Socio-political instability and the allocation of international aid by donors ☆

Lisa Chauvet *

CERDI, Université d'Auvergne and CNRS, 65, Bd François Mitterrand, 63000 Clermont-Ferrand, France

Abstract

This paper investigates empirically how three types of socio-political instability—elite, violent, and social—influence international aid allocation by donors. The results indicate that aid allocation depends on the type of instability (the effect of violent and elite instability is positive, whereas social instability has a negative influence), characteristics of recipient countries (whether the recipient country is a low-income country or an oil exporter), and the kind of aid received (bilateral or multilateral).
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1. Introduction

Armed conflict has been common in developing countries. Collier and Hoeffler (2000a) report that "of the 27 major armed conflicts listed by the Stockholm International Peace Research Institute for 1999, all but two were internal." Elbadawi and Sambanis (2000) also note that from 1960–1964 to 1990–1994, the percentage of countries that experienced civil war rose from 7% to 28%. Despite its prevalence, socio-political instability has seldom been considered in the literature on aid allocation. Frey and Schneider (1986) introduce the number of strikes and riots in their

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* Tel.: +33-473-177-419; fax: +33-473-177-428.
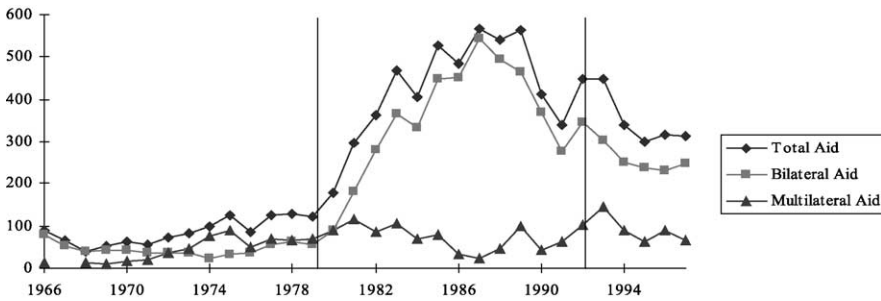*E-mail address:* lisa.chauvet@u-clermont1.fr (L. Chauvet).

Fig. 1. Evolution of ODA (in million constant dollars). El Salvador 1966–1997.

econometric estimates as a measure of recipient countries' merits and conclude that socio-political instability had no effect on aid allocation. Gang and Lehman (1990) similarly concluded that the number of demonstrations and riots has had no effect on USAID allocation to Latin America.[1] The goal of this paper, through econometric analysis, is to identify and quantify the impact of socio-political instability on the allocation of aid.

Donors' attitudes to socio-political instability were influenced by political considerations during the Cold War. Figs. 1 and 2 show the evolution of total, bilateral, and multilateral aid during the Salvadorian and Angolan civil wars, where proxy battles of the Cold War were fought. Fig. 1 shows the dramatic increase in bilateral aid during the civil war in El Salvador (1979–1992), as well as the difference in evolution of bilateral and multilateral aid, the latter remaining almost constant in the 1966–1997 period.[2] Fig. 2, which illustrates the case of the two Angolan civil wars since 1975, shows that multilateral and bilateral aid similarly evolved during the periods of war.[3]

Fig. 3 shows the average intercountry distribution of total aid (as percentage of GDP) and the number of coups d'état, guerillas, and riots for 51 countries during the 1966–1993 period.[4] The sample is divided in five groups of countries in the decreasing order of total aid to GDP received. Fig. 3 shows that the first 10 countries received 50% of total aid to GDP. These countries had 10.7% of coups d'état, 3.9% of guerillas, and 13.65% of riots.

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[1] When they estimate their regressions in first differences, they do find a negative effect of socio-political instability.

[2] Balencie and De La Grange (1999) stress that "Washington [...] pushed for its action to include a 'social' component, with notably assistance to land reform, aiming at population conquest [...] in order to impede the revolution."

[3] In the first war period, from 1975 to 1992, on average, the yearly flow of total aid was US$172 million, whereas it was US$455 million afterwards. It seems that the end of the Cold War, combined with peace efforts, explains this increase. The failure of the democratic process in September 1992 temporarily decreased aid.

[4] The source of the aid variable is OECD-DAC; the source of socio-political instability variables is Banks (1996). The number of riots has been divided by population to take into account the fact that countries with large populations (India, Pakistan) have more riots. The riot variable in Fig. 3 is in terms of per million inhabitants.
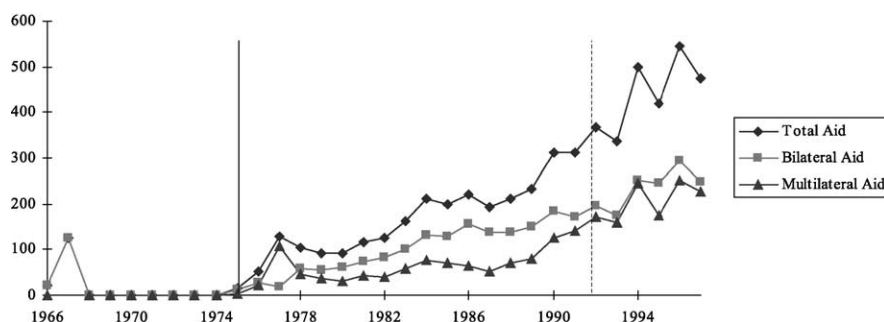
Fig. 2. Evolution of ODA (in million constant dollars). Angola 1966–1997.

These percentages are almost always below those of the four other groups, indicating that on average, more stable countries received more aid. The result is striking for guerilla warfare: across country groups, the smaller the share of aid, the greater the share of guerilla warfare.

