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Abstract

We show that regional instability, defined as political instability in neighboring countries, has strong negative effects on a country's income per capita growth rate. The magnitude of this negative externality is found to be equivalent to the effect from an identical increase in domestic political instability. We find that there are three main channels in which regional instability hurt growth. First, regional instability disrupts trade flows. The shares of merchandise and manufactured trade are substantially lower in countries with high regional instability. Second, regional instability require increases in military outlays at the expense of other productive activities. Third, the composition of investment is found to be skewed against the share of equipment investment in countries with high regional instability. To the extent that equipment investment has a higher social rate of return than transport or structure investment, this shift can reduce aggregate returns to capital and hamper growth.

KEYWORDS: Political Instability, Growth, Spillovers, Externality, Development, Spatial Correlation.

I. Introduction: Thy Neighbor's Curse

There has been extensive theoretical and empirical work recently investigating the links between domestic political instability and economic growth.[1] There seems to be a general agreement that domestic political instability is negatively correlated with growth in per capita income, but the direction of causality is still a matter of debate. In a separate line of inquiry, Chua (1993) has provided empirical support for the proposition that a country's growth rate depends not only on domestic investment but also on the investment of its neighboring countries. These are taken as evidence in support of regional spillovers from human and physical capital. These measurable regional economic variables can account for the existence of spatial correlation in economic performance between countries located in common geographical regions. This paper essentially integrates both these lines of research. We argue and show that regional instability in neighboring countries has strong negative effects on economic growth.

An example is offered by Malawi during the early 1980s. Being a landlocked country in Africa, Malawi began facing external transportation problems as civil unrest in neighboring Mozambique became worse. By the mid-1980s, the main external trading routes through Mozambique were fully closed. Shipping had to be rechanneled through Durban in South Africa, which was three to four times the distance of Malawi's earlier trading routes. Already weakened by a persistent drought, the Malawian economy also had to deal with an influx of refugees from Mozambique, and a worsening security situation along the borders and external transport routes.[2]

Rwanda and Tanzania have both been affected by the political turmoil in neighboring Uganda. Tanzania and Uganda have been engaged in a war from the second half of the 1970s until about 1986. The war had destroyed much of the transport networks, depleted much of the vehicle fleet, and spoiled

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[1] Some recent work relating political instability and economic growth include Alesina, Roubini, Ozler and Swagel (1992), Alesina and Perotti (1993), Londregan and Poole (1991), Helliwell (1991), and Barro (1991).

[2] World Bank, Trends in Developing Economies 1992, pgs. 322-326.

the once-productive agricultural lands in Uganda. Rwanda, a small landlocked country located in a squeeze between Uganda and Tanzania, was invaded by Rwandese Tutsi refugees coming from Uganda. The government of Rwanda was able to repel the invasion but sporadic fighting continues along the border. The transportation, trade, and tourism sectors in Rwanda were severely affected. On the fiscal front, the military situation necessisated a substantial increase in security-related outlays, as reflected by the surge in imports of military equipment and corresponding decreases in capital outlays in the national accounts.[3]

Political instability in Uganda and Tanzania have also spread to landlocked Burundi. Transportation costs from Burundi to the nearest Indian Ocean ports of Mombasa in Kenya and Dar Es Salaam in Tanzania remain high. Passage through these neighboring countries have not been reliable, where occasional disputes have caused serious domestic shortages and disruptions in trade flows.[4]

The Gulf Crisis in the Middle East between August 1990 and February 1991 offers yet another case of how regional political shocks affect neighboring countries *not* directly involved in the conflict. The best example is provided by Jordan, which lost export markets in Iraq, Saudi Arabia, and Kuwait, and remittances from Jordanian workers in Kuwait and Saudi Arabia. Returning Jordanian workers required higher expenditures for education and health, worsening the fiscal deficit. Tourism and transport sector income fell. Gross domestic product declined by about 0.6 percent in 1990, a sharp reversal to the 8 percent growth rate projected before the dawn of the crisis.[5]

There are however cases in which countries may benefit from political unrest in neighboring countries. If neighbors compete for a scarce pool of foreign capital or aid, political instability in the rival

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[3] World Bank (1992), pgs 465-470, 506-511, 542-548.

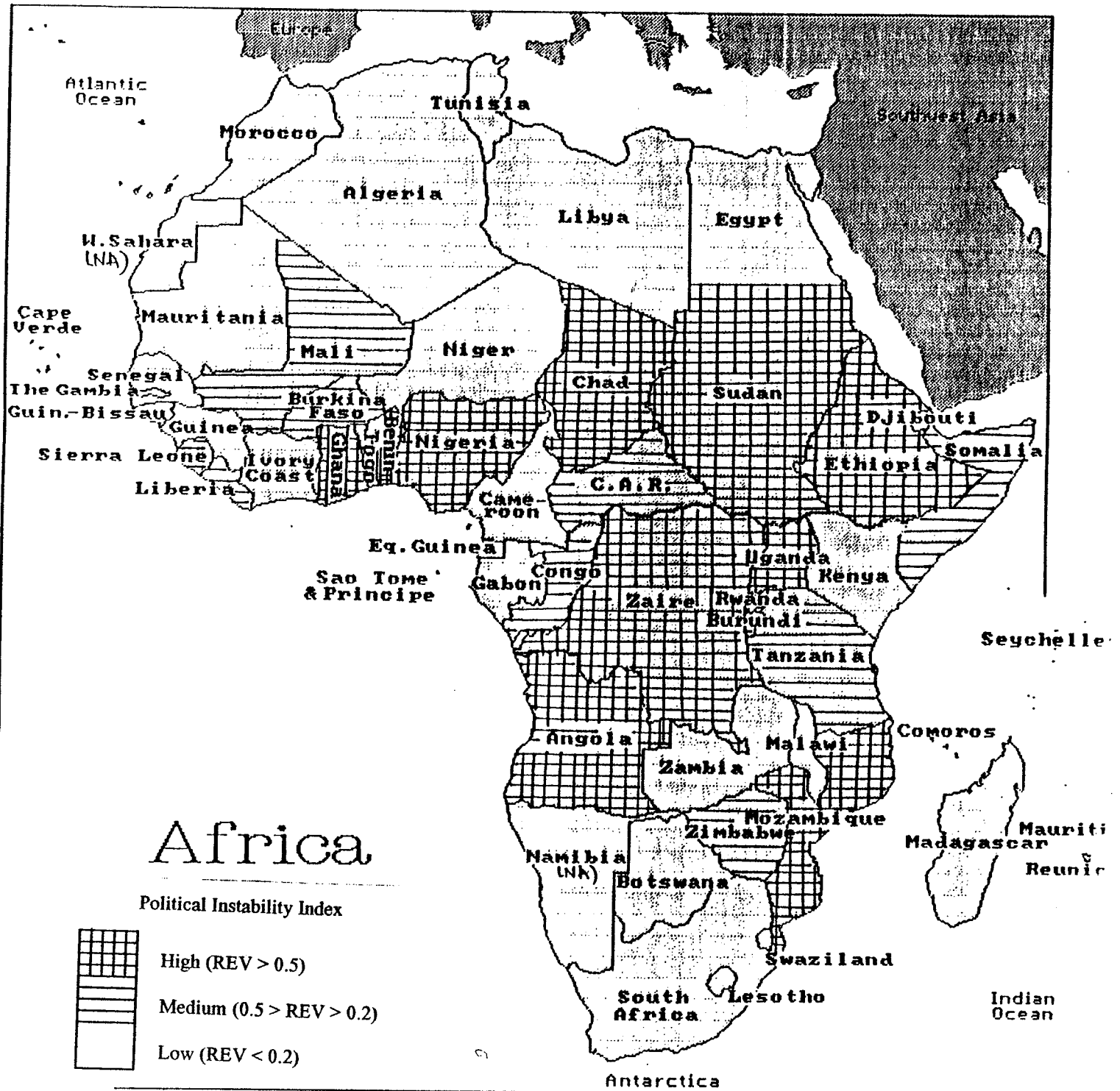[4] World Bank (1992), pgs 79-85.

[5] World Bank (1992), pgs 286-91.

country can lead to a larger share of that pool.[6] If neighbors are competing oligopolists of a good or resource, production disruptions in a rival country can lead to an improvement in the terms of trade as well as an increased share of the export market. Neighboring countries may also benefit from the huge capital flight and the migration of talented people that often occur in countries with political turmoil. In the late 1960s and early 1970s for example, Brazil received a continuous flow of Argentine scientists as a consequence of a crackdown on political opposition imposed by the Argentine military regime. The current brain drain from Yugoslavia in the midst of the current political instability and the hardships imposed by global economic sanctions offer yet another case in which countries may actually benefit from unrest in another country.

