. On the y-axis is the first principal component of anti-government demonstrations, general strikes, riots, assassinations, and revolutions ('chaos'); on the x-axis, the change in government expenditure relative to GDP. The regression does not control for fixed effects or other factors, such as GDP growth.

Social unrest varies hugely across time and space. As figure 3 demonstrates, there is a higher chance of major unrest if expenditure cuts are severe. Periods of spending increases, on the other hand, are typically associated with fewer anti-government demonstrations, strikes, assassinations, riots, and revolutions. The message from the simple analysis in figure 3, then, is that 'social peace can be bought' – government spending is a useful tool in restraining the militancy of the opposition and the extent to which opposition forces can receive mass backing for violent action.

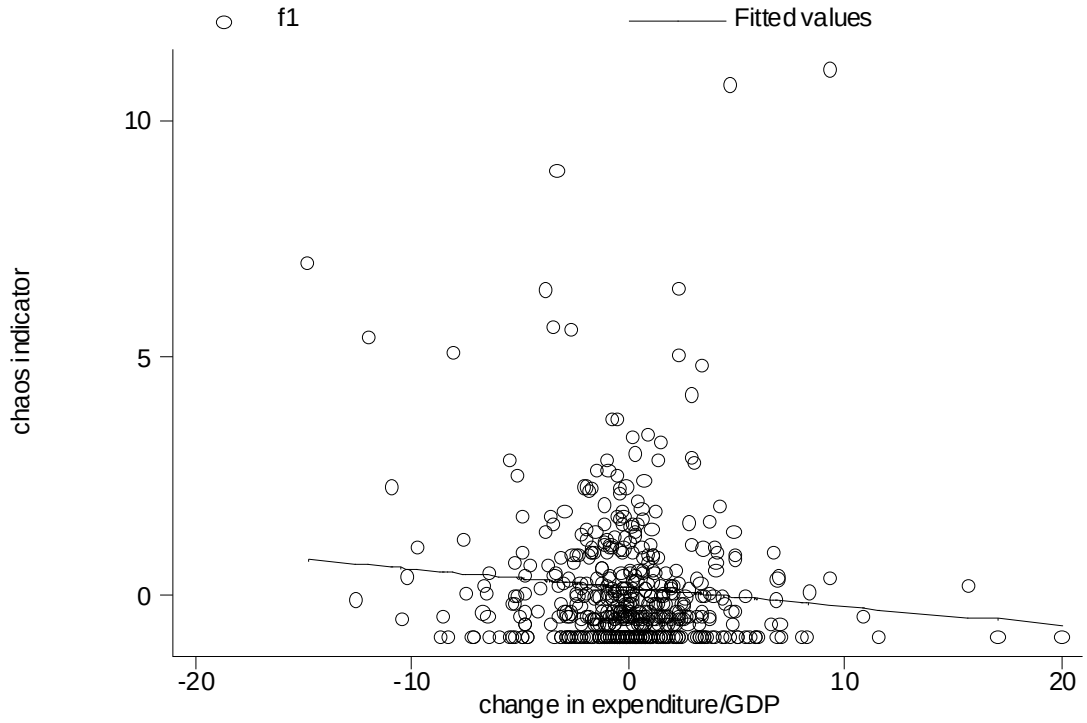

Figure 10: 'Chaos' and changes in government expenditure

Aggregate Results

Next, we examine the relationship between adjustments and unrest econometrically. In particular, we estimate fixed effect panel regressions of the type

$$\ln(U_{it}) = \beta_i + \beta_1(\Delta Exp / Y_{it}) + \gamma X + \varepsilon_{it} \qquad (1)$$

Where U is one of the measures of instability in our dataset, ΔExp/Y is the change in central government expenditure relative to GDP, and X is a vector of control variables. As a first pass, the dependent variables we use are the two composite measures of unrest – 'chaos' and wci. Table 1 gives the results for 'chaos'. Equation (1) demonstrates that there is a statistically significant effect of expenditure changes (relative to GDP) on the level of unrest. An expenditure cut of 3.65 percent of GDP – equivalent to a one standard deviation change – would increase unrest by 0.2, or roughly 15% of a standard deviation of 'chaos'. Economic growth cuts the level of unrest, and the effect is significant at the 95% level.