In this paper, I consider donors' attitude towards socio-political instability in terms of three factors: (1) the type of socio-political instability in recipient countries, whether, for example, coups d'état, demonstrations, or civil wars, (2) recipient countries' characteristics, and (3) whether aid is bilateral or multilateral. The first is to define a precise typology of socio-political events. The classification enables the construction, in Section 2, of three composite indexes of socio-political instability. Then, in Section 3, I specify an econometric model of aid allocation that tests for the effects of socio-political instability. Section 4 addresses some methodological issues. The variables and data used are presented in Section 5. The econometric results are set out in Section 6. Concluding remarks are in Section 7.
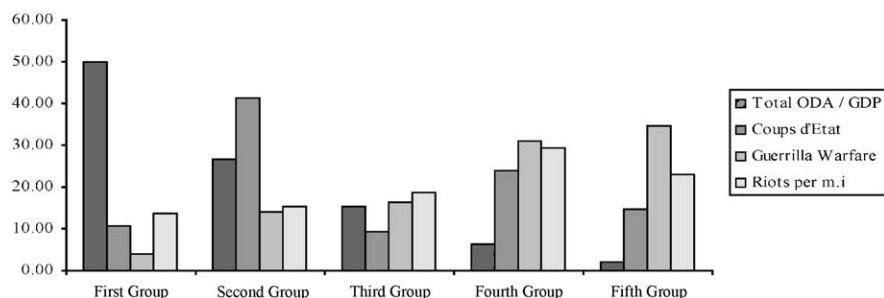

Fig. 3. Distribution of total aid and socio-political instability.

2. The notion of socio-political instability

Two approaches have been taken in the literature to measuring socio-political instability (Alesina and Perotti, 1994). The first—proposed by Londregan and Poole (1990) and Alesina et al. (1996)—focuses on political instability defined as the propensity for a change in executive power. The second approach consists of constructing a composite index of socio-political instability on the basis of events, as in Venieris and Gupta (1986), Gupta (1991), and Alesina and Perotti (1996). Since I focus on donor's reactions to social and political instability—and not only on changes in government—the second approach seems more suitable.

The notion of socio-political instability covers many heterogeneous events with different origins, intensities, and actors, as for example, coup d'état, demonstrations, and civil wars. In face of this diversity, a composite index takes into account one or several dimensions of socio-political instability.[5] I expect donors' reactions to differ according to the kind of event and an aggregate index of socio-political instability would not capture the differences that I want to study. I, therefore, differentiate kinds of instability by their nature and consequences, and construct not one but rather three composite indexes on the basis of a theoretical and empirical classification of events.

Taylor and Hudson (1972) distinguished political protests (political demonstrations, riots, armed attacks, governmental sanctions) from the changes in the executive (regular or not, major or minor, successful or not). Gupta (1991) modified this typology to differentiate three categories of instability: (1) violence against the regime, (2) violence within the regime, and (3) violence by the regime. The first category can further be subdivided in two groups: mass violence (riots, political strikes, political demonstrations) and internal wars (armed attacks, political assassinations, death). The second category is mainly composed of coups d'état, successful or not. The third category is made up of political executions.

Following these classifications, and statistical correlations of events, I identify three types of socio-political instability. (1) An index of executive, or elite, instability is composed of successful coups d'état, revolutions, and major government crises, and measures the changes in the executive, violent or not, legal or illegal. This index captures the notion of violence within the regime proposed by Gupta (1991), as well as changes in the executive proposed by Taylor and Hudson (1972). (2) Violent, or armed, instability is composed of political assassinations, guerilla warfare, and civil wars. This notion of instability captures extreme instability, and the chaos implied by this kind of violence. This concept is close to the internal wars proposed by Gupta (1991). (3) An index of social instability, or social conflict, captures strikes, demonstrations, and riots, and is similar to

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[5] Venieris and Gupta (1986) use a discriminant analysis and combine the two extreme dimensions of violence (demonstrations and deaths). They obtain: socio-political instability $= 65 \times 10^{-5}$ demonstration $+ 0.127$ ln(death $+ 1$) $+ 2.8$ democracy. Using a principal components analysis, Gupta (1991) obtains: socio-political instability $= 1.14 + 0.0007$ demonstration $+ 0.0049$ riot $+ 0.0086$ strike $+ 0.43 \times 10^{-5}$ death $+ 0.13$ assassination $+ 0.0008$ armed attack $+ 0.0033$ execution $+ 1.38$ successful coup d'état $+ 0.264$ failed coup d'état $+ 0.92$ democracy. Using the same methodology, Alesina and Perotti (1996) obtain: socio-political instability $= 1.4$ assassination $+ 1.2$ death $+ 7.6$ successful coup d'état $+ 7.2$ failed coup d'état $- 5.5$ democracy.

Table 1
Principal components analyses results

Elite instability = 0.611 revolution + 0.585 coup d'état + 0.535 major government crisis
Violent instability = 0.608 civil war + 0.607 guerilla + 0.513 assassination
Social instability = 0.621 riot + 0.611 demonstration + 0.492 strike

the notion of mass violence developed by Gupta (1991). Even though this kind of instability is likely to be expressed with violence, its nature differs from the previous category. Collier and Hoeffler (2000a), following Kuran (1989), stress that "protest is not a sustained economic activity [and participants] risk little. In this, a rebel organization is more analogous to a regular army than to a protest movement."

I use the data from Banks (1996) on socio-political instability for all events, except for civil wars for which data is from Singer and Small (1994) who recorded civil wars from 1816 to 1992. The different events used in the analysis are defined in Appendix A. The correlation table in Appendix B confirms the previous theoretical classification: each variable is mostly correlated with the two other variables.[6] A principal components analysis for each of the three types of instability yields the indicators presented in Table 1. This methodology identifies weights for each variable on the basis of the correlations between the different variables included in the indicator.[7] The method has often been criticized because of the difficulty in explaining the weights obtained. It has, however, the advantage of attributing statistical weights rather than subjective weights to variables.

Descriptive statistics of these three kinds of socio-political instability are in Appendix C. The indicators capture different aspects of socio-political instability and, thus, give distinct signals to donors: violent instability is the signal of social disorder, or even chaos, whereas elite instability might be seen as a political rupture, and social instability as revealing dissatisfaction of the population, or even a social upheaval. The differences enable us to distinguish donors' responses to the different signals.

3. An econometric model of aid allocation

3.1. A twofold debate in the literature

The literature on aid allocation has given rise to a twofold debate about the principles of aid allocation. The first debate contrasts the so-called "recipients needs" model with the "donors interests" model. The second debate contrasts the motivations of donors regarding rewarding economic and institutional performance in recipient countries and compensating for vulnerability to external shocks.

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[6] Only the revolution variable is ambiguous, since it is correlated with guerilla warfare and civil war and with coup d'état and major government crisis. However, its definition justifies its introduction in the elite instability index.