The structure of the paper is as follows. Section II provides a brief description of the data set and summary statistics. Section III lays out the basic cross-country regressions relating regional instability and economic growth. Section IV describes the three main channels in which political instability in neighboring countries reduce economic growth. Section A examines the impact of regional instability on trade flows. Section B examines the impact of regional instability on defense spending. Section C examines the impact of regional instability on the size and composition of investment. Section V discusses some implications for future growth. Section VI concludes.

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[6] If however foreign investors view the bad shock in one country as a signal for the whole region, then countries in the whole region might well lose out on foreign capital or aid.

Map 1: Political Instability in Africa

Africa

Political Instability Index

High (REV > 0.5)

Medium (0.5 > REV > 0.2)

Low (REV < 0.2)

Map 2: Political Instability in Latin America

Index to
South
America

Pacific
Ocean

Atlantic
Ocean

Middle
America

Caribbean

Venezuela Guyana
Suriname
French Guiana

Colombia

Ecuador

Peru

Brazil

Bolivia

Paraguay

Chile

Uruguay

Argentina

Falkland
Islands

Antarctica

Political Instability Index

High (REV > 0.5)

Medium (0.5 > REV > 0.2)

Low (REV < 0.2)
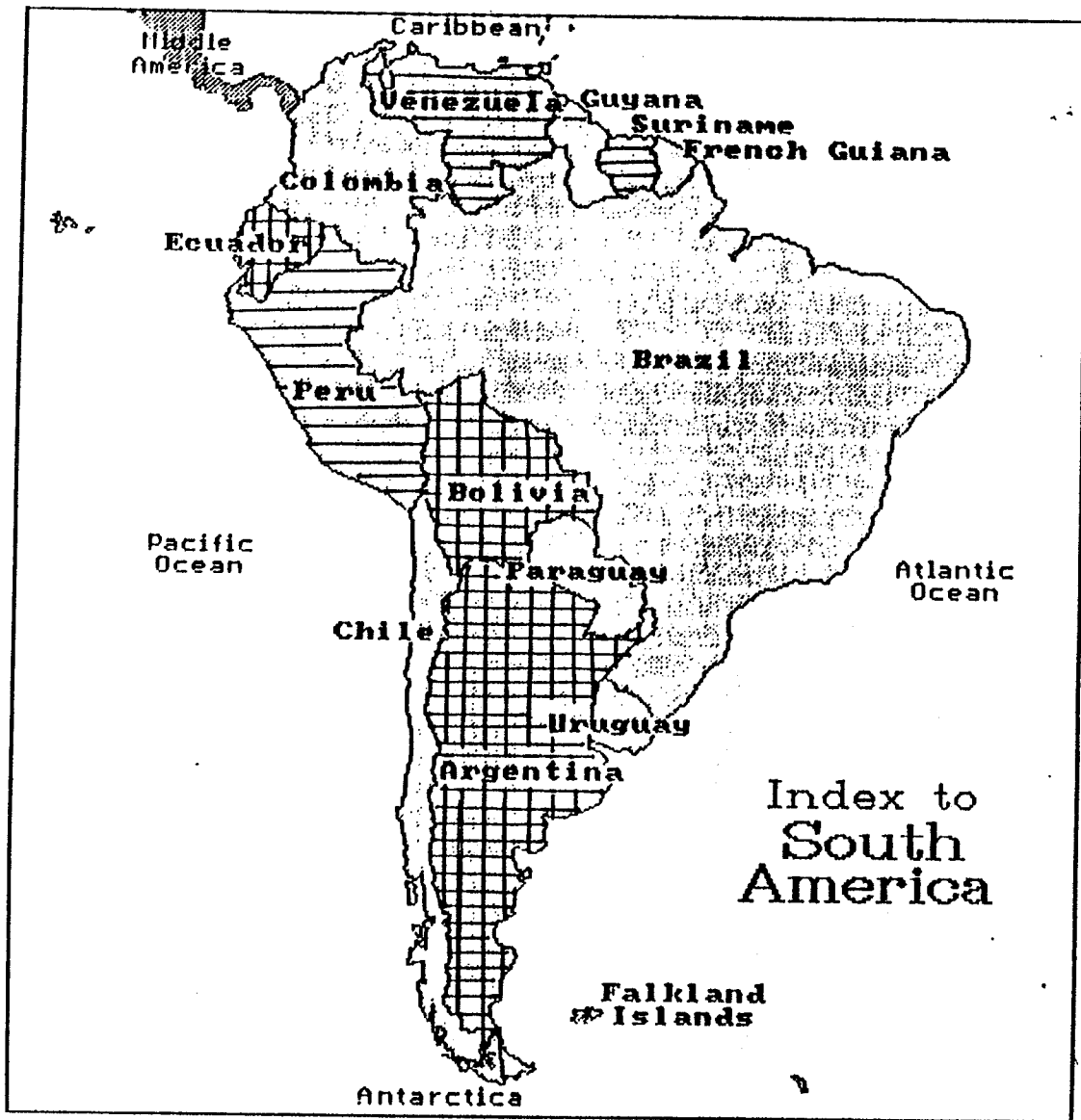
II. An Index of Regional Instability

Our main variables come from the data set constructed by Barro and Wolf (1989). The means and standard deviations of the variables, and a list of the countries can be found in the Appendices in Barro (1991). We also use disaggregated investment figures constructed by De Long and Summers (1991), and trade measures constructed by Levine and Renelt (1992). The full data set covers 118 countries over the sample period 1960 to 1985.[7] Due to many missing variables however, we confine the empirical analysis to a sample of 98 countries, the same large sample used in Barro (1991). Barro (1991) uses the number of revolutions and coups per year averaged over 1960 to 1985 (or subsample) as an index of political instability. This variable, abbreviated as REV, is intrepreted as an adverse influence on property rights, which therefore affects investment and economic growth negatively. We construct from this revolution variables several indexes of regional political instability. Our main variable is constructed by averaging the number of revolutions and coups per year for all the other countries in the defined region. A country's relevant region is defined to be its neighboring countries. The formula we use is simply

$$REG\ REV = \frac{1}{n}\sum_{1}^{n} REV_i$$

where n is the number of neighboring countries bordering the respective country, and REV_i is the number of revolutions and coups per year for country i from 1960 to 1985 or subsample. We also constructed various other indices of regional instability: the sum of REV, the maximum of the REV, and the minumum of the REV in neighboring countries.

We also construct an index of regional instability using the Social and Political Index (SPI) constructed by Alesina and Perotti (1993), where the index is generated from a formula suggested by

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[7] There are however missing values for some of the countries. Barro (1991) uses 98 countries for his large sample and 76 countries for the small sample in his comprehensive cross-section study.

Gupta (1990). The SPI index appears to be quite reasonable and consistent as a measure of socio-political instability. The construction of this index accounts for the the number of political demonstrations against a government, the number of riots, the number of political strikes, the number of people killed in conjunction with any domestic political violence, the number of politically motivated assassinations, the number of politically motivated executions, the number of successful and unsuccessful coups, and the democracatic nature of the government. The SPI index is averaged across the sample period 1960 to 1985. We construct our regional instability index similarly by averaging the SPI index over the sample of neighboring countries in the region.

The classification used for region is that of bordering countries as in Chua (1993). Such a definition prevents any subjective selectivity on what countries a certain region should include. A problem with this is the treatment of island countries, such as Japan and Madagascar, which do not have, strictly speaking, bordering neighbors. For island countries, the nearest neighboring countries which lie across straits, channels, or small bodies of water are used the relevant region. The relevant regions for each country under this classification are summarised in the Appendix.

Our theory of regions in this analysis focuses on geographical proximity. Regions of course can be defined in other dimensions. Potential candidiates include culture, language, colonial linkages, a customs union or even a common currency area. Certainly there are many historical examples where political instability in certain countries have extended far beyond the involvement of just its neighboring countries. Civil war in Angola in the mid-1970s for example led to the expulsion of about half-a-million of Portugese settlers. The United States is currently receiving an influx of refugees not just from neighboring Haiti, but from China. We agree that the effects of political instability might extend far beyond geographical boundaries, but nevertheless we believe these negative spillovers are most pronounced in neighboring countries. Other intrepretations of a region are open for future work.

Tables 1 provides some summary statistics of the indices of domestic and regional political

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instability. Table 2 provides a correlation matrix which relates some major economic indicators and the political instability indices. Tables 3 and 4 describes some of the countries with high domestic political instability and high regional instability.

