Shall We Riot Too? The Geographical Neighbor Impact on Political Instability

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ABSTRACT

This paper investigates the impact of regional political instability on the political instability of a country. Our identification strategy relies on the spatial nature of international relations. We use the characteristics of the neighbors' neighbors as the instruments for the neighbors' political instability and regional dummies to control for common regional shocks. We show that political instability in neighbor countries has a strong positive impact on a given country's political instability. The average of neighbors' population size appears to be a significant mediating factor behind this relationship.

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I. INTRODUCTION

Political stability is a necessary component of social order and smooth economic development. Politically-stable economies grow faster and accumulate more capital per person compared to politically-unstable economies (Azzimonti, 2011). Countries characterized by political unrest suffer from its negative consequences associated with deficient government policies. These consequences permeate various aspects of social life, increase income inequality (Dutt and Mitra, 2008), and lower environmental quality (Fredriksson and Wollscheid, 2014).

Our understanding of the evolution of political instability is complicated by the fact that economies do not evolve in isolation. International relations, including social, political, and military linkages, may shape the characteristics and even the development path of a given economy (Solingen, 2012). A country may find itself surrounded by social and political unrest due to events in neighbor countries. Or a country may face a threat from an aggressive neighbor wishing to gain the territory. Another country may be lucky enough to be surrounded by prosperous nations, allowing an increase in standards of living.

In this study we analyze the impact on a country's political instability arising from political instability in its geographical neighbors. We investigate whether such regional instability causes a given country's political instability, when controlling for a range of fundamental country characteristics (such as ethnolinguistic fractionalization, latitude, and population size and density), considered likely to determine the quality of political institutions (Acemoglu et al., 2001). As our main measures of a country's and its neighbors' political instability we use the World Bank political instability index and the simple average of the political instability index in a country's contiguous neighbors. We use cross-section data averaged over 1996–2014 and annual panel data to evaluate the long-run and the contemporaneous relationship between these variables. We account for the endogeneity of the neighbors' political instability by instrumenting it by the neighbors' neighbors' fundamental characteristics (such as ethnolinguistic fractionalization and population density), and controlling for regional dummies (in cross-section regressions) or country-specific fixed effects (in panel regressions). We also provide several robustness checks: first, considering a weighted average of neighbors' political instability with the weights based on neighbors' area; second, using an alternative measure of political instability, political turnover, constructed with the data from the Archidos dataset (Goemans et al., 2009); and third, extending the baseline specifications by adding various control variables suggested by previous studies.

The estimation results suggest that regional political instability has a positive and significant impact on the political instability of a country. These results hold both in the cross-section and panel data, for a large sample of countries and a sample of developing countries, and are robust to several variations of the political instability measures.

Further, we attempt to gauge the potential channels that mediate the spread of the neighbors' political instability. We test whether cultural or genetic closeness (measures suggested by Spolaore and Wacziarg, 2016), stronger economic relations with geographical neighbors (measured by the intensity of trade), or international migration flows contribute to the impact from neighbors' political instability on a given country's political instability. While related studies found that immigration and cultural ties with neighbors affect political instability (see Buhaug and Gleditsch 2008; Gebremedhin and Mavisakalyan, 2013), our results suggest that the average of neighbors' population size is the only significant mediating factor between the neighbors' and a given country's political instability.

The "neighborhood effect," defined as a significant impact of the regional characteristics on a given country, has been widely discussed in different areas of social science, including applications to economic growth (see, for example, Ades and Chua, 1997; Murdoch and Sandler, 2002 and 2004), government spending and tax programs (see, for example, Case et al., 1993; Baicker, 2005; Geys, 2006), civil conflict diffusion (see, for example, Buhaug and Gleditsch 2008; Braithwaite, 2010; Schutte and Weidmann, 2011; and Danneman and Ritter, 2014), regional corruption contagion (see, for example, Becker, Egger, and Seidel, 2009; Goel and Saunoris, 2014; and Correa, Jetter, and Agudelo, 2016), and human rights performance (Edwards et al., 2018).

The contribution of this paper to the existing literature is twofold. First, we investigate the impact of geographical neighbors' political instability, broadly defined, on a given country's political instability. The political instability measures applied in this paper account for civil conflicts, as well as instability due to peaceful events such as major changes in the government caused by re-elections, and perceptions of the likelihood of political unrest. Rather than considering the neighborhood impact on the spread of violence as in the related literature on civil conflict, we analyze the potential diffusion of the political instability in general or perceptions of such instability across the nation's borders.

Second, we explore the spatial nature of international relations to evaluate any causal impact of neighbors' political instability on a given country's political instability. In doing so, we account for the fact that a given country can influence its geographical neighbors, and a country and its neighbors can be affected by the same regional shocks. This "reflection

problem" (Manski, 1993) has been recognized and addressed in various areas of social science where the "neighborhood effect" is generally defined as a significant direct or indirect effect of the neighborhood on the subject of interest (such as the labor market outcome, education, the level of crime, etc.). Ways to deal with the "reflection problem" include the use of experimental evidence where the allocation of subjects to different neighborhoods is random or the identification strategies based on the spatial nature of neighborhood interactions (see Durlauf, 2004; Ioannides and Topa, 2010; and Topa and Zenou, 2015 for recent reviews and applications). We rely on the identification strategy borrowed from the social networks literature (see Bramoullé et al., 2009) and use the fundamental (exogenous) characteristics of neighbors' neighbors to instrument for the neighbors' political instability. Notwithstanding, our results indicate that the neighbors' political instability is an exogenous regressor, so that the OLS estimates are more efficient than their IV-counterparts.

The remainder of the paper is organized as follows: Section II reviews the concept of political instability, its definition, measures, and determinants. Section III evaluates the impact of the neighbors' political instability on a given country's political instability, discusses the results and several robustness checks, and offers a brief speculation on the potential mediating mechanisms behind the diffusion of political instability across geographical neighbors. Section IV concludes.

II. THE CONCEPT OF POLITICAL INSTABILITY

Political instability is a broad concept that can refer to the likelihood of riots, revolutions and other forms of violence as well as to the probability of major changes in the government such as those caused by re-elections (according to the definition by the World Bank). When political instability is used to describe the political elections and changes in the government, it is also referred to as political turnover or political uncertainty.

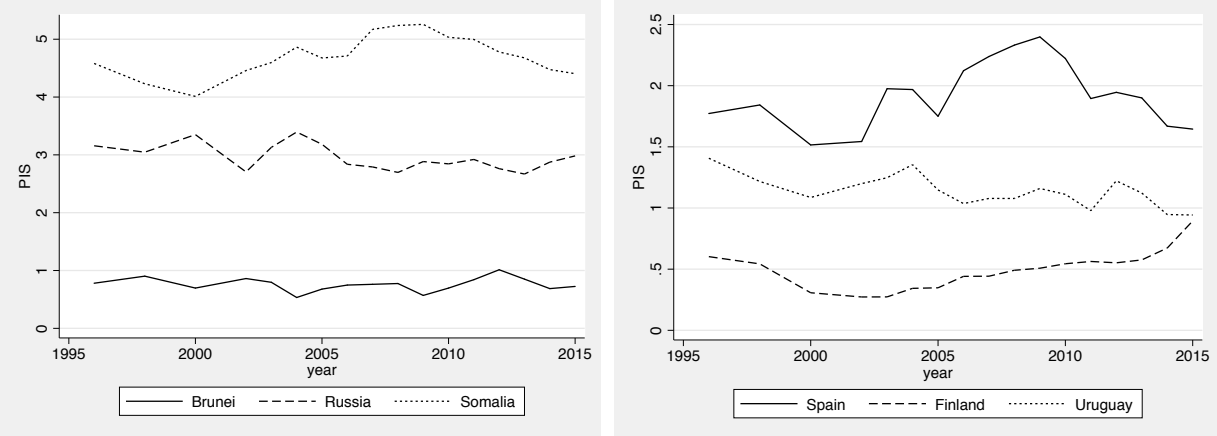
Given its abstract nature, political instability is not easy to measure. The literature has considered several approaches. One approach is to use the standardized surveys that evaluate public opinion regarding the extent of political instability. An example of the corresponding measure of political instability is the Political Stability and Absence of Violence/Terrorism index by the World Bank (World Bank Governance Indicators) which measures perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism. Another approach is to count the number of riots, revolutions and other forms of

violence or the number of changes in the government over a certain time interval and measure political instability as the probability of occurrence of such events (see Aisen and Veiga, 2008). Alternatively, an estimate can be computed as a common component in a large number of variables associated with political instability (see Jong-A-Pin, 2009).