Increases of revenue have an effect that is similar to expenditure changes. At first glance, this may appear paradoxical – there is no evidence that higher taxes (such as in the case of Greece) lead to more unrest. Since much spending is redistributive – and arguably was so in South America for much of its postwar history – the negative coefficient on revenue/GDP may simply pick up episodes of simultaneous tax and spending increases reducing the level of unrest.[10] Increasing budget deficits are also a good way to prevent violent protests – the coefficient on the change in the budget balance is positive, indicating a decline in unrest when the budget sinks more into the red. While regressions (1) and (3) can claim some success in identifying a link between unrest and austerity, the low R^2 clearly cautions against overinterpreting the results – many other factors unrelated to budget measures are clearly involved in creating civil unrest and violent conflict in a society.

In equations (4) and (5), we subdivide the sample based on a country's Polity-IV-score. This is because some authors have found that unrest is less common in autocracies (Paldam 1995). Roughly a quarter of the country-year observations have

[10] If we estimate with expenditure and revenue jointly, we find a small, insignificant, and positive coefficient for revenue.

scores below -5, indicating a highly authoritarian regime. In both sub-samples, expenditure cuts are associated with more unrest. The coefficient is somewhat smaller in the group of countries with more open institutions, but both coefficients are significant at conventional levels. Also, we cannot reject the null that the size of the coefficients is the same.

Table 1: Unrest and its determinants (dependent variable: 'chaos')

Equation	(1)	(2)	(3)	(4)	(5)
Observations	All	All	All	Polity2<-5	Polity2>=-5
ΔExp/Y	-0.0566***			-0.0907**	-0.0580***
	(-3.21)			(-2.30)	(-3.09)
ΔY	-0.0120**	-0.0117**	-0.00954*	-0.0397***	0.00517
	(-2.22)	(-2.13)	(-1.76)	(-3.50)	(0.87)
ΔRev/Y		-0.0364*			
		(-1.92)			
ΔBudgetB/Y			0.0516**		
			(2.01)		
C	0.231***	0.233***	0.218***	0.655***	0.0678
	(3.36)	(3.36)	(3.15)	(3.89)	(0.96)
N	473	473	473	123	323
R^2	0.029	0.015	0.016	0.115	0.033

Note: All regressions were run with fixed country effects.
t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

We find broadly similar results when we use wci, the weighted conflict index, as the dependent variable (Table 2). Equation (1) suggests a clear negative impact of changes in expenditure relative to GDP. Wci varies from 0 to 27,312, with a standard deviation of 2,504. The standard deviation of expenditure changes relative to GDP is 3.65. The estimated coefficient then implies that a one standard deviation cut in expenditure increases unrest by 226, or about 10% of a standard deviation of the dependent variable. The coefficient is significant at the 10% level. GDP growth also cuts unrest, but the effect is not significant. Here, a one standard devation change induces a change of 295 units in the wci, slightly larger than the effect of expenditure cuts. The overall R^2 shows that neither expenditure changes nor economic growth can explain a high share of the total variation in unrest in our sample.

Revenue changes have no clear impact on unrest in equation (2). The estimated coefficient is negative, but not significant at conventional levels. In equation (3), we find that changes in the government budget balance are positively associated with unrest, but the effect is not tightly estimated.

Equations (4) and (5) estimate the effect of budget cuts for two groups of countries – those with high PolityIV-scores, and those with relatively low ones. For the part of the sample with low scores, there is some evidence that expenditure cuts lead to unrest, but the effect is not significant (and the coefficient smaller than in equation 1). Countries with higher scores for the level of openness and democracy, on the other hand, also show a much clearer association of expenditure cuts with violent protests.