Table 1: Summary Statistics

Variable	Mean	S.D.	Max	Min
REV	0.217	0.253	1.150	0.000
REG REV AVG	0.235	0.183	0.783	0.000
REG REV SUM	0.782	0.845	3.310	0.000
REG REV MAX	0.419	0.359	1.150	0.000
REG REV MIN	0.122	0.140	0.555	0.000

Note: REV is the number of revolutions and coups per year averaged over the period 1960 to 1985. The AVG, SUM, MAX and MIN correspond to the average, sum, maximum, and minimum of the REV variable in neighboring countries.

Table 2: Correlation Matrix

	GR6085	GDP60	PRIM60	INV	REV	REG REV
GR6085	1.00					
GDP60	0.09	1.00				
PRIM60	0.46	0.65	1.0			
INV	0.52	0.52	0.66	1.0		
REV	-0.38	-0.37	-0.37	-0.45	1.0	
REG REV	-0.35	-0.50	-0.47	-0.30	0.27	1.0

Table 3: Countries Ranked in terms of Domestic Instability and Regional Instability

Highest REV Index		Highest REGREV Index	
Bolivia	1.15	Chile (Bol,Arg)	0.78
Mozambique	1.00	Paraguay (Bol,Arg)	0.73
Argentina	0.92	Swaziland (Moz)	0.52
Syria	0.79	Uruguay (Arg)	0.52
Iraq	0.78	Madagascar (Moz)	0.50
Sudan	0.74	Turkey (Iraq,Syria)	0.50
Angola	0.73	Togo (Benin,Ghana)	0.50
Ethiopia	0.73	CAR (Sud,Chad,Zaire)	0.49
Chad	0.67	Kenya (Sud,Ethi,Ugan)	0.49
Bangladesh	0.62	Zambia (Moz,Ang,Zaire)	0.48

Note: Countries in parentheses represent neighboring countries with high political instability.

Table 4: Countries Ranked in terms of Difference between Domestic and Regional Instability

Low Domestic Instability High Regional Instability		High Domestic Instability Low Regional Instability	
Paraguay (Bol,Arg)	0.65	Mozam (S.Afr,Malawi,Zamb)	-0.89
Chile (Bol,Arg)	0.59	Bolivia (Parag,Braz)	-0.83
Uruguay (Arg)	0.52	Argentina (Urug,Parag)	-0.61
Swaziland (Moz)	0.46	Iraq (Kuwait,Saudi)	-0.50
Kenya (Sud,Ethi,Ugand)	0.44	Syria (Israel,Jordan)	-0.48
Cyprus (Turk,Syr)	0.44	Surinam (Guyana,Brazil)	-0.42
Zambia (Moz,Ang,Zaire)	0.43	Ecuador (Colombia)	-0.41
Madagascar (Moz)	0.42	Korea (Japan)	-0.40
Malawi (Moz)	0.42	Ethiopia (Kenya)	-0.38
Kuwait	0.40	Tanz (Malawi,Kenya,Zamb)	-0.36

Note: The index is constructed by simply calculating the difference between the regional instability index REGREV and the domestic instability index REV. Countries in parentheses represent the influential neighboring countries.

III. Regional Instability and Economic Growth

Table 2 reports the correlation of several standard variables usually included in a growth regression with an index of regional instability. What is perhaps most striking is the low correlation between the index of domestic instability and the index of regional instability. This suggests that the index of regional instability can provide much more information not captured previously by the domestic instability variable. This low correlation between the two indices are highlighted in Figure 1. This low correlation also suggest that the regional instability variable can probably be treated as an exogenous variable or shock, rather than as some consequence of a domino-effect arising from the spread of political instability from one country to another. The exogenous nature of this variable justifies putting it on the right-hand side of a regression with little argument about causality. This advantage stands in contrast with the endogeneity problems plaquing the intrepretation of the negative correlation between domestic political instability and economic growth, where Alesina and Perotti (1993) for example attempt to disentangle.

Table 5 summarises the importance of regional instability as a predictor of economic growth in a cross-section growth regression with the standard benchmark variables as in Barro (1991). Column 1 reports the benchmark regression with the index of domestic political instability included (REV). Column 2 includes the index of regional instability in the regression. The coefficient on the index of regional instability (REG REV) is about -0.028 (s.e. = 0.008), indicating that an increase in the average number of revolutions and coups in neighboring countries by one over a decade reduces per capita annual income growth by 0.28 percent. This index of regional instability remains significant even when the index of domestic instability and continent dummies are controlled for. Another interesting result is the fact that the addition of the regional instability index REGREV does not have a dramatic effect on the magnitude of the coefficient on the domestic instability index REV. This is consistent with the observed low correlation between the index of domestic and regional instability, suggesting that the regional instability index adds new information not previously captured by the domestic instability index. Column 3 reports

a weighted regressions in which the observations are weighted in accordance with the levels of GDP per capita. Similar results are found to hold.[8] Column 4 reports the regrssion where the standard errors for the coefficients are based on White's (1980) heteroskedasticity-consistent covariance matrix, since heteroskedasticity could be important across countries. As shown, the standard errors do not differ significantly, however, from those obtained by ordinary least squares. Column (5) shows that similar results hold for just bordering countries, that is the sample excluding island countries. Columns (6), (7) and (8) introduces continent dummies and other regional variables suggested by Chua (1993). The coefficient on the index of regional instability, though falling in size, remains negative and significant.

Figures 2 and 3 plot the relationship between domestic instability and growth, and regional instability and growth respectively. The adverse effect of regional instability on growth is just as apparent from the plot, where the negative relationship is not simply driven by a few outliars.

Table 6 includes other measures of regional instability in the standard growth regression. The results show that political instability in neighboring countries are an important factor and are robust to the use of different formulas. The coefficients on the sum, maximum, and minimum number of revolutions and coups in neighboring countries are all negative and significant. If we take the increase in the adjusted R^2 as an indicator of the explanatory power of these variables, then ranked in the order of importance is the average (0.06), the maximum (0.04), the sum (0.03), and lastly, the minimum (0.02), where the number is brackets shows the increase in the adjusted R^2 when the variable is included in the benchmark regression. We use the average measure for the remainder of our empirical analysis since this variable seems to have the most explanatory power. The mean of this variable is about the same as the index of domestic political instability. Comparing the relative coefficients on the regional and domestic instability index therefore provides a quick guide to the relative effects.

Column 4 in Table 6 reports the regression results using the social-political index constructed by

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[8] Weighting the observations by land area produces similar results.

Alesina and Perotti (1993) as an index of political instability. The regional SPI index is also significant and negative, demonstrating that the main argument of this paper is not sensitive to the measuments used for domestic instability.[9]

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[9] We also construct an index of regional instability using the average number of military casualties per year over the period 1960 to 1985 as the index of political stabillity (Easterly, Pritchet, Summers and Kremer (1993)). The regional instability index is negative and significant in the standard growth regression shown, but loses its significance when continent dummies are introduced. This variable performs more poorly than the other indices simply because it is more crude and there are a large number of zeros for many of the countries.