The consequences of political instability spread far beyond the inconveniences of social unrest and political uncertainty. Several studies have shown that political instability and polarization are among the main causes of public debt accumulation (Persson and Svensson, 1989; Alesina and Tabellini, 1990), high distortionary taxes and government overspending (Battaglini and Coate, 2008; Yared, 2010). Cukierman et al. (1992) and Aisen and Veiga (2008) find that greater political instability leads to higher seigniorage. The inefficiencies in government policies associated with political instability lead to lower levels of output and investment as compared with economies where political frictions are absent or insignificant (Alesina and Perotti, 1996; Azzimonti, 2011). Besides, political instability amplifies economic fluctuations (Alt and Lassen, 2006; Dutt and Mitra, 2008; Azzimonti and Talbert, 2014), impairs financial development (Roe and Siegel, 2011), and is associated with higher income inequality (McCarty, Poole, and Rosenthal, 2006; Dutt and Mitra, 2008). Even environmental quality can depend on political instability through the negative impact of political instability on environmental policies (Deacon, 1994; Bohn and Deacon, 2000; Fredriksson and Svensson, 2003; and Fredriksson and Wollscheid, 2014).

The potential determinants of political instability include economic growth and national income (Alesina and Perotti, 1996; Feng, 1997); income inequality (Alesina and Perotti, 1996; Blanco and Grier, 2009); democracy and civil liberties (Fearon and Laitin, 2003; Blanco and Grier; 2009); government spending (Annett, 2001); human capital, urbanization share (Alesina and Perotti, 1996); immigration, openness to trade (Gebremedhin and Mavisakalyan, 2013); natural resources (Dutt and Mitra, 2008); population size and population density (Goldstone, 2002; Buhaug and Gleditsch, 2008; Gebremedhin and Mavisakalyan, 2013). The contribution of these time-varying determinants to political instability is difficult to quantify due to potential reverse causality. For example, lower levels of economic development can cause greater political instability which in turn affects economic development; political instability can lead to inefficient policies and increase income inequality while larger income inequality can lead the poorest groups of the society to protest and increase political instability (McCarty, Poole, and Rosenthal, 2006; Esteban and Ray, 2011).

Figure 1
Political Instability Over Time



Notes: The graph shows political instability (computed from the Political Stability and Absence of Violence/Terrorism index by the World Bank) for countries characterized by the maximum and minimum political instability among the least democratic (the left panel) and the most democratic (the right panel) developed and developing countries, based on the Freedom house democracy score and a sample of 140 countries.

Besides, fundamental fixed (exogenous) factors such as geographical location, climate, and ethnolinguistic fractionalization are considered to determine political institutions quality and influence the long-run levels of political instability (see Acemoglu, Johnson, and Robinson, 2001 and Engerman and Sokoloff, 2002).

Figure 1 presents a time series of political instability (computed from the Political Stability and Absence of Violence/Terrorism index by the World Bank) for countries characterized by the maximum and minimum political instability among the most democratic (characterized by a Freedom house democracy score equal to 10) and the least democratic (characterized by a Freedom House democracy score less than 8) developed and developing countries, based on a sample of 140 countries. Political instability is relatively persistent over time, regardless of the level of economic development and the type of political regime, indicating the importance of the impact of fixed fundamental factors mentioned above. At the same time, there are some fluctuations in political instability over time and the presence of some trends, suggesting that variables other than fixed factors may play a role in shaping political instability.

Potentially important determinants of political instability that share both exogenous and endogenous properties are the characteristics of geographical neighbors. The state borders and the adjoining neighbor countries are relatively fixed over time. At the same time, each country follows its own economic and social development path. Citizens from countries

which share common borders are likely to interact with each other through travel, having common relatives, similar culture and ethnicity. The social proximity, combined with geographical proximity, that characterizes contiguous countries can give rise to the "neighborhood effect," where regional characteristics affect a given country. In the next section, we investigate the importance of the "neighborhood effect" for political instability empirically, using data from a large sample of countries.

III. GEOGRAPHICAL NEIGHBOR IMPACT ON POLITICAL INSTABILITY

In this section, we empirically evaluate the importance of regional instability for political instability in a given country. We define neighbors of a country as the countries that share common borders with a given country. The criterion of having the common borders is important for our purposes. On aggregate, the citizens of a given country are more likely to interact with the citizens of their country's geographical neighbors as compared with the citizens of other countries. That is because social interactions with geographical neighbors are facilitated by lower transport costs and citizens from adjoining states are more likely to have similar culture and similar ethnicity. A number of studies have shown that social interactions play an important role in shaping political opinions (Axelrod, 1997; Baldassarri and Bearman, 2007; and Iversen and Soskice, 2015). Thus, the political climate in a given country's geographical neighbors is likely to affect the political climate in a given country through the so-called "neighborhood effect."[1]

As a starting point, we compare the average political instability indices over 1996–2014 in the group of countries which do not share a terrestrial border with any other country (island countries) and in the group of countries with contiguous neighbors. Table 1 reports the results. We observe that the countries which have contiguous geographical neighbors are much more politically unstable than island countries with no contiguous neighbors. This result holds regardless of the level of economic development. The t-test on difference between means for islands and countries with contiguous neighbors suggest that the

1. The political instability can spread by means other than country borders. Some countries share common language, political principles, and culture and belong to the same regional entity (e.g., Arab countries) even though they do not share a border. In such countries, geographical proximity may be of second order importance compared to cultural proximity for the spread of political instability. In this paper, we concentrate on the impact of geographical neighbors; we partially address the importance of cultural proximity as a mediating factor in Subsection 4.

hypothesis of equality of means is strongly rejected. Although there may be a variety of reasons why island economies are more politically stable, the values reported in Table 1 indicate that there may exist some association between regional instability and a given country's instability, given that countries that have neighbors are more politically unstable.

Table 1
Political Instability in Island Countries and in Countries with Contiguous Neighbors

Country Group	Island Countries	Countries with Contiguous Neighbors	Mean-comparison Test
		mean (st.dev.)	t-stat. (p-value)
All Countries	1.313 (0.709)	2.093 (1.000)	-18.029 (0.000)
Developing Countries	1.424 (0.721)	2.358 (0.954)	-20.330 (0.000)
Developed Countries	0.781 (0.278)	1.317 (0.672)	-7.954 (0.000)

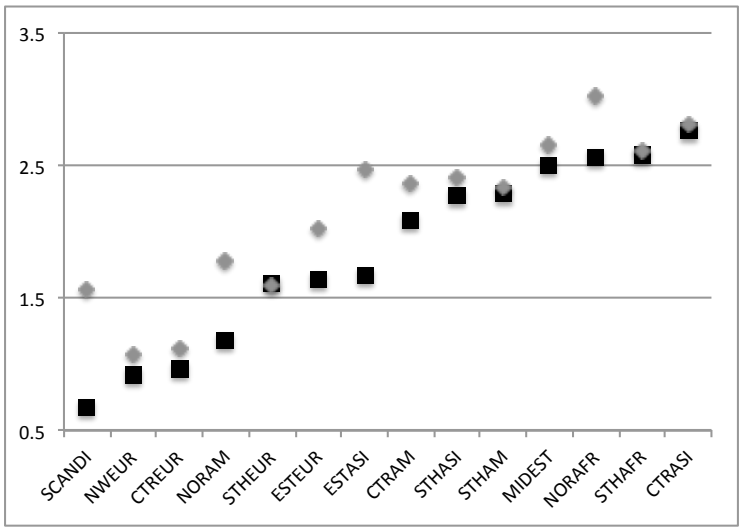
Notes: Each entry is the mean value of political instability for the group of countries specified in the first column and the header, with the standard deviation in parentheses, except for the last column where each entry is the t-statistic associated with the test of hypothesis that mean of political instability in island countries is equal to the mean of political instability in countries with contiguous neighbors for the group of countries specified in the first column, with the p-value in parentheses. The statistics are based on unbalanced panel data over 1996–2014 for 200 countries with contiguous neighbors, out of which 152 developing countries, and 40 island countries, out of which 48 developing countries. The political instability ranges from 0.269 to 5.257, with higher values meaning more political instability.

Figure 2 reports the average country's political instability and the average neighbors' political instability by geographical region. The regions classification is from Fouquin and Hugot (2016) and includes fourteen geographical regions as follows: Scandinavia (SCANDI); Northwestern Europe (NWEUR); Central Europe (CTREUR); North America (NORAM); Southern Europe (STHEUR); Eastern Europe (ESTEUR); Eastern Asia (ESTASI); Central America (CTRAM); Southern Asia (STHASI); South America (STHAM); Middle East (MIDEST); North Africa (NORAFR); Sub-Saharan Africa (STHAFR); and Central Asia (CTRASI). There is high variability in political instability by region with Scandinavia being the most politically stable and Central Asia being the most politically unstable.

The high correlation evident in Figure 2 is another indication of the positive association between regional instability and a given country's instability.

We analyze this association and any causal impact of the regional instability on a given country's political instability using the model specified below.

Figure 2
Political Instability by Region



Notes: The graph shows the average country's political instability (in squares) and the average neighbor countries' political instability (in diamonds) by geographical region.