Table 2: Unrest and its determinants (dependent variable: wci)

Equation	(1)	(2)	(3)	(4)	(5)
Observations	All	All	All	Polity2<-5	Polity2>=-5
ΔExp/Y	-63.74*			-42.60	-83.48**
	(-1.76)			(-0.48)	(-2.52)
ΔY	-14.33	-14.49	-11.78	-8.539	-20.08*
	(-1.29)	(-1.30)	(-1.07)	(-0.33)	(-1.91)
ΔRev/Y		-52.94			
		(-1.37)			
ΔBudgetB/Y			36.20		
			(0.69)		
C	1986.7***	1991.5***	1974.7***	2229.2***	1792.2***
	(14.11)	(14.11)	(13.98)	(5.84)	(14.38)
N	473	473	473	123	323
R^2	0.01	0.007	0.004	0.002	0.030

Note: All regressions were run with fixed country effects.
t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Different Forms of Instability

Next, we examine the individual components of the composite conflict indicators summarized above. For four of the five variables in the dataset (used for constructing 'chaos'), we find negative and significant coefficients on the expenditure variable, indicating that increases in government spending are associated with lower levels of unrest. The coefficients for assassinations and demonstrations are significant at the

99% and 95% levels, respectively; those on riots and revolutions at the 90% level. General strikes, on the other hand, show a positive (if insignificant) coefficient. Growth cuts unrest for all variables except general strikes, but the coefficient is only well-estimated for riots, revolutions, and demonstrations.

Table 3: Different measures of instability and expenditure cuts

	(1) Assassinations	(2) General Strikes	(3) Riots	(4) Revolutions	(5) Demonstrations
ΔExp/Y	-0.0575***	0.00952	-0.0309*	-0.0146*	-0.0413**
	(-3.30)	(0.69)	(-1.66)	(-1.67)	(-2.29)
ΔY	-0.000618	0.00112	-0.0169***	-0.00516*	-0.00951*
	(-0.12)	(0.27)	(-2.96)	(-1.93)	(-1.72)
C	0.388***	0.461***	0.782***	0.357***	0.671***
	(5.71)	(8.61)	(10.77)	(10.48)	(9.55)
N	473	473	473	473	473
R^2	0.023	0.001	0.022	0.013	0.016

Note: All regressions were run with fixed country effects.
t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Inflation and Deflation

Next, I examine the effect of inflation and deflation. It will be useful to know if the patterns ascertained are stable independent of the monetary environment. In equation (1) of Table 3, we use all observations in the sample, but add a control for the rate of exchange rate decline (where positive values indicate depreciation of a country's currency). The dependent variable is 'chaos', as before. Controlling for inflationary developments in this way does not change our results. Both the coefficient size and its statistical significance are not affected in a major way. When we restrict the sample to the 61 country-year observations when inflation was high, we find a strong and highly significant effect of expenditure on social instability. The coefficient is more than three times larger than in the sample as a whole, and it is more statistically significant.

A large literature has stressed that inflationary periods are often driven by weak governments trying to satisfy the competing claims of different groups in society; using the printing press in such an environment is easier than hiking taxes (Feldman 1997). Stabilizing after periods of high inflation often requires massive increases in

the primary surplus (Fischer, Sahay, and Carlos Vegh 2002). If distributional struggles are particularly severe during inflationary periods, it makes sense that expenditure cuts are fiercely resisted – as reflected by the steep increase in social unrest. For the sample of inflationary episodes, we are also able to explain a large share of the total variation in unrest by expenditure and output changes – the R^2 rises to over 0.2, instead of the 0.02-0.03 in other specifications.

In contrast, deflationary periods show no direct effect show no inverse relationship between expenditure changes and politically-motivated violence. The coefficient in equation (3) is positive, and is not statistically different from zero. When we exclude both inflationary and deflationary periods (eq. 4), we find a negative but insignificant coefficient. We cannot reject that the coefficient is the same as in the sample as a whole; lack of identifying variance probably limits the extent to which we can document a connection between austerity measures and budget cuts, but it would be a mistake to claim that the difference between the insignificant coefficient in equation (4) and the significant one in equation (1) is itself significant.[11]

[11] Gelman and Stern (2006).