Figure 1: Regional Instability versus Domestic Instability

Note: Regional instability is proxied by the average number of revolutions and coups per year from 1960-85 (or subsample) in neighboring countrie
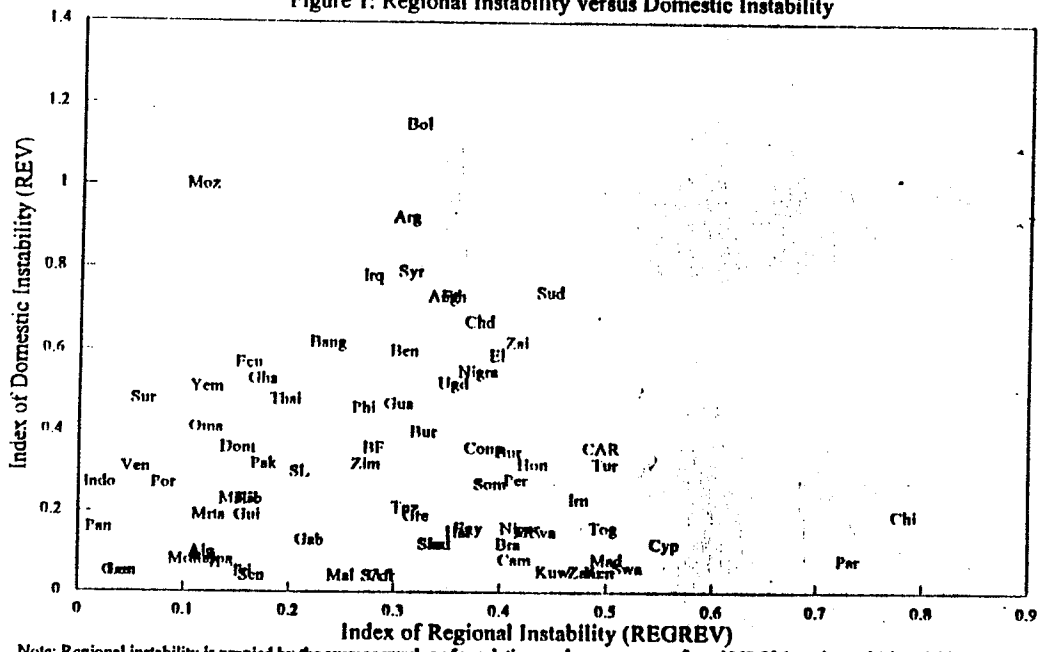
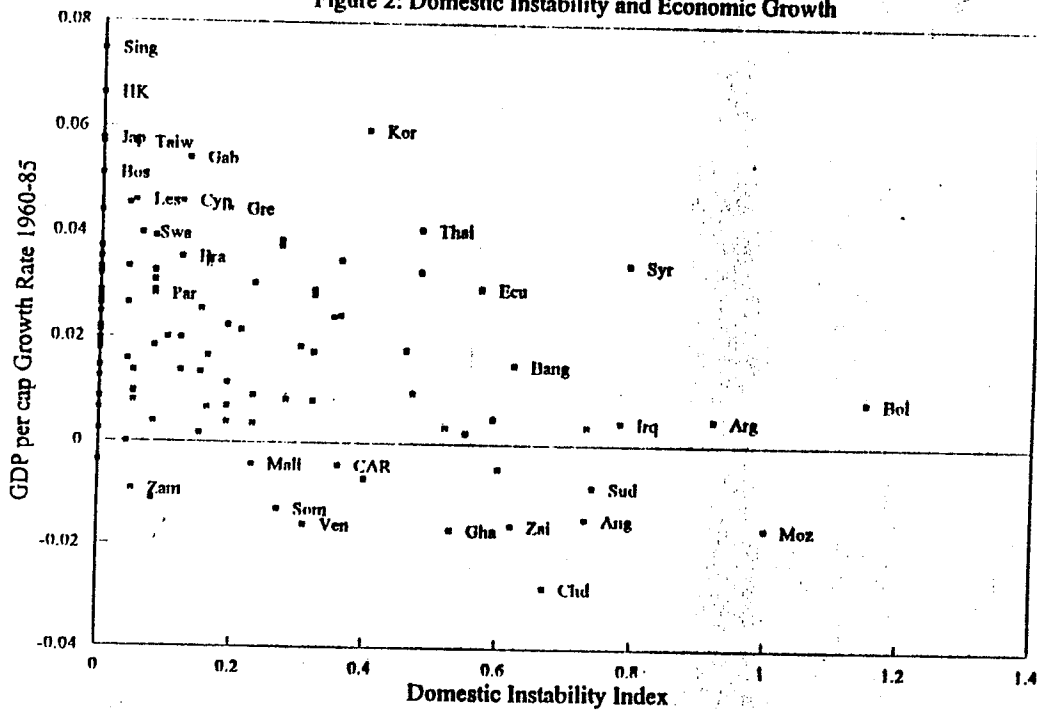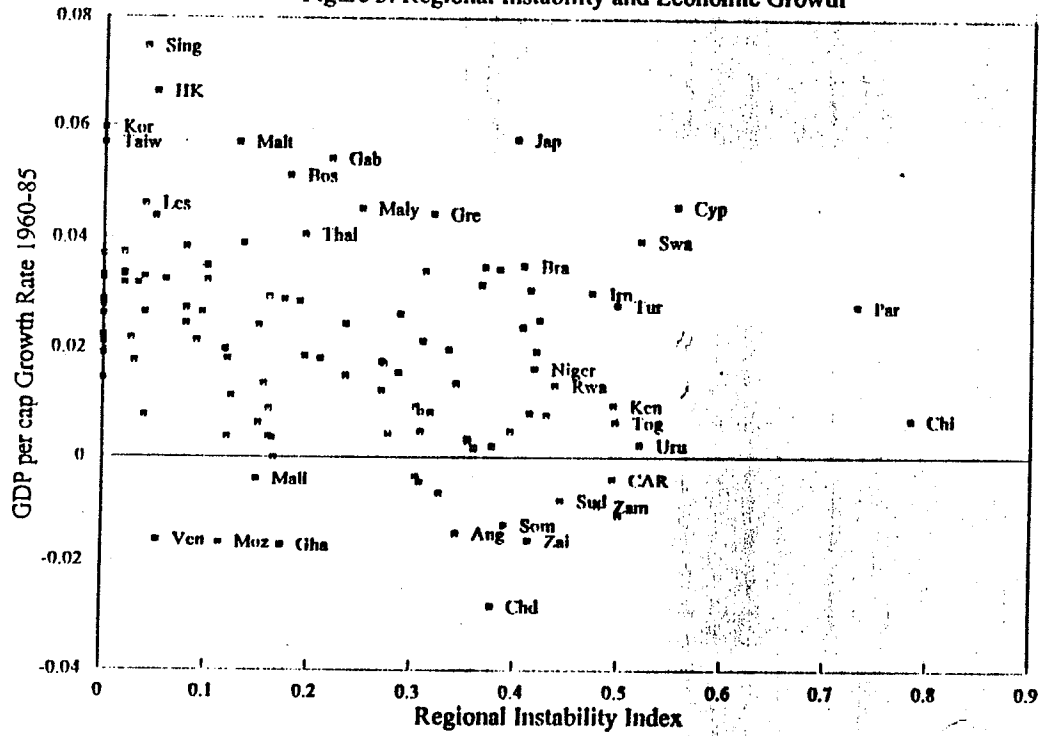## Figure 2: Domestic Instability and Economic Growth

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Figure 3: Regional Instability and Economic Growth

IV. Channels in which Regional Instability Lower Growth

Section I showed the robust negative influence of regional instability on economic growth. This section pins down the channels in which political instability in neighboring countries block income growth. Several natural explanations are examined using cross-section data. The first hypothesis is the potential disruption regional instability can have on international trade flows. The second hypothesis is the impact regional instability has on forcing increases in domestic military expenditures. The redirection of resources towards defense and border security comes at the expense of otherwise more productive activities. The third hypothesis is the possible adverse effect regional instability has on domestic investment.

A. Regional Instability and Trade

Political instability in neighboring countries can block external trading routes and destroy transport networks. Passage through transit routes become unreliable, especially in situations where governments have lost control and lawlessness prevail. Such disruptions are especially acute for landlocked countries, which rely on transit routes through neighboring countries for coastal access. This was the case for Malawi when civil unrest broke out in neighboring Mozambique, forcing shipping routes to be rechanneled through Durban in South Africa. Landlocked Burundi faced high transports costs and unreliable passage through Tanzania in the midst of its political instability.

Another illuminating case is that of Slovenia, one of the former republics of Yugoslavia, when its neighbors were engaged in the Croatian War during the second half of 1992. Slovenia, although abstaining from the war, suffered a 15 percent drop in GNP between the outbreak of hostilities and the end of the year. Trade with the rest of Yugoslavia collapsed, falling by 32 percent during the same period.[10]

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[10] The Economist Intelligence Unit (1992), EIU Country Report No.1, pg 26.

Disruptions to the normal channels of trade can have severe effects on growth. First and foremost is the shortage of food and basic necessities such as the sources of energy, which can potentially paralyze the whole economy. Such was the case in Armenia, when fighting in Georgia cut off its energy supplies from Russia, forcing the closure of 85 percent of Armenian enterprises in the winter of 1991. To the extent that these basic necessities fit the minimal input levels required for example by Leontief-type production functions, severe shortages in one such necessity can cause a severe disruption to the whole production process.

Second, shortages of intermediate inputs in the midst of these trade disruptions are also likely to force a consolidation of production to simpler processes involving less specialization and abundant input substitutes. This kind of consolidation is natural if one considers a multiplicative O-Ring production function which Kremer (1993) proposes. Bottlenecks and trade restrictions become quantitatively important with an O-ring production function. Uncertainties over input supplies would force firms to choose technologies with simpler and smaller number of tasks.