1. Model and Identification

We aim to quantify the effect of neighbors' political instability on a country's political instability using the cross-section data to account for the role of fundamental factors (long-term relationship) and using panel data to evaluate the contemporaneous relationship. We rely on the social networks approach to study the neighborhood effect (Manski, 1993). In particular, we allow the outcome of interest, a given country's political instability, to be affected by this country's fundamental characteristics (exogenous controls), by the mean outcome of interest (average political instability) of this country's geographical neighbors (endogenous neighborhood effect), and by the fundamental characteristics of the country's geographical neighbors (exogenous neighborhood effect).

We evaluate the long-term relationship using the following model:

$$PIS_i = \beta_0 + \beta_1 NPIS_i + \gamma \boldsymbol{X}_i + \eta \boldsymbol{NX}_i + \varepsilon_i, \quad (1)$$

Where PIS_i denotes country i's measure of political instability, $NPIS_i$ denotes the average neighbors' political instability of country i, $\boldsymbol{X}_i$ is a set of country-specific fundamental characteristics, $\boldsymbol{NX}_i$ is a set of the averages of neighbors' fundamental characteristics, and ε_i is the error term.

The fundamental characteristics we include are as follows: latitude, ethnolinguistic fractionalization, the logarithm of population size, and population density. The latitude, being a proxy for climate and geographical location, determines the early ages specialization chosen in a given country, the institutional organization, and even the development path (Acemoglu et al., 2001; Engerman and Sokoloff, 2002). Ethnolinguistic fractionalization is a proxy for diversity of the country's inhabitants and a robust determinant of political institutions quality in general and political instability in particular (Easterly and Levine, 1997; Acemoglu et al., 2001). Although not strictly exogenous to political instability (for example, political unrest can cause emigration), population is an important determinant of political instability and can be considered exogenous in the long term.[2] A larger population may present opposition groups with a wider pool of recruits to mobilize against the government (Goldstone, 2002). Larger population density is a potential source of conflict because of its implication on demand for resources (Gebremedhin and Mavisakalyan, 2013).

The characteristics of neighbors can influence a given country's political instability indirectly, through their impact on the neighbors' political instability, and directly. In particular, the geographical characteristics of a country's neighbors, captured by their latitude, proxy their long term development path and reflect the location-determined neighborhood impact on a given country's political instability. Buhaug and Gleditsch (2008), Kuran (1998), and Lake and Rothchild (1998) argue that ethnic groups can mobilize when they observe ethnic conflicts elsewhere. Higher ethnolinguistic fractionalization of geographical neighbors can increase the probability of such ethnic groups mobilization in a given country. The neighbors' population is positively correlated with the number of potential linkages to individuals in other states (Buhaug and Gleditsch, 2008) and can therefore influence the political instability of a given country.

The political instability measure used in the main regressions is from the World Bank Governance Indicators. We use the difference between the maximum value over the entire sample and country-specific individual observations of the Political Stability and Absence of Violence/Terrorism index to transform the political stability index into the political instability estimate.

2. Model (1) implicitly accounts for bilateral migration from/to neighbor countries given that both a country's and its neighbors' population sizes are included as controls. The migration flows are proportional to distance between the countries (see Mayda, 2005; Kim and Cohen, 2010), therefore controlling for a given country's and its neighbors' population could be sufficient as a first approximation. We discuss the impact of total international migration in Subsection 4.

Table 2
Descriptive Statistics and Basic Correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	All Countries					Developing Countries				
VARIABLES	N	mean	sd	min	max	N	mean	sd	min	max
Time-varying factors										
PIS	2,372	2.186	0.958	0.269	5.257	1,798	2.450	0.886	0.533	5.257
AREA W. NEIGH PIS	2,372	2.364	0.682	0.347	4.148	1,798	2.587	0.531	1.205	4.148
NEIGHBOR PIS	2,372	2.347	0.681	0.346	4.062	1,798	2.577	0.526	1.206	4.062
POPULATION	2,372	16.20	1.528	12.27	21.04	1,798	16.22	1.571	12.27	21.04
POP DENSITY	2,372	1.336	0.155	1.028	2.365	1,798	1.322	0.163	1.028	2.365
NEIGHBOR POP	2,372	17.09	1.132	15.10	21.03	1,798	17.11	1.186	15.10	21.03
NEIGH POP DENS	2,372	1.297	0.084	1.122	1.507	1,798	1.281	0.073	1.122	1.507
NEIGH NEIGH POP DENS	2,372	1.337	0.107	1.130	1.750	1,798	1.318	0.104	1.154	1.750
Real GDP pc	2,307	8.277	1.552	4.811	11.63	1,733	7.768	1.331	4.811	11.19
Secondary education	351	2.609	1.616	0.098	6.899	258	2.024	1.395	0.098	6.893
Civil liberties	2,230	3.678	1.799	1	7	1,690	4.266	1.523	1	7
Democracy	2,230	5.958	3.168	0	10	1,690	4.994	2.877	0	10
Natural rent share	2,311	9.854	13.14	3.12e-04	89.17	1,737	12.57	14.03	3.10e-04	89.17
Urban pop share	2,372	55.23	22.56	7.412	100	1,798	50.60	23.03	7.412	100
Gross migr to neigh-s	558	0.043	0.059	5.29e-05	0.379	424	0.033	0.044	5.29e-05	0.330
Immig. to neigh-s	558	0.021	0.032	0	0.226	424	0.017	0.026	0	0.188
Trade with neigh-s	2,137	1.067	1.782	4.73e-07	22.33	1,602	1.050	2.001	4.73e-07	22.33
Net migration share	419	0.007	0.064	-0.208	0.714	317	0.007	0.072	-0.208	0.714
Non-timevarying factors										
PIS_2	126	0.231	0.218	0	0.750	93	0.285	0.222	0	0.750
NEIGHBOR PIS_2	139	0.252	0.168	0	0.750	106	0.296	0.166	0	0.750
ETHNOLINGV FRAC	140	0.481	0.250	0.002	0.930	106	0.535	0.241	0.002	0.930
LATITUDE	140	0.264	0.171	0	0.600	106	0.193	0.128	0	0.470
NEIGH ETHNO FRAC	140	0.480	0.206	0.039	0.832	106	0.547	0.184	0.039	0.832
NEIGH NEIGH ETHN FRAC	140	0.493	0.165	0.103	0.858	106	0.551	0.139	0.199	0.858
NEIGH LATITUDE	140	0.266	0.158	0.015	0.600	106	0.199	0.113	0.015	0.475
GENETIC DIST NEIGH	103	0.026	0.039	0	0.179	75	0.028	0.041	0	0.179
LINGVIST DIST NEIGH	95	0.766	0.301	0	1	71	0.732	0.322	0	1

Basic Correlations (All Countries)

	PIS	Neigh. PIS	PIS_2	Neigh. PIS_2	Ethno. frac.	Lati-tude	Pop.	Pop. dens.	Neigh. ethno. frac.	Neigh. lati-tude
NEIGHBOR PIS	0.597	1.000								
PIS_2	0.470	0.435	1.000							
NEIGHBOR PIS_2	0.425	0.656	0.374	1.000						
ETHNOLINGV FRAC	0.339	0.312	0.205	0.288	1.000					
LATITUDE	-0.432	-0.428	-0.348	-0.360	-0.538	1.000				
POPULATION	0.371	0.072	0.121	0.012	-0.083	-0.046	1.000			
POP DENSITY	-0.125	-0.166	-0.062	-0.221	-0.265	0.057	-0.036	1.000		
NEIGH ETHNO FRAC	0.418	0.475	0.328	0.355	0.495	-0.742	0.007	-0.235	1.000	
NEIGH LATITUDE	-0.425	-0.439	-0.367	-0.366	-0.522	0.958	-0.057	0.085	-0.790	1.000
NEIGH POPULATION	0.044	0.180	-0.082	0.100	-0.078	0.153	0.101	-0.030	-0.283	0.172
NEIGH POP DENS	-0.087	-0.282	-0.132	-0.168	-0.264	0.136	0.065	0.566	-0.369	0.196

Notes: The top and medium panels report summary statistics for time-varying factors, using the annual data over 1996–2014 and time-invariant factors, respectively, with Columns (1)-(5) and (6)-(10) reporting the statistics for the full sample and the sample of developing countries, respectively. The main variables of interest are in capital letters. The bottom panel reports correlations among the main variables of interest. Data sources: all the data is from the World Bank or Quality of Government Dataset by Teorell et al. (2016), except for PIS_2 and NEIGHBOR PIS_2 variables which are calculated from the data by Goemans et al., (2009) and ETHNOLINGVISTIC FRAC which is from Alesina et al., (2003). Population, neighbor population, and real GDP pc are in logarithms.

The average neighbors' political instability is computed as a simple average over all the neighbors.[3] The data on the remaining variables is from the World Bank, except for ethnolinguistic fractionalization which is taken from Alesina et al., (2003). The descriptive statistics are reported in Table 2. For specification (1), we employ the averages of the variables which are not fixed over time using the time span 1996–2014.