[7] I converted all the variables to mean zero and standard deviation of one. I proceeded to a principal components analysis (PCA) on these "standardized" variables. The detailed results of the PCA are available from the author by e-mail.

The starting point of the first debate is McKinlay and Little (1978), who compared an altruistic model to a foreign policy model. Maizels and Nissanke (1984), followed by Frey and Schneider (1986) and Gounder (1994, 1999), analyze these two categories of motivation and show the importance of donors' strategic interests in their foreign aid allocation. However, the relative importance of the two categories of motivation has remained inconclusive. Maizels and Nissanke (1984) concluded that during the 1970s, bilateral aid allocation was dictated by strategic and commercial interests of donors, while multilateral aid was more based on recipient countries' needs. Frey and Schneider (1986) showed that World Bank's lending was allocated following a politico-economic model. Gounder (1994) showed through non-nested tests that each model had good predictive power for Australian bilateral aid for some years, whereas for some other years the tests were inconclusive.[8]

The terms of the second and more normative debate were set out by Cline and Sargen (1975): aid that accommodates recipients' needs also has to reward good economic performers instead of punishing them. Aid allocation has then to provide positive incentives for good economic policies. Cline and Sargen (1975) followed by Frey and Schneider (1986) concluded that World Bank aid did not take into account this performance criterion. However, Burnside and Dollar (2000) conclude that multilateral, and particularly World Bank aid, takes into account recipient countries' "good economic policies" but that bilateral aid does not. Alesina and Dollar (2000) confirm that bilateral aid allocation follows mainly political and strategic considerations, and takes into account, at the margin, the openness of the economy, as well as the democratization process. Within this normative debate, Collier and Dollar (2002) developed a poverty-efficient aid allocation model and compared, through simulations, the optimal and the actual aid allocations. They showed that predictably, for a given level of poverty, aid allocation is more efficient in reducing poverty when economic policies are good, so that aid should target countries with severe poverty problems and good policies. They also show through simulations that actual and optimal aid allocations are radically different and that with poverty-efficient allocation, the same volume of aid would lift almost twice the number of people out of poverty than the allocation that was observed.[9]

However, if aid allocation has to provide positive incentives for good economic policies and is more poverty-efficient in a good policy environment, aid also has to take into account "bad economic environment"—such as external shocks—that affect recipient countries' economic performance. Foreign aid can, thus, play a role of "insurance" for recipient countries. Guillaumont and Chauvet (2001) show that countries that are more vulnerable receive more aid and that once vulnerability is taken into account, economic policies do not influence aid allocation.

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[8] Gounder deduces that the recipients needs model may be relevant for some recipients, whereas the donors interests model may be relevant for some other recipient countries. In his study of Australia aid allocation to Papua New Guinea, he accepts the recipients needs model and rejects the donors interests model.

[9] The study by Collier and Dollar (2002) has been criticized on the econometric background justifying the aid/growth/policies relationship, as well as on the value of some parameters retained for the simulations (notably the elasticity of poverty with respect to income). See Guillaumont (2000) and Guillaumont and Chauvet (2001).

Four principal nonexclusive criteria of aid allocation can, thus, be derived from the existing literature: (1) recipients needs, (2) donors interests, (3) recipient countries' merit, and (4) recipient countries' vulnerability to external shocks.

3.2. Donors' attitude towards socio-political instability

Socio-political instability of recipient countries modifies their needs, but also their merits regarding social peace and strategic, commercial, and geopolitical interests they represent for donors. Thus, donors are likely to react to recipient countries' socio-political instability. I categorize donors' attitudes towards recipient countries' socio-political instability as depending on three factors: the kind of instability, recipient countries' characteristics, and the type of aid received. Table 2 summarizes the main predictions concerning the effects of the different types of socio-political instability on aid allocation.

3.2.1. The signal captured by the different types of socio-political instability

Depending on their motivations, donors can react to socio-political instability in different ways. First, donors can consider socio-political instability as inducing needs for recipient countries. Socio-political instability increases needs through the creation of an uncertain environment. It may then have pernicious effects on economic performance and poverty in recipient countries. Venieris and Gupta (1986), Barro (1991), Alesina et al. (1996), and Alesina and Perotti (1996) have shown that social and political instability has a negative effect on growth, generally through a negative effect on investment. This negative effect combined with destructions and chaos affects poverty in recipient countries. If the objective of foreign aid is to reduce poverty, unstable countries should then receive relatively more aid, and socio-political instability should have a positive effect on the amount of aid received. The distinction between the three kinds of instability is, therefore, interesting at this stage: violent instability, which entails destructions and deaths, is more likely to be a need variable than the other two instability variables, even though these variables can also generate uncertainty and poverty.

Second, donors can regard socio-political instability as a merit variable. Donors may for example consider more stable countries as more deserving. They may then reward

Table 2
Expected effects of the different types of socio-political instability depending on the motivations of donors

Signal captured by socio-political instability	Revealed motivations of donors	Effect of instability on aid allocation	Type of instability more likely to induce the effect	Recipients' characteristics		Kind of aid more likely to react this way
				Low income	Oil exporter	
Need	Compensation	Positive	Violent	Positive	None	Multilateral and bilateral
Merit	Reward	Negative	Social or elite	None	None	Multilateral
Interest	Safeguard	Positive	All	None	Positive	Bilateral
Interest	Diversion	Negative	Violent	None	Negative	Bilateral

countries that have maintained social peace and political stability in order to create positive incentives for greater stability. Socio-political instability would, thus, have a negative impact on aid allocation. Regarding the distinction between the three types of instability, donors may more readily consider elite or social instabilities as merit variables. For example, in some cases, elite instability may reveal failures in the democratic process or the excessive power of military juntas, and donors may show their disapproval by reducing aid. In the same way, social instability may reveal discontent of populations with government policies or institutional and economic failures: donors may then wish to create incentives for the satisfaction of population's claims by favoring countries that maintained social peace.[10] Violent instability may also be a merit variable, but the merit dimension may be overshadowed by the poverty consequences of this kind of instability.