Third, longer phases of regional instability can also mean a severe disruption in communication channels with the rest of the world in the face of higher transport costs and unreliable communication links. To the extent that growth depends on the facilitation and exchange between entrepreneurs in different countries, regional instability can hamper the diffusion process of such knowledge transfers.

We examine the potential negative influence regional instability has on trade by examining cross-section data on merchandise and manufactured trade shares. Tables 7 and 8 report the regressions where the merchandise and manufactured trade shares are regressed on domestic and regional instability, and other control variables. Both the domestic and regional political indices enter negatively and significantly. What is more striking is that the coefficient on the regional instability variable REGREV is about one and a half times larger than the coefficient on the domestic instability variable REV. Controlling for population and land area as in Pritchett (1991) do not change the significance of this result. Including

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continent dummies likewise do not alter the coefficient or its significance noticeably. This coefficient indicates that a rise in the average number of revolutions and coups by one in the region over a decade (an increase in REGREV by 0.1) reduces the share of merchandise trade by about 6 percentage points. In comparison, a rise in the domestic number of revolutions and coups by one over a decade reduces the share of merchandise trade by about 3.8 percentage points.

We also include a landlock dummy and an interaction term between regional instability and a landlock dummy to see whether countries located away from the ocean are penalised as a result of their geography.[11] These variables enter insignificantly and show very little support for the argument that landlocked countries do any worse. The rather impressive economic performances of the landlocked African countries Bostwana and Lesotho for example is consistent with this result. One could of course argue that the geographical handicap of these two countries is partially compensated by the fact that both are located next to South Africa, as Chua (1993) noted, a relatively stable country with good infrastructure.

B. Regional Instability and Defense Spending

We investigate in this section the impact regional instability has on defense spending. Regional crisis often force a substantial increase in military outlays to prevent the fighting from spreading across political boundaries and avoid the usual avalanche of refugees that comes with wars. The most obvious example is the Middle East, where countries like Israel, Iran, Jordan and Syria devote more than 7 percent of GDP to defense. During the late 1970s, the government of Rwanda likewise raised security outlays when fighting between Uganda and Tanzania threaten to spread across the borders and refugees began invading from Uganda. The hostility between North and South Korea have translated into an

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[11] The landlocked countries in our sample include Bostwana, Burundi, Central African Republic, Chad, Lesotho, Mali, Malawi, Niger, Rwanda, Uganda, Zambia, Zimbabwe, Bolivia, Paraguay, Nepal, Austria, Luxembourg, and Switzerland.

ongoing game of accumulation of firepower.

The empirical literature relating military expenditure to economic growth have however produced no conclusive relationship. The earlier work include Benoit (1978) who actually found that countries with a heavy defense burden generally had the most rapid growth rates. Numerous studies have been undertaken since then mainly using cross-country data, but there seems no consensus on the impact of defense spending on economic performance. We likewise find that the GDP share of defense spending enters insignificantly in the standard growth regression. Knight, Loayza and Villanueva (1993) more recently however combine cross-section with time-series data and show that military spending has a significant negative effect on growth. They argue that military expenditures not only crowd out private investment, but also "creates external diseconomies and misallocation of resources which affect the growth performance of the economy."

Our view of the matter is that some portion of defense expenditure are necessary for the protection of national property rights as Thompson (1974) argues. However, to the extent that geography and adverse external threats forces far greater outlays beyond normal levels, resources must be redirected from other productive activities. Such spending may be necessary and wise in the face of such shocks, but are likely to have adverse effects on investment and growth. We show in this section that regional instability has a strong positive influence on military spending, even after controlling for the share of military spending by neighboring countries.

Table 9 summarises the main empirical results linking defense spending to political instability.[12] First, domestic political instability does not have a significant effect on defense spending. Second, regional instability has a strong positive impact on defense spending. These results indicate that military outlays respond to outside rather than inside influences. Third, domestic defense spending of a

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[12] Other variables such as the GDP in 1960, population, share of government consumption, indexes of civil liberty, and other Barro-type variables do not enter significantly and are therefore excluded from the regression.

country is strongly correlated with the defense spending of neighboring countries. Aggresive countries devoting large resources to military buildup are likely to force a natural likewise response among its neighbors, a reaction necessary to deter potential future military attacks. Examples of this "ratchetting effect" include the Middle East countries, North and South Korea, and South Asian countries. Nevertheless, even after controlling for this effect, regional instability still has a significant positive impact on defense spending. That is, crisis in neighboring countries such as coups which are *not* deliberate acts of aggression, has a strong and positive impact on domestic defense spending. The magnitude of the coefficient suggest that an increase in the numbers of revolutions and coups by one over a decade in neighboring countries increase the GDP share of defense spending by 0.36 percentage points. Columns (3) and (4) in Table 9 report the regression results where instead the maximum is used as a proxy for regional instability and as the measure of regional military spending. The results are similar, where the coefficient on the maximum is positive and significant.

C. Regional Instability and Investment

A natural channel by which regional instability can reduce growth is through a fall in investment. We examine this hypothesis by examining cross-country investment rates over the period 1960-85. The main result is summarised in Table 10. There seems to be no significant correlation between investment and political instability in neighboring countries. We find this result to be rather surprising, but using other variants of measures of regional instability do not alter this conclusion.

We focus instead on possible changes in the composition of investment that might occur because of regional instability. Political instability in neighboring countries might prompt larger layouts on transport investment for example, as existing transit routes become unreliable and new transport links have to be constructed. Such shifts might crowd out other productive forms of investment. We use the disaggregated cross-section data constructed by De Long and Summers (1992) to investigate this

hypothesis. The share of equipment investment is found to be significantly lower in countries with high regional instability. The shares of transport and structure investment do not seem to be affected by regional instability. To the extent that one agrees with the conclusion reached by De Long and Summers (1992) on the strong social returns to equipment investment, a reduction in the share of equipment investment caused by regional instability is likely to hamper growth.[13]

V. Some Implications for Future Growth

We discuss in this section some implications for the economic growth of certain countries given the above empirical results.

Our main conclusion is that geography and the political stability of your neighbors matter. The geographical distribution of the new Commonwealth of Independent States is likely to produce future sources of conflict between neighboring republics. Ten of the fourteen newly formed republics are landlocked and have no direct access to the sea or ocean.[14] In the old regime where most trade was intra-regional trade (that is, trade between states belonging to the same country, the USSR), there are less disputes over transportation rights across neighboring states. In the new regime where each regime behaves autonomously, and where inter-regional trade (trade with the rest of the world) becomes increasingly important, future transit rights will become a source of friction between neighboring states. Given the interconnectedness of the transportation networks in these new republics, potential political turmoil in one state will cause disruptions in trade flows among all adjoining states.

The recent case of Armenia is revealing. Tense relations with Azerbaijan have cut Armenia off

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[13] De Long and Summers argue that the social rate of return on equipment investment is on the order of 30 percent.

[14] These ten landlocked CIS republics are Armenia, Azerbaidzhan, Byelorussia, Georgia, Kazakhstan, Kyrgystan, Moldavia, Tadzhikistant, Turkmenistan, and Uzbekistan. Estonia, Lituania, Latvia have access to the Baltic Sea. Russia has access to the Sea of Okhotsk.

from its supplies of basic foodstuffs, sources of energy and raw materials for its industries. On top of that, turmoil in neighboring state Georgia, especially the eruption of fighting in the region of Abkhazia, cut off most of the last remaining links to Russia. This sparked an energy crisis and the closure of 85 percent of Armenian enterprises in the winter of 1991-92.[15]

CIS states that have coastal access such as Lithuania, Latvia, Estonia and Russia will have some geographical advantage. States like Azerbaidzhan, Turkmenistan, and Armenia, given their proximity to the Middle East countries, are likely to be affected by any future political turmoil in that region. Picking a winner is a difficult task, as Easterly, Kremer, Pritchett and Summers (1992), have noted from projections made in the past by credible economists. Nevertheless, we put our bet on the Eastern region of Russia, which is located next to the Pacific Ocean and is geographically located next to some rich and politically stable neighbors such as Japan, Korea and Taiwan. Substantial flows of both investment and knowledge are likely to cross over between these Asian countries and the eastern region of Russia with much more ease.