The average neighbors' political instability, the main regressor of interest, is an endogenous variable, because a geographical neighbor's political instability and a given country's instability can influence each other and can be affected by common unobservable factors, such as regional economic shocks.

We use the fundamental characteristics of neighbors' neighbors to instrument for the neighbors' political instability. These instruments are inspired by the identification strategy used to study the peer effects in social networks and introduced by Bramoullé et al. (2009). A social network represents a set of nodes and links that describe the relationships among the nodes. A node may represent an individual and the nodes to which a given node is connected may represent this individual's friends. An individual may be influenced by his peers and may have a significant impact on his peers at the same time. This mutual causality complicates the evaluation of the peers' (friends') impact on a given individual. The idea behind the identification strategy proposed by Bramoullé et al. (2009) is to use the exogenous characteristics of the individual's friends' friends to instrument the variables that reflect the friends' impact on an individual. The instrument is valid if the friends' friends do not have direct links with a given individual, that is, are not his friends.

Model (1) allows the exclusion restrictions to be directly derived, as follows. A given country's political instability depends on its neighbors' political instability and its own and its neighbors' exogenous characteristics. A given country's neighbors' political instability depends on these neighbors' neighbors' political instability and these neighbors' own and their neighbors' exogenous characteristics. Thus, the neighbors' neighbors' exogenous characteristics (latitude, ethnolinguistic fractionalization, and population size and density) can serve as instruments for the neighbors' political instability, assuming they do not affect a given country's political instability through channels other than this country's neighbors'

3. We use a weighted average neighbors' political instability in a robustness check described in Subsection 3.

political instability. For these instruments to be valid, in their computations we exclude the neighbors' neighbors which are also a given country's neighbors.[4]

We use the average neighbors' neighbors' population density and ethnolinguistic fractionalization of the most politically unstable neighbors' neighbor as the instruments in the cross-section specification.[5]

Moreover, the social and economic conditions in a given country and those in its neighbors can be affected by unobservable common factors not accounted by the model. To account for the regional factors, we include dummies for regions in specification (1).

Finally, one may argue that there are many other determinants which can affect political instability and are not accounted for in model (1). The main objective of this study is to evaluate the neighborhood effect on political instability. If the instruments used for the main regressor of interest are valid and influence the dependent variable only through this regressor, the coefficient on the average neighbors' political instability should be unbiased. In the robustness checks section, we include a range of additional controls and discuss their relevance for the results.

The impact of the neighbors' political instability on a given country's instability can differ in the short and in the long run. In particular, political instability may be beneficial if it changes an inefficient status quo. We may expect an increase in the political instability of a given country following higher instability in adjoining neighbors in the short term as countries adjust to the new political order and, depending on the process that led to political instability, positive or negative effects in the longer-term.

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4. An example of how the neighbors' and the neighbors' neighbors' characteristics are computed is as follows. Consider Austria. Its border countries are Czech Republic, Germany, Hungary, Italy, Liechtenstein, Slovakia, Slovenia, and Switzerland. The neighbors' measures are computed as averages over all these countries. The neighbors of Austria's neighbor Slovakia are the following: Czech Republic, Austria, Hungary, Ukraine and Poland. In the computation of neighbors' neighbors' measures for Austria, Czech Republic and Hungary are excluded because they are contiguous with Austria and Austria is excluded because this is the country for which the measures are computed. Another neighbor of Austria, Switzerland, is surrounded by Austria, Liechtenstein, France, Italy and Germany. Only France is included in the computation of neighbors' neighbors' characteristics for Austria, because the remaining countries are not only neighbors of Switzerland, but also neighbors of Austria. Same selection procedure applies to other neighbors of Austria's neighbors. Thus, the neighbors' neighbors' characteristics are computed over all the geographical neighbors of geographical neighbors of the country of interest, excluding the country of interest and excluding the neighbors' neighbors which are also neighbors of the country of interest.

5. The average neighbors' neighbors' ethnolinguistic fractionalization appears to be very weak instrument. For the same reason, we use the population density of the most politically unstable neighbors' neighbor as the instrument in the sample of developing countries.

We evaluate the contemporaneous (short-term) relationship between the neighbors' and a given country's political instability using the panel data to estimate the following model:

$$PIS_{i,t} = \beta_0 + \beta_1 NPIS_{i,t} + \gamma \boldsymbol{X}_{i,t} + \eta \boldsymbol{NX}_{i,t} + \alpha_i + \mu_t + \varepsilon_{i,t}, \quad (2)$$

where $PIS_{i,t}$ denotes country i's measure of political instability in year t, $NPIS_{i,t}$ denotes country i's average neighbors' political instability in year t, $\boldsymbol{X}_{i,t}$ is a set of country-specific characteristics in year t, $\boldsymbol{NX}_{i,t}$ is a set of the averages of country's neighbors' characteristics in year t, α_i is a country's fixed effect, μ_t is a year fixed effect, and $\varepsilon_{i,t}$ is the error term. For the panel data, the characteristics included in the model are the logarithm of population size and population density, because these variables vary with time. We discuss the role of additional (endogenous) controls in Subsection 3.

Suitable instruments for the neighbors' political instability for the estimation of model (2) would be time-varying exogenous characteristics of neighbors' neighbors. We use the average neighbors' neighbors' population density in year t as one of the instruments. As the second instrument, in order to achieve sufficient variation in time and preserve exogeneity, we use the predicted values of the neighbors' political instability obtained from regressing it on the fundamental characteristics of neighbors' neighbors (such as ethnolinguistic fractionalization, population size, latitude, and area), using pooled data for all the neighbors of a given neighbor over years 1996–2014. In this way, we capture variation in the neighbors' political instability accounted for by the factors exogenous to a given country's political instability.

We estimate the models for the whole sample of countries and for developing countries separately, because the political instability problems tend to be more severe for the latter countries.[6],[7] The estimation results are presented and discussed below.

2. Results

We evaluate the long-term relation between a country and its neighbors' political instability, by estimating model (1) using OLS and IV approaches. Results reported in Table 3 suggest that the association between a given country and its neighbors' political instability is positive

6. To identify developing countries, we rely on the classification of countries by the United Nations.

7. We do not estimate the model for the sample restricted to developed countries because of the small sample size; many developed countries do not have contiguous neighbors and therefore cannot be included in the estimation.

and significant. After controlling for fundamental factors such as latitude, population size and density, and ethnolinguistic fractionalization, the OLS estimates (Columns (1) and (4) of Table 3) suggest that a unit increase in the average of neighbors' political instability is associated with a 0.37 unit increase in a given country's political instability. To understand the magnitude of this relation, consider a country with the level of political instability equal to the average over the whole sample and assume this country's neighbors' political instability is equal to the 25th percentile of the neighbors' political instability distribution. If its neighbors' political instability increases to the 75th percentile, the considered country's political instability will increase by 14%, other things equal.

Columns (2)-(3) and (5)-(6) of Table 3 report the IV estimation results for model (1). Both instruments for the average neighbors' political instability, the measure of neighbors' neighbors' ethnolinguistic fractionalization and the measure of neighbors' neighbors' population density, have significant coefficients in the first stage regressions. In the second stage, the coefficients of the average neighbors' political instability are positive and significant, suggesting that a unit increase in the average neighbors' political instability leads to around a half unit increase in the political instability of a given country (when the whole sample of countries is considered). The effect is more pronounced for the sample of developing countries. The tests associated with IV estimates are reported in the last three rows of Table 3. The null hypothesis of the weak identification test that the instruments are weak or irrelevant can be rejected for the whole sample, but not for the sample of developing countries.[8] Thus, the results for the developing countries should be interpreted with caution since the instruments for this sample are not very relevant. The Hansen test suggests that the validity of instruments cannot be rejected both for the whole sample and for the sample of developing countries. Finally, the endogeneity test of the null hypothesis that the endogenous regressor is exogenous reports high p-values, implying that we can proceed with the OLS estimates, as these are more efficient than the IV estimates.

Among the fundamental country characteristics, population size is the most robust determinant of political instability. The estimation results suggest that a one percent increase in population leads to a 0.0023 unit increase in political instability. A country's ethnolinguistic fractionalization and its neighbors' population density are other positive and significant determinants of political instability.

8. For estimations reported in Table 3, Stock and Yogo (2005) critical values for this test are 11.59 and 7.25 allowing for 15% and 25% of maximal bias of the IV estimator, respectively.