Table 4: Expenditure cuts and unrest – inflationary and deflationary periods

	(1) All	(2) Inflationary Period[a]	(3) Deflationary Period[b]	(4) Neither inflationary nor deflationary
ΔExp/Y	-0.0516***	-0.185***	0.104	-0.0295
	(-2.85)	(-3.42)	(0.96)	(-1.50)
ΔY	-0.0142**	-0.00278	-0.00123	-0.0220***
	(-2.53)	(-0.24)	(-0.04)	(-3.31)
ΔExchangeR	0.0677			
	(1.38)			
C	0.259***	0.330*	0.0565	0.251***
	(3.66)	(1.77)	(0.16)	(3.18)
N	456	61	26	386
R^2	0.037	0.207	0.063	0.033

Note: All regressions were run with fixed country effects.
t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
a) defined as a rate of exchange rate decline vis-à-vis the dollar in the top 5% of the sample, i.e. above 66% p.a.
b) defined as an absolute increase in the exchange rate vis-à-vis the dollar.

IV. Robustness and Extensions

In this section, I examine the robustness of the main finding so far – a strong, significant link between budget cuts and civil unrest. A potentially important issue is omitted variable bias. While the issue cannot be resolved definitively in the absence of a convincing instrument, it seems likely that this is not a major obstacle .Another obvious concern relates to the stability of the link over time. Finally, I test for nonlinearities in the data, and examine the robustness of the main finding using extreme bounds analysis.

Omitted variable bias

The main concern with the equations estimated so far is not reverse causality – few governments would implement budget cuts as a consequence of social unrest. What is of greater concern is potential omitted variable bias. If, for example, economic 'hard times' produce a large increase in unemployment, a fall in government revenue, and budget cuts, an upsurge of violent protests may be less inspired by changes in government spending itself. Instead, they may reflect rising immiseration of the

population due to an economic crisis at large. This is of particular concern since fiscal policy is widely believed to be highly pro-cylical in emerging markets.[12]

In the absence of a compelling instrument, we cannot test for this channel directly. However, we can assess the extent to which the component of expenditure changes driven by GDP growth (and other economic variables) predicts unrest. We therefore instrument expenditure changes by GDP growth, and examine how the part of the variation driven by economic performance correlates with social instability. Table 5 shows the results. Equations (1) and (4) show the baseline result – the coefficient on expenditure changes without further controls. While the coefficient with wci as the dependent variable is negative but insignificant, the one of 'chaos' is strongly negative and highly significant. In equations (2) and (5), we instrument with GDP growth alone. The coefficient on expenditure changes sign, and becomes insignificant. When we use both GDP and our proxy for inflation, we also obtain a wrongly signed, insignificant coefficient. The fact that the instrumented component of ΔExp/Y does not predict measures of instability well suggests that omitted variable bias should not be exaggerated. Instead of identifying the component of expenditure cuts that are most likely to create instability, they do the opposite – lower expenditure, driven by lower output, is actually (weakly) associated with *less* unrest.

Table 5: Economic conditions and budget adjustment – effect on unrest

	(1)	(2)	(3)	(4)	(5)	(6)
Method	OLS	IV	IV	OLS	IV	IV
Dependent variable		wci			Chaos	
ΔExp/Y	-45.21	353.5	270.5	-0.034*	0.293	0.135
	(-1.30)	(0.97)	(0.83)	(-1.93)	(1.38)	(0.83)
C	1919.1***	1935.6***	1970.1***	0.167***	0.188**	0.195***
	(15.79)	(13.53)	(13.94)	(2.72)	(2.25)	(2.76)
N	495	473	462	495	473	462
R^2	0.003			0.008		
Instrument		ΔY	ΔY, ΔExchangeR		ΔY	ΔGDP, ΔExchangeR

Note: All regressions were run with fixed country effects.
t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

[12] Talvi and Vegh (2005); Ilzetzki and Vegh (2008). For a sceptical view, cf. Jaimovich and Panizza (2006).

Stability over Time

The assumptions underlying regressions of the type estimated in this paper are heroic. We have to believe that anti-government demonstrations in Argentina under Peron have the same meaning as those against President Alfonsin; a political murder of a government official in Chile carries the same information about social unrest as in Brazil.

In Table 6, I subdivide the sample in the year 1975 to examine the robustness of our findings. There is no significant association between expenditure changes and unrest in the aggregate. While revolutions are clearly associated with budget cuts, general strikes follow the opposite pattern, in a highly significant manner. Most other variables, while showing a negative coefficient, are not statistically significant.