Our results also suggest that countries located where there are large potential territorial disputes are likely to grow much more slowly. Territorial disputes remain a major source of friction among many countries, including the industrialised economies, even today. Table 11 provides statistics which describe the average number of territorial disputes countries within a region are currently facing. Some interesting observations can be made. First, East Asian countries actually have the largest number of other countries with which there are disputes. That is, an East Asian country currently has on average at least one dispute with 2.6 other countries. This rather high number however is driven mainly by the dispute over the Spratley Islands which involves China, Malaysia, Vietnam, Taiwan, and the Philippines. Other claims are rather minor in nature, such as the dispute over the Liancourt Rocks between South Korea and Japan, and the dispute over the Senkaku Islands between China, Japan, and Taiwan. In terms of boundary

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[15] The Economist Intelligence Unit (1992), EIU Country Report No.4.

disputes, the number for East Asia drops to only 0.33.

The second observation that can be made is that an European country has on average at least one dispute with 1.7 other countries, which appears relatively high. Most of these territorial disputes are however over maritime claims, concentrated especially among the northern European countries: Denmark, Ireland, Norway, Iceland, and the United Kingdom. Excluding these maritime disputes, the average number of other countries with which there is at least one dispute drops to 0.76.

Third, the number of border disputes are highest for Sub-Saharan African and South Asian countries, where a country in Africa or South Asia has at least one border dispute with at least 1.3 other neighboring countries. The proposed measure below however understates the degree from the costs of conflict, since many of these border disputes in Africa and the Middle East involves armed conflict and sporadic fighting while the border disputes in Europe and Latin America are less violent in nature. These territorial disputes over political boundaries are likely to produce future areas of conflict and will have an adverse effect on the economic growth of many developing countries located in these region.

Table 11: Territorial Disputes with Other Countries

Region	Territorial Disputes	Border & Maritime Disputes	Border Disputes
Sub-Saharan Africa	1.38	1.35	1.25
South Asia	1.25	1.21	0.96
Latin America	1.25	1.21	0.96
Europe	1.71	1.43	0.76
East Asia	2.56	0.33	0.33

Note: These numbers represent the average number of other countries with which the country concerned has at least one dispute. These average number of disputes are averaged across the sample of countries for the defined region. Border disputes are the number of bordering countries with which the country has a dispute with. Border & maritime disputes extends this to include disputes over maritime claims. Territoral disputes extends to all disputes including those with non-bordering countries. There are 40 countries in the African sample, 24 in the Latin American sample, 21 in the Europe sample, 9 in the East Asia sample, and 4 in the South Asia sample.

VI. Conclusion

We argue and show that political instability in neighboring countries has a strong adverse effect on economic growth. This effect is shown to be quantitatively important, where the impact on growth is roughly equal to an equivalent increase in the index of domestic instability. Our regional instability index indicates that an increase in the number of revolutions and coups in neighboring countries by one over a decade reduces average per capita income growth by about 0.28 percentage points. The empirical results are robust to various measures of constructing the regional instability index, and are robust to other measures of domestic instability, such as the socio-political index constructed by Alesina and Perotti (1993).

We find that there are three main channels in which regional instability affects growth. First, regional instability disrupts trade flows. We show that the shares of merchandise and manufactures trade in countries with high regional instability are substantially lower. Second, regional instability forces substantial increases in military outlays, which draws resources from other productive activities. Third, regional instability does not affect the GDP share of total investment. Rather, the composition of investment is found to be skewed against equipment investment in countries with high regional instability. To the extent that there are large social returns to equipment investment as De Long and Summers (1992) argue, this shift from equipment towards machinery and transport investment is likely to reduce economic growth.

We believe that the results presented provide strong evidence of negative spillovers from politically unstable neighbors. These adverse regional influences must be taken into account when projecting the future economic performance of countries. The evidence presented also suggest that the gains from reducing regional instability extends far beyond the welfare of the parties directly involved in a conflict. Policies directed at settling current territorial disputes in a peaceful and orderly fashion will provide a necessary step towards preventing adverse future shocks. We hope, that perhaps in our lifetime,

there will come a time when geography really doesn't matter any more for economic growth.

Table 5: Regional Instability and Economic Growth

Dependent Variable: Growth Rate of Real GDP Per Capita 1960-85

	OLS	OLS	Weighted GDP60	White-Correct
Observations	98	98	98	98
CONST	0.0318 (0.0066)	0.0402 (0.0067)	0.0424 (0.0065)	0.0402 (0.0072)
GDP1960	-0.0072 (0.0013)	-0.0081 (0.0012)	-0.0071 (0.0009)	-0.0081 (0.0011)
SEC1960	0.0288 (0.0112)	0.0250 (0.0106)	0.0237 (0.0067)	0.0250 (0.0092)
PRIM1960	0.0234 (0.0063)	0.0230 (0.0060)	0.0182 (0.0057)	0.0230 (0.0059)
PPIDEV	-0.0136 (0.0056)	-0.0139 (0.0053)	-0.0212 (0.0066)	-0.0139 (0.0047)
GOVCONSMP	-0.1272 (0.0283)	-0.1207 (0.0268)	-0.1158 (0.0229)	-0.1207 (0.0284)
REVOL	-0.0229 (0.0067)	-0.0208 (0.0063)	-0.0207 (0.0062)	-0.0208 (0.0057)
REGIONAL REVOL		-0.0280 (0.0080)	-0.0257 (0.0071)	-0.0280 (0.0081)
Adjusted R^2	0.50	0.56	0.54	0.56
s.e.e.	0.0131	0.0123	0.0125	0.0123

Note: Standard errors are in parentheses. The regression in column (3) are based on observations weighted with the levels of per capita GDP. Standard errors for the regression in column (4) are based on White's (1980) hetereoskedasticity-consistent covariance matrix.

Table 5: Regional Instability and Economic Growth (continued)

Dependent Variable: Growth Rate of Real GDP Per Capita 1960-85

	Border Sample	Full Sample	Full Sample	Full Sample
Observations	83	98	98	98
CONST	0.0419 (0.0067)	0.0234 (0.0072)	0.0402 (0.0066)	0.0253 (0.0073)
GDP1960	-0.0080 (0.0014)	-0.0091 (0.0012)	-0.0074 (0.0016)	-0.0084 (0.0012)
SEC1960	0.0243 (0.0122)	0.0177 (0.0099)	0.0115 (0.0107)	0.0101 (0.0101)
PRIM1960	0.0212 (0.0061)	0.0160 (0.0057)	0.0255 (0.0060)	0.0195 (0.0058)
PPIDEV	-0.0146 (0.0050)	-0.0136 (0.0049)	-0.0141 (0.0050)	-0.0142 (0.0048)
GOVCONSMP	-0.1071 (0.0275)	-0.1130 (0.0245)	-0.0981 (0.0262)	-0.0999 (0.0245)
REVOL	-0.0224 (0.0061)	-0.0199 (0.0057)	-0.0173 (0.0062)	-0.0171 (0.0058)
REGIONAL REVOL	-0.0316 (0.0085)	-0.0169 (0.0077)	-0.0199 (0.0079)	-0.0138 (0.0074)
REG INVESTMENT		0.0946 (0.0315)		0.0872 (0.0310)
REG SEC60		0.0145 (0.0111)		0.0084 (0.0116)
LAT AMER DUMMY			-0.0120 (0.0034)	-0.0087 (0.0033)
AFRICA DUMMY			-0.0093 (0.0038)	-0.0060 (0.0039)
Adjusted R^2	0.56	0.64	0.61	0.65
s.e.e.	0.0115	0.0112	0.0116	0.0109

Note: Standard errors are in parentheses. Regional investment (REG INV) is the average investment rate from 1960-85 in neighboring countries. Regional schooling (REG SEC60) is the initial schooling rate in 1960 averaged across the neighboring countries.

Table 6: Other Indexes of Regional Instability

Dependent Variable: Growth Rate of Real GDP 1960-85				
Observations	98	98	98	98
CONST	0.0353 (0.0065)	0.0374 (0.0066)	0.0365 (0.0068)	0.0748 (0.0176)
GDP1960	-0.0073 (0.0012)	-0.0075 (0.0012)	-0.0079 (0.0013)	-0.0070 (0.0017)
SEC1960	0.0237 (0.0110)	0.0224 (0.0109)	0.0311 (0.0110)	0.0223 (0.0148)
PRIM1960	0.0229 (0.0062)	0.0240 (0.0061)	0.0226 (0.0062)	0.0087 (0.0092)
PPIDEV	-0.0115 (0.0055)	-0.0142 (0.0054)	-0.0143 (0.0055)	-0.0246 (0.0065)
GOVCONSMP	-0.1180 (0.0276)	-0.1222 (0.0271)	-0.1286 (0.0277)	-0.0924 (0.0357)
REVOL	-0.0202 (0.0066)	-0.0189 (0.0065)	-0.0238 (0.0065)	
SUM REG REVOL	-0.0047 (0.0018)			
MAX REG REVOL		-0.0125 (0.0041)		
MIN REG REVOL			-0.0224 (0.0099)	
SPI INDEX				-0.0086 (0.0042)
AVG REG SPI INDEX				-0.0102 (0.0052)
Adjusted R^2	0.53	0.54	0.52	0.45
s.e.e.	0.0127	0.0125	0.0128	0.0115

Note: Standard errors are in parentheses. The SUM, MAX, and MIN corresponds to the sum, maximum, and minimum of the average number of revolutions and coups over the period 1960-85 in the sample of neighboring countries.