Table 3

Political Instability and the Neighbor Effect, Cross-Section Estimates

	(1)	(2)	(3)	(4)	(5)	(6)
		All Countries			Developing Countries	
	OLS	IV	IV	OLS	IV	IV
		1st stage	2nd stage		1st stage	2nd stage
NEIGHBOR PIS	0.374***		0.507*	0.363***		0.808**
	(0.114)		(0.291)	(0.140)		(0.399)
NEIGH NEIGH ETHNO FRAC		0.876***			0.853***	
		(0.225)			(0.243)	
NEIGH NEIGH POP DENS		-1.524***			-1.037*	
		(0.470)			(0.551)	
ETHNOLINGV FRAC	0.679**	0.603***	0.612*	0.311	0.633***	0.084
	(0.296)	(0.133)	(0.330)	(0.342)	(0.159)	(0.405)
LATITUDE	-0.100	-0.062	-0.061	-0.787	-0.140	-0.595
	(1.125)	(0.646)	(1.149)	(1.234)	(0.710)	(1.395)
POPULATION	0.235***	0.051***	0.229***	0.260***	0.052**	0.238***
	(0.030)	(0.019)	(0.032)	(0.033)	(0.022)	(0.038)
POPULATION DENSITY	-0.139	-0.121	-0.142	-0.160	-0.169	-0.125
	(0.409)	(0.280)	(0.390)	(0.439)	(0.261)	(0.382)
NEIGHBOR POP DENS	2.875***	0.537	2.838***	2.513*	1.879**	1.636
	(1.064)	(0.767)	(1.027)	(1.425)	(0.882)	(1.488)
NEIGHBOR ETHNO FRAC	1.294**	2.109***	1.003	1.479**	1.830***	0.670
	(0.649)	(0.365)	(0.832)	(0.746)	(0.351)	(0.897)
NEIGHBOR LATITUDE	0.995	0.102	0.906	0.795	0.644	0.380
	(1.503)	(0.887)	(1.535)	(1.660)	(0.942)	(1.869)
NEIGHBOR POPULATION	0.106	0.273***	0.072	0.213***	0.233***	0.106
	(0.071)	(0.037)	(0.092)	(0.080)	(0.040)	(0.103)
CTRAM	0.174	0.106	0.112	0.663**	0.585***	0.397
	(0.398)	(0.251)	(0.420)	(0.288)	(0.215)	(0.328)
CTRASI	0.303	-0.077	0.266	0.766*	0.454***	0.525
	(0.393)	(0.215)	(0.405)	(0.404)	(0.162)	(0.475)
CTREUR	-0.652***	-0.439**	-0.594**			
	(0.236)	(0.176)	(0.253)			
ESTASI	-0.466	0.233	-0.536	-0.150	0.650***	-0.419
	(0.409)	(0.243)	(0.430)	(0.384)	(0.181)	(0.422)
ESTEUR	-0.235	-0.070	-0.246			
	(0.283)	(0.164)	(0.278)			
MIDEST	0.260	0.425**	0.164	0.852**	0.870***	0.460
	(0.331)	(0.191)	(0.363)	(0.376)	(0.212)	(0.428)
NORAFR	0.321	0.098	0.221	0.794*	0.846***	0.258
	(0.440)	(0.302)	(0.478)	(0.461)	(0.268)	(0.647)
NORAM	-1.474***	-1.717***	-1.313**			
	(0.479)	(0.432)	(0.556)			
NWEUR	-1.005***	-0.670***	-0.899***			
	(0.259)	(0.150)	(0.322)			
SCANDI	-0.518	-0.092	-0.520			
	(0.362)	(0.292)	(0.365)			
STHAFR	0.202	-0.770***	0.217	0.638*	-0.043	0.514
	(0.417)	(0.275)	(0.413)	(0.343)	(0.191)	(0.350)
STHAM	0.351	-0.758**	0.368	0.658**	0.041	0.524
	(0.455)	(0.299)	(0.451)	(0.289)	(0.240)	(0.326)
STHASI	-0.216	-0.509*	-0.192			
	(0.460)	(0.266)	(0.455)			
Constant	-9.059***	-3.070*	-8.455***	-10.92***	-5.263***	-8.002**
	(1.989)	(1.614)	(2.088)	(2.590)	(1.721)	(3.111)
Observations	140	140	140	106	106	106
R-squared	0.635	0.727	0.632	0.490	0.489	0.449
Weak instr test stat			11.62			6.950
Hansen test p-value			0.361			0.264
Endogeneity test p-value			0.677			0.338

Notes: Dependent variable: political instability. Estimates based on the cross-sectional data with time-varying factors averaged over 1996–2014. Columns (1) and (4) present OLS results for the whole sample and for developing countries, respectively. Columns (2) and (4) present the first stage and Columns (5) and (6) present the second stage IV results for the whole sample and for developing countries, respectively. Robust standard errors in parentheses. ***, ** and * - denote significance at 1%, 5% and 10% significance level, respectively.

The coefficients on the regional dummies indicate that countries located in North America and Central and Northwestern Europe are characterized by significantly lower political instability than Southern Europe, the reference region, while for the other regions, there is no clear pattern of difference with respect to the reference region.

Overall, the results reported in Table 3 suggest that higher political instability in a country's neighbors increases its long-term political instability.

Next, we analyze the relationship between our variables of interest by estimating model (2) using panel data between 1996–2014. Table 4 reports the OLS and IV estimation results controlling for year and country fixed effect. Columns (1) and (4) report the OLS results, for the whole sample and developing countries sample, respectively. The coefficient of the average neighbors' political instability remains positive and significant. The estimates suggest that a unit increase in the average neighbors' political instability in year *t* is associated with around a 0.23 unit increase in a given country's political instability in the same year *t*. In particular, if an average country's neighbors' political instability in year *t* changes from the 25th percentile to the 75th percentile of the neighbors' political instability distribution, this country's political instability will increase by around 9% in the same year. There is no significant difference between the values of this coefficient for the whole sample and the sample restricted to developing countries. The coefficient on population size is insignificant, suggesting that its impact on political instability in the short term is not as important as in the long run. Population density has insignificant coefficients, too.

Columns (2)-(3) and (5)-(6) of Table 4 report the results of the first and second stage IV with fixed effect estimation of model (2). The coefficient on the average neighbors' political instability is positive and significant, but larger in value than the OLS counterpart. In particular, according to the IV estimates, a unit increase in the average neighbors' political instability leads to a 0.7-0.9 unit increase in a given country's political instability. This may be due to the fact that the IV estimates capture only a local effect of the regressor, which is identified by the instruments used, or because the OLS estimates are biased downwards. The tests of the relevance and validity of the instruments are reported in the last three rows of Table 4. The weak instruments test results imply that we can reject the hypothesis that the instruments are weak and the Hansen test p-values indicate that the instruments can be considered valid. The endogeneity test suggests that the average neighbor's political instability is an exogenous variable, therefore OLS estimates are preferred to their IV counterparts.

Table 4
Political Instability and the Neighbor Effect, Panel Estimates

	(1)	(2)	(3)	(4)	(5)	(6)
	All Countries			Developing Countries		
	FE	IV-FE 1st stage	IV-FE 2nd stage	FE	IV-FE 1st stage	IV-FE 2nd stage
NEIGHBOR PIS	0.230***		0.697**	0.242***		0.944*
	(0.070)		(0.348)	(0.083)		(0.515)
POPULATION	0.847	0.624	0.755	0.974	0.820	0.633
	(1.367)	(0.829)	(1.294)	(1.545)	(0.938)	(1.574)
NEIGHBOR POP	-0.097	-0.207	0.003	0.119	-0.099	0.228
	(0.257)	(0.159)	(0.254)	(0.149)	(0.182)	(0.205)
POPULATION DENS	-14.05	-5.913	-13.91	-15.02	-7.523	-13.33
	(12.89)	(8.440)	(12.12)	(13.97)	(9.246)	(13.76)
NEIGHBOR POP DENS	5.931*	1.712	4.923	2.031	1.065	1.355
	(3.089)	(1.814)	(3.738)	(6.997)	(4.753)	(7.545)
NEIGH NEIGH POP DENS		2.078***			0.336	
		(0.653)			(2.547)	
NEIGH NEIGH PRED PIS		0.186***			0.198***	
		(0.055)			(0.062)	
Constant	0.662			1.237		
	(3.437)			(3.673)		
Observations	2,372	2,372	2,372	1,798	1,798	1,798
R-squared	0.034	0.061	-0.054	0.032	0.053	-0.153
Number of countries	140	140	140	106	106	106
Weak instr test stat			23.67			16.43
Hansen test p-value			0.739			0.954
Endogeneity test p-value			0.229			0.251

Notes: Dependent variable: political instability. Estimates based on annual data for 1996–2014. Year dummies included in all regressions. Columns (1) and (3) present OLS controlling for country fixed effect results for the whole sample and for developing countries, respectively. Columns (2) and (4) present the first stage and Columns (5) and (6) present the second stage IV controlling for country fixed effect results for the whole sample and for developing countries, respectively. Robust standard errors in parentheses; errors clustered at country level. ***, ** and * - denote significance at 1%, 5% and 10% significance level, respectively.