The period after 1975 shows a mucher clearer association between budget cuts and unrest. General strikes now also negatively associated with fiscal expenditures, in contrast to the pattern observed in the earlier period. The coefficients for most variables are substantially larger, and highly significant. The only exception is revolutions, which after 1974 become *less responsive* to economic conditions. This may suggest that discontent before 1975 was more likely to spill over into rebellions, possibly in the form of Communist-backed insurgencies. With the decline of Soviet and Cuban influence, combined with rising democratization in many South American countries, discontented groups in society found other ways of expressing themselves.

Table 6: Observations before and after 1975

Panel A: Before 1975	(1) 'Chaos'	(2) Assassinations	(3) General Strikes	(4) Riots	(5) Revolutions	(6) Demonstrations
ΔExp/Y	-0.0088	-0.00651	0.0374*	-0.0153	-0.0348**	-0.0131
	(-0.40)	(-0.72)	(1.92)	(-0.50)	(-2.52)	(-0.81)
ΔY	-0.0211*	0.00535	-0.00427	-0.0438***	-0.0104	-0.00654
	(-1.79)	(1.09)	(-0.40)	(-2.62)	(-1.38)	(-0.75)
C	0.103	0.123***	0.343***	1.170***	0.483***	0.401***
	(1.03)	(2.95)	(3.81)	(8.23)	(7.55)	(5.37)
N	262	262	262	262	262	262
R^2	0.013	0.007	0.015	0.028	0.032	0.005
	(7)	(8)	(9)	(10)	(11)	(12)
Panel B: After 1974	'Chaos'	Assassinations	General Strikes	Riots	Revolutions	Demonstrations
ΔExp/Y	-0.104***	-0.104***	-0.0245	-0.0428**	0.00677	-0.0707**
	(-3.76)	(-3.08)	(-1.33)	(-2.30)	(0.73)	(-2.11)
ΔY	-0.016**	-0.00808	0.00174	-0.0118***	-0.00395*	-0.0150*
	(-2.41)	(-1.02)	(0.40)	(-2.70)	(-1.83)	(-1.92)
C	0.485***	0.724***	0.646***	0.472***	0.230***	1.022***
	(4.63)	(5.63)	(9.27)	(6.68)	(6.57)	(8.07)
N	211	211	211	211	211	211
R2	0.081	0.047	0.011	0.051	0.022	0.034

Note: All regressions were run with fixed country effects.
t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Nonlinearities

The empirical strategy employed so far has focused on the standard question of changes in the conditional mean of the dependent variables. However, if nonlinearities play a potential role, it may well be that we should evaluate the impact of the exogenous variable at the the extremes of the distribution. Here, I show that large upheaveals are particularly well-explained by government spending cuts.

To examine this issue further, we run a whole sequence of quantile regressions. Instead of minimizing the square of deviations from the regression line, the estimator minimizes the absolute difference. Instead of obtaining the conditional median, quantile regressions can be run to obtain the conditional value for any part of the distribution of the dependent variable. In Figure 11, we plot the coefficients on the change in budget position and in output against the distribution of the dependent variable. The y-axis gives the calculated coefficient for a one-unit change in the exogenous variable, including the 90% confidence interval. In addition, I plot the

OLS coefficient and its confidence interval (Koenker and Hallock 2001).

The left panel shows the impact of changes in expenditure. The absolute size of the coefficient rises as we move up the distribution – the more extreme the change in unrest, the larger the impact of budget cuts. Changes in unrest in the bottom 30% of the distribution basically cannot be explained by fiscal austerity. This strongly suggests that there are threshold effects in our data – major changes in the level of unrest are better-explained by retrenchment than small variations. Interestingly, the effect of economic growth is not as clear-cut. Minimal changes in instability are also not associated with growth outcomes. Only from the 3rd decile upwards is there an effect of growth on instability, and it is not tightly estimated. Remarkably, changes at the very top of the distribution are not more powerfully influenced by changes in growth than those in the middle.