Table 7: Regional Instability and Merchandise Trade

Dependent Variable: Average GDP Share of Merchandise Trade 1960-85

Observations	92	92	92	92
CONST	0.6368 (0.1402)	0.5660 (0.1355)	0.6389 (0.1414)	0.6920 (0.1857)
GDP1960	-0.0746 (0.0326)	-0.0646 (0.0322)	-0.0745 (0.0328)	-0.0697 (0.0351)
SEC1960	0.1020 (0.2867)	0.0441 (0.2893)	0.0999 (0.2886)	0.0109 (0.2916)
PRIM1960	0.2741 (0.1523)	0.3091 (0.1546)	0.2721 (0.1535)	0.2933 (0.1592)
LAND AREA	-0.0001 (0.0002)	-0.0001 (0.0007)	-0.0001 (0.0002)	-0.0001 (0.0002)
POPULATION 1960	-0.0015 (0.0007)	-0.0015 (0.0007)	-0.0015 (0.0007)	-0.0016 (0.0007)
LAT AMER DUMMY	-0.0070 (0.0894)	-0.0131 (0.0905)	-0.0074 (0.0899)	-0.0214 (0.0957)
AFRICA DUMMY	0.0568 (0.1005)	0.0704 (0.1039)	0.0600 (0.1023)	0.0403 (0.1124)
REVOL	-0.4587 (0.1857)	-0.4108 (0.1897)	-0.4576 (0.1869)	-0.4552 (0.1880)
REG REVOL	-0.5644 (0.2113)		-0.5578 (0.2152)	-0.4553 (0.2179)
MAX REG REVOL		-0.2575 (0.1097)		
LANDLOCK DUMMY			-0.0210 (0.1051)	
REG INV				-0.2707 (0.8724)
REG SEC60				-0.0499 (0.3162)
Adjusted R^2	0.23	0.21	0.22	0.21
s.e.e.	0.2939	0.2966	0.2957	0.2972

Note: Standard errors are in parentheses. Other variables such as government consumption and ppi60dev are found to be insignificant.

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Table 8: Regional Instability and Manafactured Trade

Dependent Variable: Average GDP Share of Manufactured Trade 1960-85

Observations	92	92	92	92
CONST	0.2943 (0.0740)	0.2635 (0.0715)	0.2937 (0.0747)	0.2881 (0.0979)
GDP1960	-0.0306 (0.0172)	-0.0261 (0.0170)	-0.0307 (0.0173)	-0.0343 (0.0185)
SEC1960	0.0847 (0.1513)	0.0615 (0.1526)	0.0852 (0.1523)	0.0730 (0.1537)
PRIM1960	0.1257 (0.0804)	0.1390 (0.0816)	0.1262 (0.0811)	0.1182 (0.0839)
LAND AREA	-0.0001 (0.0001)	-0.0001 (0.0001)	-0.0001 (0.0001)	-0.0001 (0.0001)
POPULATION 1960	-0.0008 (0.0004)	-0.0008 (0.0004)	-0.0008 (0.0004)	-0.0007 (0.0004)
LAT AMER DUMMY	-0.0460 (0.0472)	-0.0505 (0.0477)	-0.0459 (0.0478)	-0.0386 (0.0504)
AFRICA DUMMY	-0.0236 (0.0530)	-0.0204 (0.0548)	-0.0244 (0.0540)	-0.0074 (0.0592)
REVOL	-0.2232 (0.0980)	-0.2056 (0.1001)	-0.2234 (0.0986)	-0.2222 (0.0990)
REG REVOL	-0.2329 (0.1115)		-0.2346 (0.1136)	-0.2261 (0.1148)
MAX REG REVOL		-0.0986 (0.0579)		
LANDLOCK DUMMY			0.0052 (0.0555)	
REG INV				-0.1387 (0.4597)
REG SEC60				0.1148 (0.1666)
Adjusted R^2	0.23	0.21	0.22	0.21
s.e.e.	0.1551	0.1564	0.1561	0.1566

Note: Standard errors are in parentheses. Other variables such as government consumption and ppi60dev are found to be insignificant.

Table 9: Regional Instability and Defense Spending

Dependent Variable: Average Defense Expenditures to GDP

Observations	101	101	101	101
CONST	0.0235 (0.0101)	0.0016 (0.0097)	0.0253 (0.0093)	0.0074 (0.0093)
SEC1960	0.0147 (0.0211)	0.0317 (0.0187)	0.0113 (0.0202)	0.0254 (0.0185)
LAT AMER DUMMY	-0.0285 (0.0091)	-0.0099 (0.0086)	-0.0321 (0.0090)	-0.0151 (0.0089)
AFRICA DUMMY	-0.0153 (0.0097)	0.0004 (0.0089)	-0.0203 (0.0097)	-0.0067 (0.0093)
REVOL	-0.0045 (0.0156)	0.0033 (0.0136)	-0.0008 (0.0153)	-0.0004 (0.0139)
REG REVOL	0.0616 (0.0211)	0.0356 (0.0190)		
AVG REG DEFENSE		0.4651 (0.0833)		
MAX REG REVOL			0.0400 (0.0108)	0.0208 (0.0105)
MAX REG DEFENSE				0.3329 (0.0706)
Adjusted R^2	0.09	0.31	0.14	0.29
s.e.e.	0.0327	0.0285	0.0319	0.0288

Note: Standard errors are in parentheses.

Table 10: Regional Instability and Investment

Dependent Variable: Average Investment Share to GDP 1960-85

	Total Inv	Equip Inv	Struct Inv	Transp Inv
Observations	98	60	60	60
CONST	0.1054 (0.0298)	0.0680 (0.0172)	0.0062 (0.0398)	0.0121 (0.0062)
GDP1960	-0.0027 (0.0054)	0.0001 (0.0031)	-0.0118 (0.0064)	0.0005 (0.0011)
SEC1960	0.1184 (0.0474)	0.0379 (0.0265)	0.1419 (0.0523)	-0.0014 (0.0094)
PRIM60	0.1006 (0.0268)	-0.0247 (0.0162)	0.1094 (0.0308)	0.0005 (0.0054)
PPIDEV	-0.0350 (0.0236)	-0.0497 (0.0196)	0.0712 (0.0417)	-0.0080 (0.0068)
GOVCONSMP	-0.0078 (0.1197)	-0.0447 (0.0657)	-0.0625 (0.1373)	0.0235 (0.0231)
REVOL	-0.0566 (0.0283)	-0.0279 (0.0341)	-0.0020 (0.0282)	-0.0082 (0.0046)
REG REVOL	0.0126 (0.0359)	-0.0341 (0.0183)	0.0470 (0.0386)	-0.0085 (0.0063)
RESIDUAL INV SHARE		0.1630 (0.0710)	-0.0349 (0.1759)	0.0499 (0.0199)
Adjusted R^2	0.50	0.42	0.36	0.28
s.e.e.	0.0551	0.0227	0.0472	0.0080

Note: Standard errors are in parentheses. Residual investment share is the remaining share of total investment after subtracting the share of the dependent variable.