The estimation results so far suggest that political instability of geographical neighbors positively influences a country's political instability. Comparison of the results obtained from the estimations of Model (1) and Model (2) indicate that there is no significant difference between the impact of neighbors' political instability on a given country's instability in the long or in the short term.

Next, we provide three robustness checks for these results: first, using the weights based on the area of neighbors to compute the weighted average of neighbors' political instability; second, using a measure of political turnover, as explained below; and third, including a number of additional controls considered in the literature on political instability. After that, we briefly speculate on potential channels that might mediate the diffusion of the neighbors' political instability into a given country.

3. Robustness Checks

A large geographical neighbor can have more influence on a given country compared with smaller neighbors with the same characteristics. To explore this possibility and as a robustness check, we re-estimate models (1) and (2) using the weighted average of neighbors' political instability with the weights being each neighbor's area relative to the total neighbors' area. Table 5 reports the results of the OLS estimates of model (1) in Columns (1) and (5), the IV estimates of model (1) in Columns (2) and (6), the fixed effect estimates of model (2) in Columns (3) and (7), and the IV-fixed effect estimates of model (2) in Columns (4) and (8), for the whole sample and for developing countries, respectively.

The results are very similar in magnitude to the results obtained with the unweighted average neighbors' political instability. This is not surprising as the correlation between the weighted and unweighted averages of neighbors' political instability is above 0.90.

Second, we use an alternative measure of political instability to check whether our results are not driven by the particular measure used in the main regressions. For this purpose, we use the Archidos dataset (Goemans et al., 2009) which contains information about effective political leaders and their entry and exit for a broad set of countries and a long time span and which has been used by a number of studies to compute various measures of political turnover (see, for example, Besley et al., 2011; Treisman, 2015; Rotunno, 2016). We compute the frequency of irregular changes of the effective political leader of a country (defined as the ratio of the number of irregular changes to the total number of (regular and irregular) changes of effective political leader and use it as a proxy for political turnover associated with political instability.

The changes of political leader are defined as irregular when the leader was removed in contravention of explicit rules and established conventions (Goemans et al., 2009). The changes of official leader are considered regular if they were done according to the prevailing rules, provisions, conventions and norms of the country or because of natural death or retirement due to poor health. Given these definitions, we expect more politically stable countries to have lower levels of the political turnover measure.

The constructed measure of political turnover is available only in cross section and is zero for some countries. The IV approach to estimate model (1) is used to mitigate the problem of measurement error in this case.

Table 5
Robustness Check: The Neighbor Effect with Political Instability Weighted by Area

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All Countries				Developing Countries			
	OLS	IV	FE	IV-FE	OLS	IV	FE	IV-FE
AREA W NEIGH PIS	0.339***	0.472*	0.213***	0.727**	0.332**	0.775**	0.225***	0.908*
	(0.111)	(0.277)	(0.068)	(0.370)	(0.137)	(0.387)	(0.080)	(0.492)
POPULATION	0.236***	0.230***	0.890	0.670	0.261***	0.239***	1.111	0.646
	(0.030)	(0.032)	(1.388)	(1.329)	(0.034)	(0.037)	(1.612)	(1.602)
POP DENSITY	-0.121	-0.118	-14.47	-13.49	-0.143	-0.082	-16.34	-13.59
	(0.419)	(0.399)	(13.04)	(12.31)	(0.448)	(0.394)	(14.49)	(13.95)
NEIGH POP DENS	2.920***	2.896***	6.438**	4.679	2.569*	1.690	3.382	1.263
	(1.091)	(1.064)	(3.218)	(3.799)	(1.448)	(1.532)	(7.109)	(7.844)
NEIGHBOR POP	0.116	0.082	-0.085	0.013	0.223***	0.118	0.161	0.234
	(0.072)	(0.091)	(0.243)	(0.258)	(0.080)	(0.100)	(0.166)	(0.209)
ETHNOLINGV FRAC	0.694**	0.626*			0.325	0.096		
	(0.296)	(0.328)			(0.342)	(0.405)		
LATITUDE	-0.086	-0.038			-0.784	-0.572		
	(1.124)	(1.149)			(1.232)	(1.397)		
NEIGH ETHNO FRAC	1.350**	1.052			1.522**	0.701		
	(0.648)	(0.820)			(0.745)	(0.895)		
NEIGH LATITUDE	0.998	0.901			0.824	0.411		
	(1.507)	(1.540)			(1.659)	(1.865)		
REGION DUMMIES	YES	YES			YES	YES		
YEAR DUMMIES			YES	YES			YES	YES
Observations	140	140	2,372	2,372	106	106	1,798	1,798
R-squared	0.631	0.628	0.033	-0.075	0.487	0.445	0.033	-0.148
Number of countries			140	140			106	106
Weak instr test stat		12.70		24.62		7.336		17.19
Hansen test p-value		0.353		0.740		0.261		0.947
Endogeneity test p-value		0.650		0.224		0.324		0.249

Notes: Dependent variable: area-weighted political instability. Columns (1) and (5) present the OLS estimates and Columns (2) and (6) present the corresponding IV estimates, based on the cross-section data with time-varying factors averaged over 1996–2014, for the whole sample and for developing countries, respectively. Columns (3) and (7) present the OLS with country fixed effects estimates and Columns (4) and (8) present the corresponding IV with country fixed effects estimates, based on annual panel data over 1996–2014, for the whole sample and for developing countries, respectively. Robust standard errors in parentheses; errors clustered at country level for panel estimates. ***, ** and * - denote significance at 1%, 5% and 10% significance level, respectively.

The correlation between the political instability measure considered in the main regressions and the political turnover measure considered for robustness is 0.47. Given that the underlying data sources and the nature of this alternative measure of political instability are quite different from the measure used in the main regressions, it is a good candidate for a robustness check.

Table 6 reports the results of the estimations with the constructed measure of political turnover as the dependent variable and the average of neighbors' constructed measure of political turnover as the main explanatory variable. Columns (1) and (4) present the OLS estimation results, for the whole sample and for developing countries, respectively. The

neighbors' political turnover has a positive and significant coefficient in all the regressions. The partial correlation between a country's and its neighbors' political turnover is around 0.27 (both in the whole sample and in the sample restricted to developing countries).

Table 6
Robustness Check: Political Turnover and the Neighbor Effect

	(1)	(2)	(3)	(4)	(5)	(6)
		All Countries			Developing Countries	
	OLS	IV 1st stage	IV 2nd stage	OLS	IV 1st stage	IV 2st stage
NEIGHBOR PIS_2	0.268*		0.565**	0.268(*)		0.559**
	(0.155)		(0.233)	(0.166)		(0.258)
NEIGH NEIGH ETHNO FRAC		0.483***			0.547***	
		(0.072)			(0.081)	
NEIGH NEIGH POP DENS		-0.304			-0.215	
		(0.215)			(0.286)	
POPULATION	0.021*	0.002	0.022*	0.022	-0.002	0.023
	(0.012)	(0.008)	(0.013)	(0.015)	(0.010)	(0.016)
POP DENSITY	0.079	-0.200**	0.139	0.060	-0.173*	0.115
	(0.144)	(0.090)	(0.141)	(0.153)	(0.104)	(0.149)
LATITUDE	-0.133	-0.266	-0.061	-0.201	-0.228	-0.097
	(0.379)	(0.285)	(0.402)	(0.447)	(0.338)	(0.491)
ETHNOLINGVISTIC FRAC	-0.052	0.100*	-0.072	-0.028	0.153**	-0.052
	(0.097)	(0.056)	(0.103)	(0.127)	(0.076)	(0.133)
NEIGH POPULATION	0.003	0.034**	-0.009	-0.007	0.025	-0.019
	(0.025)	(0.016)	(0.027)	(0.031)	(0.020)	(0.034)
NEIGH POP DENS	-0.142	0.505**	-0.301	0.169	0.664**	-0.028
	(0.437)	(0.244)	(0.442)	(0.528)	(0.296)	(0.522)
NEIGH LATITUDE	-0.509	0.191	-0.503	-0.434	0.368	-0.486
	(0.505)	(0.320)	(0.540)	(0.582)	(0.376)	(0.622)
NEIGH ETHNO FRAC	-0.200	0.303**	-0.251	-0.347	0.391***	-0.411
	(0.198)	(0.125)	(0.211)	(0.247)	(0.146)	(0.265)
Constant	0.129	-0.700	0.408	-0.186	-1.121*	0.173
	(0.983)	(0.547)	(0.989)	(1.124)	(0.633)	(1.127)
Observations	125	125	125	93	93	93
R-squared	0.295	0.557	0.264	0.157	0.447	0.122
Weak instr test stat			19.00			15.59
Hansen test p-value			0.344			0.505
Endogeneity test p-value			0.153			0.205

Notes: Dependent variable: political turnover. Estimates based on the cross-sectional data with time-varying factors averaged over 1996–2014. Regional dummies included in all regressions. Columns (1) and (3) present OLS results for the whole sample and for developing countries, respectively. Columns (2) and (4) present the first stage and Columns (3) and (6) present the second stage IV results for the whole sample and for developing countries, respectively. Robust standard errors in parentheses. ***, **, *, and (*) - denote significance at 1%, 5%, 10%, and 11% significance level, respectively.