Finally, donors can consider the effects of recipient countries' socio-political instability on their own interests. Socio-political instability would then be an interest variable. Two hypotheses compete in this case. First, socio-political instability can endanger donors' commercial, investment, security or geopolitical interests. When facing instability in a recipient country with which they have ties, donors might seek to preserve their interests and try to use aid to stabilize unstable recipient countries. In order to safeguard their interests, donors would then allocate relatively more aid to unstable countries, whatever the kind of socio-political instability. Second, socio-political instability may not only endanger donors' interests, it may also modify their interests. Thus, if the economic and political losses for donors from recipient countries' socio-political instability are very important, the amount of aid received by unstable countries may diminish. A recipient country may experience violent instability with massive infrastructure destruction or human death. In this case, risk averse donors may divert their aid from unstable countries to limit their losses.

One can think of a threshold that depends both on the level of the different types of socio-political instability (quantitative threshold) and on their nature and consequences (qualitative threshold). For example, there may exist an "inverted U" relationship between aid and the three kinds of instability depending on their level. For low levels of instability, donors may try to safeguard their interests. As instability increases, donors' commercial and strategic interests may be threatened and donors may divert their aid towards more stable countries. Regarding the nature and consequences of socio-political instability, the risk of economic and political losses for donors might be more important for violent instability than for social instability, since the latter generally entails less destructions than the former. Donors may then safeguard their interests in the case of social instability, whereas they would divert their aid in case of violent instability.

The purpose of Table 2 is to give a conceptual framework suggesting the kind of socio-political instability that is more prone to induce each effect. However, elite and social types of instability might also be need variables, and violent instability might be a merit variable.

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[10] Social instability may also reveal good functioning of democratic institutions. In highly repressive regimes, there may be less expression of discontents. However, I control for democracy in the aid allocation regressions. Therefore, given the level of democracy, there may be a negative effect of social instability as far as social instability captures recipient countries' merits.

3.2.2. Recipients' characteristics and the impact of socio-political instability on aid allocation

Donors' reactions to socio-political instability can be expected to depend on recipient countries' characteristics. I choose two conflicting characteristics of recipient countries to test this hypothesis[11] and introduce them in interaction with the three types of socio-political instability. The aim is to show that there is not one rule for aid allocation, but many, depending on the characteristics of recipient countries. A second purpose is to determine donors motivations: as shown in Table 2, two different interpretations emerge from positive (compensation and safeguard) and negative (reward and diversion) effects of socio-political instability on aid allocation. Interaction terms allow one to discriminate between them.

The first differentiating characteristic is poverty. Lower-income countries are distinguished from middle-income countries. This criterion isolates the "compensation" motivation of donors. The underlying hypothesis is that for low-income countries, socio-political instability is more likely to be a need variable—altruistic donors may respond positively to socio-political instability in poorest countries. The second differentiating characteristic is oil exports. Oil exporters possess wealth and represent a special geopolitical stake for donors. This characteristic isolates the "safeguard" and "diversion" effects of instability on aid allocation. The underlying hypothesis in this case is that for oil-exporting countries, socio-political instability is an interest variable.

The two characteristics and classification of recipient countries are somewhat arbitrary. Nonetheless, I can determine, for a certain set of countries and under certain conditions, several allocation regimes and obtain insights into donors' motivations.

3.2.3. The kind of aid received

Following Maizels and Nissanke (1984), Boone (1996), and Burnside and Dollar (2000), I study the possibility that bilateral and multilateral aid has different determinants and, therefore, reacts differently to socio-political instability. Table 2 shows the main expectations derived from the literature on aid allocation. There is consensus concerning the importance of strategic, historical, and commercial interests in the allocation of bilateral aid (Alesina and Dollar, 2000). For this type of aid, socio-political instability may, therefore, capture donors' interests. Conversely, multilateral aid has been shown to reflect merit of recipient countries (Burnside and Dollar, 2000), and may, thus, be more prone to be used to reward more stable countries. Finally, along with those motivations and objectives, both bilateral and multilateral aid may respond to recipient needs.

The analysis focuses on economic bilateral or multilateral development aid. Another form of international resource transfer between governments may, however, be important in analysing the impact of socio-political instability on economic aid allocation: military (bilateral) aid. The two kinds of aid are often linked, and the nature of aid received might change with socio-political instability: military and economic aid might be substitutes or

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[11] The criteria used to classify countries are described in Section 4.

complements.[12] Regular data on military aid are not available. However, in the econometric analysis an arms imports variable is introduced on the right-hand side (as a proxy for donors' strategic interests). Military aid and arms trade are difficult to distinguish since, as noted by Deger and Sen (1992), arms trade often "involves concessionary elements and the creation of debt (which is sometimes forgiven)." Sandler and Hartley (1995) also stress that "arms trade is [...] characterized by a variety of payment arrangements involving military aid including gifts, interest-free loans, buy back, and payment in kind (e.g. oil for missiles)." Introducing arms imports as an explicative variable for economic aid allocation, thus, allows one to capture the effect of socio-political instability while controlling for the influence of arms trade.

3.3. The econometric model

I specify the following equation:

$$\ln \mathrm{ACAP}_{it} = \alpha + \alpha_t + \alpha_i + \beta_1 \mathrm{ISP}_{ijt} + \beta_2 X_{it} + \beta_3 Z_{it} + \beta_4 M_{it} + \beta_5 V_{it} + \beta_6 \ln P_{it} + \varepsilon_{it}. \tag{1}$$

The i and t indices denote, respectively, country and year (α_i and α_t denote the country and time-specific fixed effects), ACAP_{it} is the dependent aid per capita variable, ISP_{jit} represents socio-political instabilities (j denoting the kind of instability), X_{it} is the set of recipient countries' needs, Z_{it} are donors' strategic interests, M_{it} are merit variables, V_{it} are vulnerability variables, and P_{it} is recipient countries' populations. The latter is traditionally introduced to capture the bias in favor of small countries.[13]

In order to take into account the interaction between socio-political instability and recipients' characteristics and the differences between the sources of aid, I also estimate the following model for total, bilateral, and multilateral aid:

$$\ln \mathrm{ACAP}_{it} = \alpha + \alpha_t + \alpha_i + \beta_1 \mathrm{ISP}_{ijt} + \beta_{11} \mathrm{ISP}_{ijt}\mathrm{DLY} + \beta_{12} \mathrm{ISP}_{ijt}\mathrm{DOE} + \beta_2 X_{it}$$
$$+ \beta_3 Z_{it} + \beta_4 M_{it} + \beta_5 V_{it} + \beta_6 \ln P_{it} + \varepsilon_{it}. \tag{2}$$

DLY is a dummy for low-income countries and DOE is a dummy for oil-exporting countries.