Appendix I. Region Classification: Bordering Countries (& Islands)

1. Algeria — Morocco, Mali, (Libya), Tunisia, Niger, Mauritania
2. Angola — Zaire, Zambia, (Namibia), Congo
3. Benin — Nigeria, Togo, Burkina Faso, Niger
4. Boswatna — S.Africa, Zimbabwe, (Namibia)
5. Burundi — Tanzania, Rwanda, Zaire
6. Cameroon — Nigeria, Chad, Central African Rep, Congo, Gabon
7. Cent Afr Rep — Zaire, Chad, Sudan, Cameroon, Congo
8. Chad — Sudan, Cent Afr Rep, Niger, Cameroon, (Libya), Nigeria
9. Congo — Zaire, Gabon, Cameroon, Cent Afr Rep, Angola
10. Egypt — Sudan, Israel, (Libya)
11. Ethiopia — Sudan, Somalia, Kenya
12. Gabon — Congo, Cameroon
13. Gambia — Senegal
14. Ghana — Togo, Ivory Coast, Burkina Faso
15. Guinea — Mali, Sierra Leonne, Ivory Coast, Liberia, Senegal, (Guinea-Bissau)
16. Ivory Coast — Liberia, Ghana, Guinea, Burkina Faso, Mali
17. Kenya — Uganda, Ethiopia, Tanzania, Somalia, Sudan
18. Lesotho — South Africa
19. Liberia — Guinea, Sierra Leonne, Ivory Coast
20. Madagascar ISLAND — Mauritius, Mozambique
21. Malawi — Mozambique, Zambia, Tanzania
22. Mali — Mauritania, Algeria, Burkina, Guinea, Niger, Ivory Coast, Senegal
23. Mauritania — Mali, Senegal, Algeria, (W.Sahara)
24. Mauritius ISLAND — Madagascar
25. Morocco — Algeria, (W.Sahara)
26. Mozambique — Malawi, Zimbabwe, Tanzania, South Africa, Zambia, Swaziland
27. Niger — Nigeria, Chad, Algeria, Mali, Burkina, Benin, (Libya)
28. Nigeria — Cameroon, Niger, Benin, Chad
29. Rwanda — Burundi, Zaire, Tanzania, Uganda
30. Senegal — Mauritania, Gambia, Mali, Guinea, (Guinea-Bissau)
31. Sierra Leonne — Guinea, Liberia
32. Somalia — Ethiopia, Kenya, (Djibouti)
33. South Africa — Botswana, (Namibia), Lesotho, Mozambique, Swaziland, Zimbabwe
34. Sudan — Ethiopia, Chad, Egypt, Central African Rep, Zaire, Uganda, (Libya), Kenya
35. Swaziland — South Africa, Mozambique
36. Tanzania — Kenya, Mozambique, Malawi, Burundi, Uganda, Zambia, Rwanda
37. Togo — Ghana, Benin, Burkina Faso
38. Tunisia — Algeria, (Libya)
39. Uganda — Kenya, Zaire, Sudan, Tanzania, Rwanda
40. Zaire — Angola, Congo, Zambia, Central African Rep, Uganda, Sudan, Burundi, Rwanda
41. Zambia — Zaire, Angola, Malawi, Zimbabwe, Mozambique, Tanzania, (Namibia)
42. Zimbabwe — Mozambique, Botswana, Zambia, South Africa
43. Bangladesh — India, Burma
44. Burma — Thailand, India, (Laos), Bangladesh, (China)
45. Hong Kong ISLAND — (Taiwan), (China)
46. India — Bangladesh, (China), Pakistan, Nepal, Burma,(Bhutan)
47. Iran — Iraq, Pakistan, Turkey, (USSR), (Afghanistan)
48. Iraq — Iran, Syria, Saudi Arabia, Turkey, Kuwait, Jordan
49. Israel — Egypt, Jordan, Syria

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50. Japan ISLAND	South Korea, (China)
51. Jordan	Saudi Arabia, Syria, Israel, Iraq
52. South Korea	(North Korea), Japan
53. Kuwait	Iraq, Saudi Arabia
54. Malaysia	Indonesia, Thailand, Singapore, (Brunei)
55. Nepal	India, (China)
56. Pakistan	India, Iran, (China), (Afghanistan)
57. Philippines ISLAND	Indonesia, (Brunei), (Vietnam)
58. Saudi Arabia	Yemen, Jordan, Oman, United Arab Emir, Iraq, Kuwait, (Qatar)
59. Singapore	Malaysia
60. Sri Lanka ISLAND	India
61. Syria	Turkey, Iraq, Jordan, Israel, (Lebanon)
62. Taiwan ISLAND	Hong Kong, (China)
63. Thailand	Malaysia, Burma, (Laos), (Cambodia)
64. Austria	Fed Rep Germany, (Czechoslovakia), Italy, Switzerland, (Hungary), (Yugoslavia), (Liechtens)
65. Belgium	France, Netherlands, Fed Rep Germany, Luxembourg
66. Cyprus ISLAND	Turkey, Syria, (Lebanon)
67. Denmark	Fed Rep Germany
68. Finland	Norway, Sweden, (USSR)
69. France	Spain, Belgium, Switzerland, Italy, Fed Rep Germany, Luxembourg, (Monaco)
70. Fed Rep Germany	Austria, Netherlands, France, Switzerland, Belgium, Luxembourg, Denmark, (Czechslovakia)
71. Greece	Turkey, (Bulgaria), (Albania), (Yugoslavia)
72. Iceland ISLAND	Norway, United Kingdom
73. Ireland	United Kingdom
74. Italy	Switzerland, France, Austria, (Yugoslavia)
75. Luxembourg	Belgium, Fed Rep Germany, France
76. Malta ISLAND	Italy, Greece, (Libya), Egypt
77. Netherlands	Fed Rep Germany, Belgium
78. Norway	Sweden, Finland, (USSR)
79. Portugal	Spain
80. Spain	Portugal, France
81. Sweden	Norway, Finland
82. Switzerland	Italy, France, Fed Rep Germany, Austria
83. Turkey	Syria, (USSR), Iran, Iraq, (Bulgaria), Greece
84. United Kingdom	Ireland
85. Barbados ISLAND	Trinidad & Tobago
86. Canada	United States
87. Costa Rica	Panama
88. Dominican Rep	Haiti
89. El Salvador	Honduras, Guatemala
90. Guatemala	Mexico, Honduras, El Salvador, (Belize)
91. Haiti	Dominican Republic
92. Honduras	Nicaragua, El Salvador, Guatemala
93. Jamaica ISLAND	Haiti, (Cuba)
94. Mexico	United States, Guatemala, (Belize)
95. Nicaragua	Honduras, Costa Rica
96. Panama	Costa Rica, Colombia
97. Trin & Tob ISLAND	Barbados, Venezuela
98. United States	Canada, Mexico

99. Argentina	Chile, Paraguay, Brazil, Bolivia, Uruguay
100. Bolivia	Brazil, Peru, Chile, Argentina, Paraguay
101. Brazil	Bolivia, Venezuela, Colombia, Peru, Paraguay, Argentina, Uruguay, Suriname
102. Chile	Argentina, Bolivia, Peru
103. Colombia	Peru, Venezuela, Brazil, Ecuador, Panama
104. Ecuador	Peru, Colombia
105. Guyana	Brazil, Venezuela, Suriname
106. Paraguay	Argentina, Brazil, Bolivia
107. Peru	Colombia, Brazil, Ecuador, Bolivia, Chile
108. Suriname	Guyana, Brazil, (French Guinea)
109. Uruguay	Brazil, Argentina
110. Venezuela	Brazil, Colombia, Guyana
111. Australia ISLAND	New Zealand, Indonesia, Papua New Guinea
112. Fiji ISLAND	Papua New Guinea, Australia, New Zealand
113. New Zealand ISLAND	Australia, Fiji
114. Papua New Guinea	Indonesia
115. Burkina Faso	Mali, Niger, Ivory Coast, Ghana, Benin, Togo
116. Oman	Saudi Arabia, UAE, Yemen
117. Yemen	Saudi Arabia, Oman
118. Indonesia	Malaysia, Papua New Guinea

Notes: Country ordering follows Barro and Wolf (1989). Data unavailable for countries in parentheses.

Appendix 2: Definitions of Variables

GR6085: average growth rate of per capita real GDP from 1960 to 1985.

GDP60: value of real GDP per capita in 1960.

SEC60: secondary school enrollment rate in 1960.

PRIM60: primary school enrollment rate in 1960.

POP60: population in millions in 1960.

INV: average of the real ratio of real domestic investment (private plus public) to real GDP from 1960 to 1985.

GOVCONSMP: average of the ratio of real government consumption (exclusive of defense and education) to real GDP from 1960 to 1985.

PPIDEV: magnitude of the deviation of the purchasing power parity value for the investment deflator (U.S.=100) in 1960 from the sample mean.

REV: number of revolutions and coups per year (1960-1985 or subsample)

REG REV: the average number of revolutions and coups per year (REV) in neighboring countries.

MAX REG REV: (MIN, SUM) the maximum (minimum, sum) of REV over the sample of neighboring countries.

AVG REG DEFENSE (MAX REG DEFENSE): the average (maximum) ratio of defense spending to GDP from 1960 to 1985 in neighboring countries.

AFRICA: dummy variable for Sub-Saharan Africa.

LAT AMER: dummy variable for Latin America.

LANDLOCK: dummy variable for landlocked countries.

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