The IV estimates are reported in Columns (3) and (6) of Table 6. The instruments for the average neighbors' political turnover are the same as those used in the main regressions. The IV-estimated coefficients of the average neighbors' political turnover are positive and significant and imply that one unit increase in the average neighbors' political turnover leads to approximately 0.56 unit increase in a given country's political turnover.

The tests of the relevance and validity of the instruments, reported in the last three rows of Table 6, suggest that the identification is valid. The null hypothesis that the average neighbors' political turnover is exogenous cannot be rejected (the corresponding p-values are reported in the last row of Table 6), so we can focus on the interpretation of the OLS estimates.

Finally, we estimate models (1) and (2) with additional controls, as suggested by related studies (and briefly reviewed in Section II). In particular, we add a proxy for human capital (based on Barro and Lee, 2013 measure of the average years of secondary education) and the lagged real GDP per capita as proxies for the level of economic development.[9],[10] We include the measure of democracy from Freedom House and the measure of civil liberties as proxies for the level of political freedom and, potentially, the level of development. We also include the output share of rent from natural resources, to control for the possibility of the "natural resource curse" where the natural resource wealth creates stagnation and conflict, rather than economic growth and development (see Dutt and Mitra, 2008). Finally, we control for urban population share, to account for the possibility that a more urbanized society can be readily mobilized against the government (see Gebremedhin and Mavisakalyan, 2013). The data on real GDP per capita, natural resources rent, and urban population share is taken from the World Bank; the remaining additional controls are from the Quality of Government Dataset by Teorell et al. (2016). For panel data estimates, we also consider a dynamic version of model (2) with the lag of the dependent variable included as a regressor. The results of the cross-section and panel data estimations are presented in Table 7.

Columns (1) and (6) of Table 7 present OLS estimates, for the whole sample and for the sample of developing countries, respectively, based on the cross-section data with all time-varying data averaged over 1996–2014. Columns (2) and (7) present the corresponding IV estimates.

The panel data OLS controlling for fixed effect estimates are presented in Columns (3) and (8) of Table 7, for the whole sample and the sample of developing countries, respectively; the corresponding IV estimates are reported in in Columns (4) and (9) of Table 7. Finally, Columns (5) and (10) of Table 7 report the IV with fixed effect estimates of model (2) augmented with additional controls but without the lag of the dependent variable included as

9. We do not include the human capital measure in panel estimates due to limited annual data availability.

10. In order to reduce the reverse causality problem, we consider the average real GDP per capita over the two decades preceding the period of analysis, that is, 1975–1995, for the cross-section estimations and the five-year lag of real GDP per capita for panel estimations.

a regressor, to evaluate the role of additional controls in the contemporaneous relationship between the variables of interest, as described in model (2).

Table 7
Robustness Check: Additional Controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	All Countries					Developing Countries				
	OLS	IV	FE	IV-FE	IV-FE	OLS	IV	FE	IV-FE	IV-FE
NEIGHBOR PIS	0.233*	0.531(*)	0.074**	0.395**	0.715*	0.359**	0.896**	0.063*	0.566***	0.949***
	(0.131)	(0.334)	(0.032)	(0.192)	(0.406)	(0.163)	(0.455)	(0.036)	(0.170)	(0.322)
Lag PIS			0.714***	0.676***				0.719***	0.641***	
			(0.031)	(0.043)				(0.033)	(0.051)	
POPULATION	0.154***	0.145***	0.088	-0.020	0.985	0.137***	0.111**	0.690	0.424	1.401
	(0.025)	(0.029)	(0.641)	(0.791)	(1.616)	(0.032)	(0.046)	(0.663)	(0.991)	(1.880)
POP DENSITY	0.282	0.355	-2.134	-1.297	-10.90	0.315	0.471	-7.882	-6.175	-15.62
	(0.351)	(0.339)	(6.035)	(7.629)	(15.06)	(0.378)	(0.387)	(6.402)	(9.845)	(17.96)
NEIGH POPULATION	0.094*	0.025	0.342***	0.376***	0.249	0.114	-0.007	0.437***	0.438***	0.350
	(0.057)	(0.093)	(0.115)	(0.130)	(0.225)	(0.070)	(0.115)	(0.124)	(0.155)	(0.273)
NEIGH POP DENS	1.235	1.803	4.396	0.405	-8.915	1.019	0.858	6.690*	-0.310	-9.671
	(1.120)	(1.130)	(3.545)	(4.690)	(8.394)	(1.453)	(1.354)	(3.967)	(5.325)	(9.155)
Civil Liberties	0.828***	0.808***	0.049**	0.059**	0.101**	0.847***	0.841***	0.061**	0.077***	0.121**
	(0.102)	(0.099)	(0.023)	(0.025)	(0.043)	(0.109)	(0.117)	(0.025)	(0.029)	(0.050)
Democracy	0.342***	0.326***	-0.011	-0.032	-0.060	0.354***	0.345***	-0.002	-0.036	-0.065
	(0.064)	(0.061)	(0.022)	(0.024)	(0.047)	(0.064)	(0.066)	(0.021)	(0.024)	(0.045)
Natural Rent	0.008	0.008	0.003	0.003	0.007**	0.007	0.006	0.003	0.004	0.008**
	(0.007)	(0.007)	(0.002)	(0.002)	(0.003)	(0.007)	(0.008)	(0.002)	(0.002)	(0.003)
Urban Pop	-0.010**	-0.012***	-0.014*	-0.012	0.006	-0.011**	-0.014***	-0.015	-0.011	0.007
	(0.004)	(0.004)	(0.008)	(0.009)	(0.016)	(0.005)	(0.005)	(0.009)	(0.011)	(0.020)
Lag Real GDP pc	0.018	0.094	0.180***	0.150**	-0.005	0.079	0.183	0.222***	0.177*	0.004
	(0.082)	(0.099)	(0.063)	(0.076)	(0.142)	(0.094)	(0.115)	(0.075)	(0.100)	(0.168)
ETHNOLINGV FRAC	0.430*	0.374				0.357	0.185			
	(0.230)	(0.247)				(0.256)	(0.301)			
LATITUDE	0.288	0.635				0.681	1.172			
	(0.939)	(1.023)				(1.014)	(1.294)			
NEIGH ETHNO FRAC	0.188	-0.252				0.178	-0.537			
	(0.503)	(0.641)				(0.536)	(0.775)			
NEIGH LATITUDE	0.189	0.528				-0.307	-0.108			
	(1.234)	(1.290)				(1.438)	(1.753)			
Secondary Education	0.022	0.017				-0.004	-0.021			
	(0.044)	(0.046)				(0.052)	(0.061)			
REGION DUMMY	YES	YES				YES	YES			
YEAR DUMMY			YES	YES	YES			YES	YES	YES
Constant	-9.664***	-10.30***				-10.69***	-9.520***			
	(2.341)	(2.326)				(2.697)	(2.867)			
Observations	106	106	1,353	1,353	1,354	81	81	1,006	1,006	1,007
R-squared	0.836	0.824	0.503	0.449	-0.082	0.745	0.696	0.531	0.401	-0.187
Number of countries			138	138	138			103	103	103
Weak instr test stat		6.482		10.54	11.61		3.782		9.513	11.24
Hansen test p-value		0.687		0.582	0.752		0.419		0.288	0.955
Endog test p-value		0.344		0.124	0.308		0.185		0.014	0.083

Notes: Columns (1) and (6) present OLS estimates, for the whole sample and for the sample of developing countries, respectively, based on the cross-section data with all time-varying data averaged over 1996–2014. Columns (2) and (7) present the corresponding IV estimates. Columns (3) and (8) present OLS controlling for country fixed effect estimates, for the whole sample and the sample of developing countries, respectively, based on annual data for 1996–2014; Columns (4)-(5) and (9)-(10) report the IV estimates controlling for country fixed effects, for the whole sample and the sample of developing countries, respectively. For cross-section estimations, region dummies are included; for panel estimations, year dummies are included. Robust standard errors in parentheses. ***, **, *, and (*) - denote significance at 1%, 5%, 10%, and 12% significance level, respectively.

It is noteworthy that the coefficients for the OLS estimates are much smaller than those obtained in the baseline estimations reported in Tables 3 and 4. However, the IV estimates of the neighbors' political instability impact on a given country's instability do not differ significantly from the estimates obtained without the additional controls included (this can be seen by comparing the coefficients on the neighbors' political instability in Columns (3) and (6) of Tables 3 and 4 with the corresponding coefficients in Columns (2), (7), (5) and (10) of Table 7). The results for the cross-section estimation are less statistically relevant compared to the results obtained for the baseline model (see Column (2) of Table 7), which could potentially be driven by the more restrictive specifications (e.g., less statistical power of the IV in the first stage). Nevertheless, the economic relevance of the main regressor of interest remains largely consistent. We consider this as evidence in favor of the claim that the instruments used for the neighbors' political instability are valid and affect the dependent variable mainly through this regressor.