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[12] When facing instability of a recipient, donors might, for example, switch from economic to military aid. In this case, socio-political instability would induce a substitution of economic aid by military aid. On the other hand, there might also be a crowding in between the two kinds of aid: when a conflict appears, "economic aid [may be used] as an inducement to facilitate arms sales" (Deger and Sen, 1992, p. 174). Whether the two kinds of aid are substitutes or complements depends mainly on the political interests involved in the internal conflict and of the degree of fungibility of economic and military aid.

[13] Aid allocation contract is the result of a bargaining between donors and recipients. Population captures in a way the bargaining power of recipients. As stressed by Boone (1996), smaller countries, as voter in the United Nations, have a higher per capita bargaining power.

4. Methodology

In estimating the model, care has to be taken regarding two sources of econometric bias. First, as noted by Trumbull and Wall (1994) and Gounder (1999), cross-section studies of relative aid allocation using ordinary least squares are subject to an unobservable heterogeneity bias. Recipient countries have unobservable specific characteristics—as colonial history or strategic importance to the donors—which, if omitted from the estimation and correlated to the explanatory variables, are the source of an endogeneity bias. One remedy is to control for country specific fixed effects in panel regressions.

Also, the causal link between aid and socio-political instability can go both directions, inducing a simultaneity bias. Indeed, foreign aid can influence socio-political instability. Aid can stabilize recipient countries. For example, aid can accelerate reform, through the satisfaction of interests groups[14] (Casella and Eichengreen, 1996), or can finance stabilizing distributive policies (Falkinger, 1999). Collier and Hoeffler (2000b) and Arcand and Chauvet (2001) show that aid can decrease the risk of conflict but for different reasons. Collier and Hoeffler (2000b) suggest that aid allows governments to increase military expenditures, thereby making successful rebellion more difficult. Moreover, if aid has a positive impact on growth, it can decrease the likelihood of civil war by increasing the opportunity cost for young males of joining a rebellion. Arcand and Chauvet (2001) show that the stabilizing impact of aid operates through a rent-seeking effect: aid, which represents an important resource for the state, leads the government to devote significant resources geared towards maintaining power. Moreover, foreign aid may also increase socio-political instability, by providing a lootable rent for rebels (Addison et al., 2000; Azam, 1995; Grossman, 1991, 1999). The causality issue can be addressed by estimating Eqs. (1) and (2) using instrumental variable techniques. The aid allocation equations are, thus, estimated using two-stage least squares while controlling for country specific fixed effects to correct the simultaneity and heterogeneity biases.

The three socio-political instability variables are first introduced simultaneously into the regressions. However, I do not have the same number of countries for all socio-political variables. I have 28 countries for social instability against 51 for elite and violent types of instability. Precious information is then lost when the socio-political instability variables are introduced simultaneously. Moreover, there may be multicollinearity problems (mainly between violent and elite instability). Therefore, socio-political variables are introduced separately in the remaining part of the analysis. The omission of two out of the three socio-political instability variables is not likely to induce an econometric bias, for two reasons. First, as shown in Appendix D, the omitted instability variables in the regressions are little correlated with the other explanatory variables of the model. Moreover, Fisher tests suggest that the constrained model (with only one instability variable) is preferred to the unconstrained model.

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[14] Casella and Eichengreen (1996) show that the positive effect of aid on the adoption of reforms crucially depends on the timing of the transfer: aid announced or delivered too late may be counterproductive in delaying reform.

Estimations are for five subperiods of 4 years, from 1974–1977 to 1990–1993.[15] The period under analysis corresponds mainly to the Cold War period. The effects of socio-political instability on aid allocation are highly dependent in an historical context. The effects of socio-political instability may, thus, have significantly changed since the end of the Cold War, insofar as the nature of socio-political instability, and donors' strategic and geopolitical interests changed. Because of the period under study, and the data I have, I cannot account for these changes.

5. Presentation of data and variables

The aid variable is the OECD-DAC measure of net flows of ODA per capita (constant dollars in 1996 prices).[16] The question of whether to use a "relative" aid variable rather than an "absolute" has been extensively debated in the literature. Following Maizels and Nissanke (1984), Trumbull and Wall (1994), and Gounder (1994), the relative aid variable is used.[17] The need variable is purchasing power parity GDP per capita as measured by Summers and Heston (1991). Its square is also introduced to take into account a potential middle-income countries bias (Dowling and Hiemenz, 1985; Alesina and Dollar, 2000). Following Burnside and Dollar (2000), donors' strategic interests are captured by an arms imports variable.[18] In order to avoid simultaneity problems, this variable is lagged one period. Arms imports may also be a proxy for governance of recipient countries as suggested by Gupta et al. (2001). It may, therefore, capture (negatively) recipient countries' merit, as well as donors' interests. As no accurate measure of the notion of donors' interests exists, I follow Trumbull and Wall (1994) and also use country-specific fixed effects to capture the unobservable strategic importance of recipient countries to donors. The main shortcoming of this argument is that fixed effects do not vary with time, whereas donors' strategic interests do.

Following Alesina and Dollar (2000) and Svensson (1999), recipient countries' merit is measured through two variables: a trade openness variable and a democracy variable.[19] Alesina and Dollar (2000) use the Sachs and Warner (1995) dummy for economic openness.

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[15] The panel is unbalanced so the fixed effects analysis has to be slightly adapted. The within transformation of variables are weighted by $[T_i/(T_i - 1)]^{1/2}$, where T_i denotes the number of time periods for country i.

[16] Chang et al. (1998) specify a second measure of aid-effective development aid (EDA)—which differs from the traditional measure of official development aid (ODA) of the OECD-DAC. EDA sums the grants and the grant component of each concessional loan. However, the traditional measure of aid is preferred, since it captures the total amount disbursed by donors, which is likely to be the variable considered by donors influenced by recipient countries' socio-political instability.