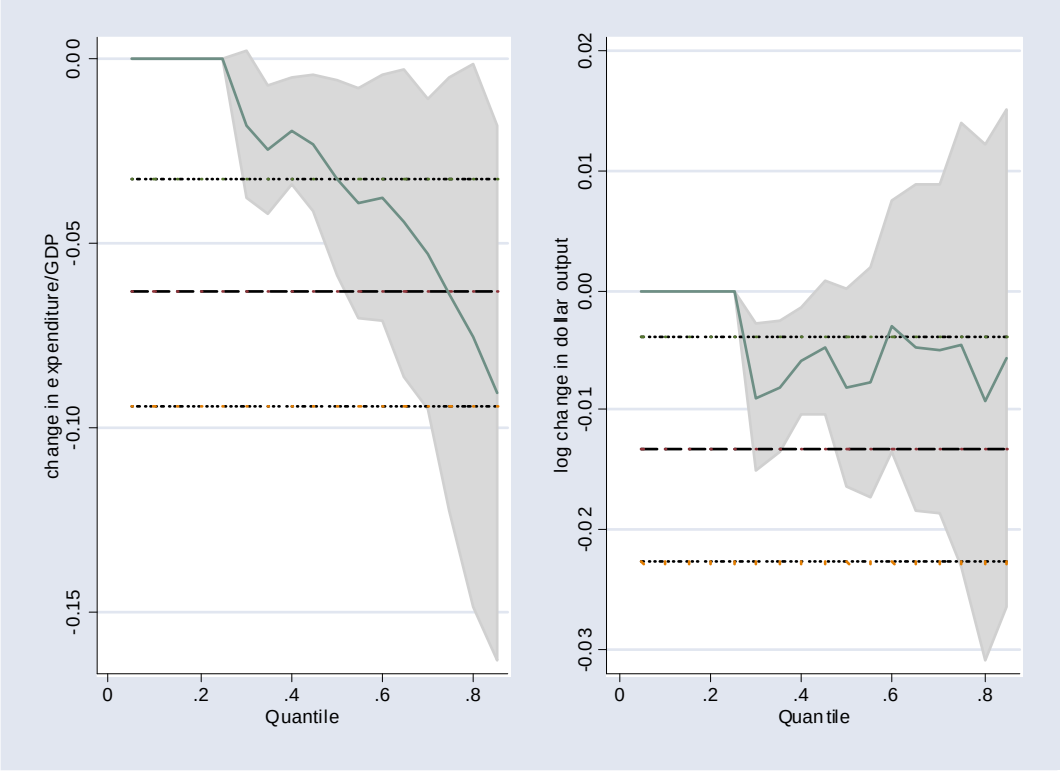

Figure 11: Quantile Regression and OLS coefficients, ΔExp/Y and ΔY

Regime durability

Table 1 and Table 2 offered some suggestion that the effect of fiscal adjustments on unrest is not dependent on the level of political development. The evidence suggested that countries with high or low Polity-IV-scores showed very similar coefficients for expenditure changes. Polity-IV-scores range from -10 to 10, and are calculated as the difference between the democracy and the autocracy scores of a country. These aggregate numerous variables, including the competitiveness and openness of executive recruitment, constraints on the executive, the regulation of participation, as well as the competitiveness of participation (Marshall, Jaggers, and Gurr 2010).

Another variable that is popular in the political economy literature is constraints on the executive (Acemoglu 2005). While a factor in the Polity scoring system, it is arguably of great importance for economic politicial transitions – it captures the extent to which 'might makes right'. Regimes with low constraints on the executive may require mass protests and the like to influence policy. Regime durability is a separate dimension of a state's political setup. It counts the number of years since a three-point change on the Polity-IV scale. Countries with a high value show substantial stability of the political system.

Table 7 gives the results for subdiving our sample at the median of the distribution for both constraints on the executive and for durability. For both high or low values, we find significant effects of budget adjustments. For relatively unconstrained countries, the effect is larger, and growth matters; for countries with strong checks and balances, there is a clear effect of budget adjustments, but none of economic growth.

Durability shows a different pattern. Where durability is low – less than six years have passed since the last major regime change – the effect of fiscal adjustment is strong. Where a country's political order has seen few changes for an extended period, the effect is weaker and not tightly estimated.[13] Growth seems to matter more for cutting violence in more 'durable' regimes, but the two coefficients are not different from each other.

[13] It should be noted that the standard error in eq. (4) is so large that the coefficient on ΔExpend/Y is not significantly different from the one in eq. (3).