To summarize, the robustness checks suggest that the "neighborhood effect" on political instability is present, significant, robust to different measures of political instability, and to the inclusion of additional controls.

4. Further Discussion: Potential Mediating Mechanisms

Our findings indicate that higher political instability in contiguous countries leads to higher political instability in a country, other things equal.

In this section, we consider several potential mediating factors behind this relationship. People are probably the most important factor transferring attitudes and social events from one country to another. Does the relationship between a given country's and its neighbors' political instability depend on the population size or bilateral migration flows between this country and its geographical neighbors? We use the bilateral migration flows data from the World Bank to compute the gross migration between a country and its geographical neighbors and the total immigration to a given country from its geographical neighbors (all migration measures are normalized by the country's population). These measures could account for the closeness of social ties between a country and its neighbors and for the potential intensified impact of the neighbors' political instability through immigrants from politically unstable neighbors. We also consider total net migration in a given country including neighbors and non-neighbors.

Closer cultural ties could potentially imply stronger relationship between our variables of interest, other things equal. We use the bilateral genetic and linguistic distance data from Spolaore and Wacziarg (2016) to compute the average genetic and linguistic distance to a country's neighbors as proxies for cultural ties.[11]

Furthermore, the impact of neighbors can be stronger if a country has relatively strong economic ties with its geographical neighbors compared to its non-neighbors (for example, Correa, Jetter, and Agudelo, 2016 propose that intensive trade relationship may facilitate transmission of corruption across the state borders). We consider the share of trade volume with neighbors relative to the total trade volume of a given country to evaluate the importance of international economic relations for the spread of political instability across borders.

The state of democracy is an important (endogenous) determinant of political instability (see, for example, Blanco and Grier, 2009) and can potentially affect the impact of the neighbors' instability on a given country (for example, two non-democratic neighbors can have more political ties among themselves than a democratic and a non-democratic neighbor). We check the impact of democracy level in a country on the "neighborhood effect" using the democracy measure from Freedom house.

In order to evaluate the impact of each of these potential mediating factors on the relationship between a country's and its neighbors' political instability, we estimate model (1) including each of these variables (centered around its mean to facilitate interpretation) and its interaction with the average neighbors' political instability, in turn. We consider cross-section estimates to gauge the role of the potential mediating factors in the long term. The genetic and linguistic distance data is time-invariant. For the remaining variables, we consider the averages over 1996–2014. Given that the IV results suggest that the main regressor of interest is exogenous, we consider OLS estimates as they are more efficient.

Table 8 presents the results for the whole sample. The results for developing countries are similar and not included for the sake of space. The only significant (and positive) interaction is observed when the average neighbors' population size is included as a potential mediating factor. In particular, a one percent increase in the neighbors' population relative to the sample average of neighbors' population leads to 0.00137 unit increase in the impact of the neighbor's political instability on a given country's political instability.

11. The genetic distance data is a summary statistic of very long-term historical and cultural relatedness between populations; the linguistic distance data captures the linguistic similarity of languages between the pair of countries (Spolaore and Wacziarg, 2016).

Table 8
Neighbors' Political Instability and Potential Mediating Factors

Mediating Factors:	(1) Neigh. pop.	(2) Neigh. immigr.	(3) Neigh. gross migr.	(4) Total net migr.	(5) Gen-etic dist.	(6) Ling-vistic dist.	(7) Trade share neigh.	(8) Demo-cracy
NEIGHBOR PIS	0.415***	0.376***	0.363***	0.284**	0.500***	0.479**	0.346***	0.373***
	(0.124)	(0.125)	(0.124)	(0.130)	(0.176)	(0.195)	(0.129)	(0.118)
Mediating Factor	-0.213	-1.201	1.600	-3.344	1.628	0.100	0.151	-0.139
	(0.155)	(6.814)	(3.618)	(4.433)	(5.759)	(1.658)	(0.195)	(0.087)
NEIGH PIS ×Mediat. Factor	0.137**	0.523	-1.084	0.041	-0.045	-0.140	-0.032	0.024
	(0.062)	(3.144)	(1.641)	(2.234)	(2.240)	(0.666)	(0.065)	(0.034)
ETHNOLINGV FRAC	0.696**	0.682**	0.706**	0.710**	0.661*	0.858*	0.670**	0.726**
	(0.319)	(0.332)	(0.334)	(0.325)	(0.376)	(0.451)	(0.311)	(0.308)
LATITUDE	-0.010	-0.100	0.006	-0.142	0.278	0.181	-0.296	0.688
	(1.220)	(1.240)	(1.270)	(1.197)	(1.574)	(1.625)	(1.231)	(1.287)
POPULATION	0.230***	0.235***	0.228***	0.225***	0.239***	0.244***	0.234***	0.243***
	(0.034)	(0.034)	(0.035)	(0.032)	(0.045)	(0.056)	(0.036)	(0.034)
POPULATION DENS	-0.096	-0.142	-0.078	0.072	0.313	0.348	-0.161	-0.122
	(0.442)	(0.457)	(0.456)	(0.496)	(0.723)	(0.799)	(0.459)	(0.422)
NEIGH POP DENS	3.006***	2.886**	2.693**	1.850	2.942*	2.558	2.755**	3.695***
	(1.143)	(1.213)	(1.217)	(1.293)	(1.479)	(1.629)	(1.246)	(1.229)
NEIGH ETHNO FRAC	1.383**	1.308*	1.305*	1.050	1.462	1.576	1.628**	1.079
	(0.689)	(0.733)	(0.730)	(0.673)	(0.945)	(1.090)	(0.762)	(0.714)
NEIGH LATITUDE	0.885	0.999	1.132	-0.256	-0.705	-0.282	1.112	0.856
	(1.627)	(1.673)	(1.695)	(1.712)	(2.124)	(2.240)	(1.640)	(1.640)
NEIGH POPULATION		0.107	0.108	0.112	0.112	0.119	0.050	0.098
		(0.082)	(0.079)	(0.076)	(0.125)	(0.128)	(0.083)	(0.075)
Constant	-7.578***	-9.105***	-8.904***	-7.134***	-10.01***	-9.908***	-7.961***	-10.17***
	(1.834)	(2.227)	(2.188)	(2.339)	(2.763)	(3.182)	(2.280)	(2.251)
Observations	140	140	140	140	103	95	138	140
R-squared	0.641	0.635	0.637	0.657	0.671	0.630	0.649	0.666

Notes: Dependent variable: Political instability. Regional dummies included in all regressions. The table presents OLS estimates with time-varying factors averaged over 1996–2014. The Mediating factor included in the regression reported in a given column is reported in this Column header. In particular, Columns (1) to (8) present the estimation results when (1) Neighbor population; (2) Immigration to a country from its neighbors; (3) Gross migration between a country and its neighbors; (4) Total net migration characterizing the country; (5) Average genetic distance to country's neighbors; (6) Average linguistic distance to country's neighbors; (7) Trade volume with neighbors as a share of total trade volume; (8) Democracy is included as Mediating Factor. Robust standard errors in parentheses. ***, **, and * - denote significance at 1%, 5%, and 10% significance level, respectively.

The remaining potential mediating factors have insignificant coefficients when interacted with the average neighbors' political instability. These conclusions are robust to several variations of the measures used (such as using the minimum genetic or linguistic distance to a country's neighbors or the distance to the most politically unstable neighbor instead of the average distance; using net bilateral migration or emigration to neighbors; or normalizing migration to/from neighbors by the total net migration in a country). While we admit that the insignificance of the results may be due to the relatively small sample size, the evidence reported in Table 8 can be considered as supporting the hypothesis that population is an important mediating factor behind the spread of political instability across the state borders.

Finally, we should acknowledge the fact that conclusions in this paper are drawn based on a sample of available data. The panel is unbalanced and the missing data is likely to be non-random. In particular, more politically unstable countries are likely to have more missing data. Indeed, across countries, the correlation between the number of available data points for a country and its average political instability is -0.1348. We conjecture that our results could underestimate the neighborhood effect on political instability since it might be more important for countries/neighbors with missing data.

IV. CONCLUSION

This study investigated the relationship between a given country's and its neighbors' political instability. We quantified the causal effect of neighbors on a given country using the instruments for the average neighbors' political instability. We found that the average political instability of the contiguous countries has a positive and significant impact on a given country's political instability. This result is robust to the inclusion of controls and holds both in the cross section and in the panel estimation frameworks. The neighbors' population size is a significant mediating factor behind this relationship, with greater population in a given country's geographical neighbors leading to stronger impact of these neighbors' political instability on a given country's political instability.

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