[17] The regressions have also been estimated using total aid instead of aid per capita. The results are very similar whatever the endogenous variable used and are available from the author by e-mail.

[18] Arms imports are relative to total imports. This variable is available at: http://www.worldbank.org/research/growth.

[19] Alesina and Dollar (2000) show that intercountry bilateral aid allocation is mainly explained by political and strategic considerations, but at the margin, aid allocation tends to reward "good" policies such as openness and democratization. Alesina and Dollar (2000) and Svensson (1999) also point to significant differences amongst donors with respect to democracy and openness.

However, the openness policy variable constructed by Combes et al. (2000) is preferred.[20] This variable captures the part of the observed openness that is not explained by structural factors such as the size of the country, mining and oil resources, the level of development, and transportation costs.[21] The openness policy variable is then the residual from the regression of observed openness on the latter variables, and it better captures the willingness of recipient countries to implement openness policies. The second merit variable is the Polity98 democracy variable (Gurr and Jaggers, 1998).[22] The two merit variables are lagged one period to avoid simultaneity problems. Finally, following Guillaumont and Chauvet (2001), the vulnerability of recipient countries to short term trade shocks is measured by an index of instability of the real value of exports. It is computed as the square root of the average squared deviation from a determinist trend, and is weighted by the ratio of exports to GDP, in order to take into account the exposure to the shocks.[23]

Since they have their own determinants, different instrumental variables are used for each socio-political instability. A summary of these instruments is presented in Appendix E. Instruments for violent instability are chosen following the four determinants of civil wars proposed by Collier and Hoeffler (2000a) and Collier (2000): the revenue sources of the rebels, their military relative advantage, the opportunity costs of the rebels and the "sources of grievance" in rebellion. Revenue sources of rebels are captured by the ratio of oil exports to total exports. The military advantage of the rebels is measured by population density. Opportunity costs of participation in a rebellion are captured by the Barro and Lee (1996) average years of secondary and primary schooling variable (in the population aged 25 and above) and by the growth rate of real GDP per capita minus three times the growth rate of population—both variables being lagged one period (Collier and Hoeffler, 2000a). The "sources of grievance" are captured by a variable of democratization constructed by Mansfield and Snyder (1995) for a 10-year period. Finally, a "leader popularity" variable constructed by Dassel and Reinhart (1999) is introduced. The elite instability instruments are close to these of violent instability. However, since the source of elite instability is within political elite or military juntas, I eliminate from the instrument list the population density variable and the combined growth rate of the GDP and population (which measures the opportunity cost and military advantage of rebellion). I also add a dummy variable for "contested institutions" from Dassel and Reinhart (1999), based on the

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[20] The Sachs and Warner (1995) openness variable has also been introduced in the regressions in order to compare the results with the results obtained using the openness policy variable.

[21] Observed openness is measured by the sum of exports and imports divided by GDP (source: World Development Indicators (WDI), 1999). Country size is measured by the population (source: WDI, 1999), the level of development is measured by GDP per capita (source: Summers and Heston, 1991). Transportation costs are proxied by an "enclave" dummy variable as well as by the mean distance of each country from main world markets. The source of the mining and oil resources variable is Cnuced (various years).

[22] It grades countries on a scale from zero to ten using four criteria: competition in participation to the political process, competition in recruitment of the executive, openness of the recruitment of the executive, and independence of the chief of the executive.

[23] The instability of the real value of exports is measured over 10 to 6 years according to the availability of data (source: WDI, 1999). Guillaumont and Chauvet (2001) use four other variables to capture the vulnerability of recipient countries to exogenous external shocks. However, to avoid multicollinearity and degrees of freedom issues, I have introduced only one variable.

PolityII "major and sudden political changes" variable (Gurr et al., 1989). The "contested institutions" variable is a moving average of the "major and sudden political changes" calculated between years $t − 10$ and $t − 1$.[24] The instruments for social instability are mainly variables of political and economic claims (democratization, "contested institutions" dummy, freedom status, and "popularity of leader"). I also introduce a human capital variable (the average years of higher schooling in the population aged 25 and above) to take into account student demonstrations and a urban population variable (as a ratio to total population) in order to capture the ease of collective action through demonstrations and the importance of urban violence.[25]

Two dummy variables are used in interaction with the three types of socio-political instability. The first is a low-income dummy, which is equal to one for the 40% poorest countries of the sample (according to the Summers and Heston, 1991 income per capita variable) at the beginning of each subperiod. The second is an oil exporters' dummy variable. A country is regarded as an oil exporter if its oil exports are at least 10% of its total exports.[26] The interaction terms are also instrumented, since they are crossed with a right-hand side endogenous variable. I, therefore, augmented the list of instruments with interactions of both dummies with exogenous and instrumental variables of the model (these instruments are listed in the next section).

6. Econometric results

6.1. Effects of the three types of socio-political instability on aid allocation

Results of the two-stage least squares with fixed effects estimations of Eq. (1) are presented in Table 3. Socio-political instability variables are endogenous according to a Nakamura and Nakamura (1981) test of exogeneity, suggesting that the two-stage least squares methodology is adapted for the estimation of Eqs. (1) and (2). A Hausman (1983) overidentification test suggests that there are no specification issues and that instruments of each socio-political instability variable are appropriate. Adjusted R^2 of first step estimations confirm this result. Finally, Fisher tests on the omitted socio-political instabilities in regressions (2), (3), and (4) suggest that the constrained regression (with only one instability variable) can be accepted against the unconstrained model with three instability variables. These econometric tests, therefore, confirm the reliability of the results presented in Table 3, even though two socio-political instability variables are omitted from each regression.

Table 3 suggests a quadratic relationship between aid and per capita income. This result is consistent with Dowling and Hiemenz (1985) and Alesina and Dollar (2000). However, the turning point is very low, between US$470 and US$875 per capita. There are only few

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[24] The source of oil exports, population density, GDP per capita growth, and population growth is World Bank (1999). The leader popularity variable is the growth rate of GDP per capita at year $(t − 1)$ minus its mean between years $(t − 2)$ and $(t − 6)$. The popularity, contested institutions, and democratization variables are available at: user http://www.service.emory.edu/ ~ erein.