Table 7: Fiscal adjustment and unrest - low and high contraints on the executive/long-short durability

	(1)	(2)	(3)	(4)
	Constraints on the executive		Durability	
	<3	≥3	<6	≥6
ΔExp/Y	-0.0932**	-0.0605***	-0.0639***	-0.0225
	(-2.52)	(-3.21)	(-2.64)	(-0.87)
ΔY	-0.0384***	0.000912	-0.00925	-0.0126*
	(-3.46)	(0.15)	(-1.03)	(-1.87)
C	0.528***	0.123*	0.216**	0.241**
	(3.58)	(1.71)	(2.14)	(2.59)
N	157	316	230	243
R^2	0.089	0.033	0.033	0.017

t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Extreme bounds analysis

So far, I have presented results from estimating the effect of budget cuts on unrest with a variety of conditioning variables and controls. However, there is a real danger that researchers only report combinations of regressors that yield statistically significant results. Also, a single combination of variables that does not produce a significant coefficient might arise by chance (Sala-i-Martin 1997).

To check the stability of our results, we perform extreme bounds analysis. We estimate 1,365 regressions where unrest is always on the left-hand side, and expenditure change relative to GDP is always on the right. In addition, we add all possible combinations of 4 further regressors out of a list of 15 additional control variables, including per capita GDP, regime stability, exchange appreciation, population size, indicators of telecommunications takeup, and schooling.[14]

[14] The variables included in the set of 15 are population (in 1,000s), size of the army (relative to the population), the number of government crises per year, guerrilla attacks, purges, the polity IV score, the durability variable from Polity-IV, constraints on the executive, the change in the exchange rate, the number of phones per capita, secondary school enrolment per capita, the number of television sets per capita, total GDP, GDP growth (both in $), and the number of physicians per capita. All regressions control country-specific fixed effects.

Table 8: Extreme Bounds Analysis – coefficient on ΔExpend/Y

	coefficient	t-statistic	p-value	0.95 CI	
Min	-0.1066	-3.8044	0.0002	-0.1617	-0.0515
Max	-0.0336	-2.0223	0.0437	-0.0663	-0.001

The results confirm the strength of our finding. The largest coefficient on expenditure changes is -0.106, or about twice the baseline result reported in Table 1. The smallest coefficient is -0.034, which is approximately two-thirds of the baseline result. The minimum t-statistic still suggests that the coefficient could not have arisen by chance, with a confidence level of 95%.

V. Conclusions

Social unrest can be powerful in undermining the credibility of governments. Street protests and violent demonstrations can force political leaders from office, as happened in the case of the de la Rúa government in Argentina in 2001. Riots, antigovernment demonstrations, general strikes and political assassinations are driven by a multitude of factors, many of them specific to the country in question. And yet, casual empiricism suggests that a significant amount of social unrest can be explained by economic factors.

In this paper, I examine the effect of budget cuts on social unrest in Latin America for the period 1937-95, using a variety of indicators. There is clear evidence that reductions in spending systematically increase the risk of unrest. While the share of strikes, assassinations, riots and demonstrations that can be explained by budget cuts is not very high, the relationship is robust for countries with both democratic and autocratic structures. All indicators of unrest except general strikes are significantly and negatively associated with government expenditure. We find some evidence that the effect of budget cuts in times of inflation is particularly pronounced, and that 'normal times' without rapid price increases only see a mild association between austerity and anarchy. Constraints on the executive do not matter for the strength of the link, but a regime's durability – the length of time since the last significant changes in its political fabric – does: States with a longer history of stability show a much weaker link between budget cuts and chaos. There is also clear evidence for a discontinuous increase in the effect of budget cuts. Extreme movements in measures

of unrest are more readily explained by austerity measures than relatively mild upticks in upheaval.

Our results provide a rationale why governments often find it hard to cut expenditure. While unrest is a relatively low-probability event – even in our sample of South American countries over the last 70 years – there is a non-zero probability that austerity will fan the flames of discontent, leading to violent anti-government protests. It may also offer a perspective on why public indebtedness differs so much around the globe, and even amongst countries with relatively similar levels of economic development (Alesina and Perotti 1995).

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