[25] The source of freedom status is Freedom House. The source of the human capital variable is Barro and Lee (1996). The source of the urban population variable is World Bank (1999).

[26] The source is World Bank (1999).

Table 3
The effects of the different types of socio-political instability on total aid allocation (1974–1993)

Dependent variable: log total ODA per capita	(1)	(2)	(3)	(4)
Violent instability	0.061	0.136*		
	(1.32)	(1.73)		
Elite instability	0.156		0.458**	
	(0.99)		(2.62)	
Social instability	− 0.060**			− 0.058**
	(− 2.09)			(− 2.53)
Log initial income per capita	9.632**	7.667***	6.739**	8.699*
	(2.03)	(2.63)	(2.21)	(1.97)
Log initial income per capita, squared	− 0.726**	− 0.623***	− 0.534**	− 0.645**
	(− 2.23)	(− 3.01)	(− 2.52)	(− 2.18)
Arms imports, lagged	− 0.018	0.001	− 0.019*	0.009
	(− 1.20)	(0.09)	(− 1.75)	(1.63)
Openness policy, lagged	0.278	0.210	1.792	1.080
	(0.17)	(0.17)	(1.21)	(0.84)
Democracy, lagged	0.020	0.080***	0.101***	0.018
	(0.59)	(2.78)	(3.31)	(0.82)
Real value of exports instability	0.001*	0.001***	0.001**	0.001**
	(1.93)	(2.63)	(2.44)	(2.22)
Log population	0.915	0.031	0.718	1.237
	(1.17)	(0.05)	(1.01)	(1.40)
Observations	104	190	181	112
Countries	28	51	51	28
Fisher test on the model[a]	0.007	0.000	0.000	0.000
Fisher test on fixed effects[b]	0.000	0.000	0.000	0.000
Nested test on squared instability[c]	0.616	0.218	0.784	0.228
Nakamura test on socio-political instability[d]	0.010	0.017	0.010	0.035
Overidentification test[e]	0.360	0.305	0.921	0.386
Adjusted R^2 of the instrumentation regression[f]		0.408	0.520	0.649
Fisher test on omitted instabilities[g]		0.213	0.789	0.255

Heteroscedasticity-consistent t-statistic in parentheses. All regressions include time dummies.

[a] Probability that the constrained model (on the constant) is preferred to the unconstrained model.

[b] Probability that fixed effects are not significant.

[c] Probability that the squared instability variable is not significant or that the three instabilities are jointly insignificant.

[d] Probability that socio-political instability variable is exogenous.

[e] Probability that the specification of the model is accepted.

[f] R^2 obtained from the socio-political variables on exogenous and instrumental variables.

[g] Probability that the constrained model (one instability) is preferred to the unconstrained model (three instabilities).

* Significant at the 10% level.

** Significant at the 5% level.

*** Significant at the 1% level.

countries in this range of average revenue on the 1974–1993 period.[27] Thus, donors tend to favor low-income countries—consistently with an altruistic aid allocation—except for a small group of lowest income countries. The increasing relationship between aid and per capita income of the poorest countries can be explained by the absorption capacity of capital and foreign aid hypothesis: if absorption capacity limits the "productive" effectiveness of foreign aid, and if the latter is increased by absorption capacity in the first stages of economic development (Rostow, 1960), then one can understand that foreign aid increases with the level of per capita income of least developed countries (Millikan and Rostow, 1957; Rosenstein-Rodan, 1961; Guillaumont, 1971). Table 3 also shows that the population variable (traditionally significantly negative) loses its significance when fixed effects are controlled for, consistently with panel estimations of Boone (1996) and Trumbull and Wall (1994). This can be explained by the fact that population varies little across time.[28] The vulnerability variable is significant in all four regressions with a small coefficient of 0.001. Thus, it seems that donors try to "insure" recipient countries against external trade shocks. The democracy variable is significantly positive in two out of four regressions. Thus, it seems that donors seek to create positive incentives for democratization through their aid allocation. The democracy variable is not significant in regressions (1) and (4), suggesting an interaction with social instability. Indeed, the democracy variable may capture the functioning of institutions, and thereby the aspirations of people. Thus, the introduction of a social protests variable expressing the dissatisfaction of people with current institutions may overwhelm the effect of the democracy variable. The second merit variable, the openness policy, is not significant in any of the four regressions. This result is opposite to that of Alesina and Dollar (2000), who found a positive impact of the Sachs and Warner (1995) openness variable in aid allocation estimations. When the regressions were run using this latter variable, the Sachs and Warner (1995) openness variable was never significant.[29] The arms imports variable is slightly significant in regression (3) with a negative sign suggesting that donors reward countries with less arms imports—confirming the results of Gupta et al. (2001) who suggest that arms imports may proxy (negatively) for governance of recipient.

For socio-political variables, regression (1) shows that violent and elite types of instability are not significant whereas social instability is. This result may be due to multicollinearity between violent and elite instability. Indeed, in regressions (2)–(4), all three types of instability are significant. Regressions (2)–(4) confirm the intuition that the three types of socio-political instability are distinct signals for donors: violent and elite types of instability have a positive effect on aid allocation, whereas social instability has a negative effect.[30] Note that the negative sign of social instability may be due to the fact that regression

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[27] In regression (2), there are no such countries. In regression (3), there are Mali, Malawi, Zaire. In regressions (1) and (4), there are Mali, Niger, Togo, and Zaire.

[28] Estimation in OLS and OLS with fixed effects are available by the author upon request. OLS estimations show the traditional small-countries bias. When controlling for fixed effects, this phenomenon disappears.

[29] The coefficient in regression (1) is -0.341 with a p-value of 0.217. In regression (2), it is -0.211 with a p-value of 0.284. In regression (3), it is 0.051 with a p-value of 0.866 and in regression (4), it is -0.251 with a p-value of 0.164.

[30] The mean contribution of violent instability to the amount of aid received by countries is around 6%, that of elite instability is 11%, and that of social instability is 10%. Thus these variables explain a substantial share of aid allocation.

Table 4
Interpretation of the effects of the three types of socio-political instability

Story	Violent instability, positive	Elite instability, positive	Social instability, negative	Consistency
1	need	need	merit	accepted
2	need	need	interest (diversion)	accepted
3	need	interest (safeguard)	merit	accepted
4	need	interest (safeguard)	interest (diversion)	questioned
5	interest (safeguard)	need	merit	questioned
6	interest (safeguard)	need	interest (diversion)	not accepted
7	interest (safeguard)	interest (safeguard)	merit	accepted
8	interest (safeguard)	interest (safeguard)	interest (diversion)	not accepted

(4) is run on a different and smaller sample. To examine this possibility, regressions (2) and (3) were estimated on the same sample of countries as regression (4): violent and elite instability remain positive, even though their coefficients are less significant.[31] Therefore, the negative sign of social instability does not seem to be due to the smaller sample of estimation.

To interpret these results, Table 4 presents the eight different stories that can be told depending on the signs of socio-political instability. In order to distinguish among these stories, two critical dimensions have to be taken into account: the nature and consequences of socio-political instability (for recipient, as well as for donor countries) and the consistency of results across the different types of instability. Some of the stories are, therefore, questionable for consistency issues. The more important consistency problem is that of stories 6 and 8. Indeed, if the positive effect of violent instability reflects the willingness of donors to safeguard their own economic and strategic interests, one can reasonably believe that social instability, with a priori less disastrous consequences for donors' interests, would not induce a diversion of aid.[32] The same argument may apply for story 4 in which elite instability is a safeguard variable whereas social instability is a diversion variable. However, it is not clear which of those two types of instability entails more risk and danger for donors' interests. Thus, this story is not totally ruled out. Finally, story 5 can also be questioned since one can wonder how elite instability can be a need variable with violent instability being a safeguard variable. Indeed, it is likely that needs induced by socio-political instability are more important in the violent case than in the elite one.

Four stories appear consistent with the analysis. When social instability is a merit variable (stories 1, 3, and 7), there are no consistency problems with violent and elite instabilities being either need or safeguard variables. Indeed, social instability can cause

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[31] The coefficient of violent instability is 0.064 with a *p*-value of 0.246 and that of elite instability is 0.256 with a *p*-value of 0.116.

[32] The only way to combine these opposing effects of instability would be to consider that a "superior" geopolitical interest, such as the prevention of the destabilization of neighboring geographic areas, would force donors to allocate more aid to countries with high violent instability, whereas they would divert their aid for simple trade or investment matters. As social instability is likely to be geopolitically less dangerous, donors would then be influenced by their risk aversion, and divert their aid towards more stable countries.

a slowing of economic activity, but may not cause durable chaos or rupture in the economic and political life of a country, as in the cases of violent instability and elite instability. It can explain why social instability needs not entail an increase of aid flows in compensation for needs (the needs created are smaller) or as a safeguard of strategic interests (social instability is not sufficiently threatening). Story 2, with elite and violent types of instability being need variables and social instability provoking a diversion of aid, can also be accepted. Needs induced by violent and elite instabilities may be more important than needs induced by social instability. It could explain the fact that social instability is not associated with compensation from donors, but on the contrary, that the uncertain environment that is created (disastrous for investment or trade) triggers a diversion of aid towards more stable countries. In this case, the compensation effect does not dominate.

6.2. Recipients' characteristics and the impact of the three types of socio-political instability

It is difficult, at this stage of the analysis, to discriminate among the four retained stories. This leads us to the second step of the analysis, which takes the form of the introduction of interaction terms of socio-political instability with a low-income dummy and an oil exporter dummy. Table 5 presents the regressions obtained and Table 6 shows the respective coefficients of the three sources of instability according to the categorization of countries.[33]

Three regimes of aid allocation can be derived from this analysis. Let us consider first the two extreme cases, namely oil-exporting countries and low-income countries. For oil-exporting countries, socio-political instability is more likely to be an interest variable. The last row of Table 6 shows that social and elite types of instability are positive, whereas violent instability is negative. Thus, it seems that donors divert their aid from oil exporters that face violent and destructive instability, whereas they try to stabilize these countries if they face less destructive social or elite instability. The qualitative threshold hypothesis, therefore, seems to be confirmed by the data analysis. This result suggests that donors take into account the effect of instability on their own interests: they try to safeguard their interests in the case of social and elite types of instability, whereas they respond to violent instability with a diversion of aid.[34]

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[33] In regression (5), the number of instruments is augmented with the oil exporter dummy, which is interacted with the "leader popularity" dummy and the density of population. Both dummies are also interacted with the average years of secondary schooling at age 25, the real value of exports instability, and population. Similarly, in regression (6), the oil exporter dummy is interacted with the "contested institutions" dummy, average years of secondary and primary schooling at age 25, democratization, and the logarithm of initial income; and the low-income dummy with the "popularity" dummy. In regression (7), both dummies are interacted with all the instruments used in regression (4), and with population and the instability of the real value of exports.

[34] Note that in this case the hypothesis of social and elite instabilities being need variables and that of violent instability being a merit variable can be ruled out for consistency issues.

Table 5
Effects of the three types of socio-political instability depending on recipient countries' characteristics (1974–1993)

Dependent variable: log total ODA per capita	(5)	(6)	(7)
Violent instability	0.127 * (1.77)		
Violent instability × dummy low income	− 0.346 * * (− 2.14)		
Violent instability × dummy oil exporter	− 0.370 * (− 1.82)		
Elite instability		0.656 * * (2.58)	
Elite instability × dummy low income		− 0.597 * (− 1.73)	
Elite instability × dummy oil exporter		− 0.513 * (− 1.85)	
Social instability			− 0.083* * * (− 3.13)
Social instability × dummy low income			0.070 * * (2.41)
Social instability × dummy oil exporter			0.107* * * (3.03)
Log initial income per capita	11.063* * * (3.24)	7.713* * * (2.75)	− 0.849* * * (− 2.83)
Log initial income per capita, squared	− 0.819* * * (− 3.45)	− 0.575* * * (− 2.94)	
Arms imports, lagged	− 0.010 (− 0.45)	− 0.018 (− 1.43)	0.008 * * (1.99)
Openness policy, lagged	− 0.650 (− 0.49)	− 0.466 (− 0.31)	0.576 (0.44)
Democracy, lagged	0.082* * * (2.73)	0.102* * * (3.28)	0.016 (0.76)
Real value of exports instability	0.001* * * (2.96)	0.001 * * (2.18)	0.001 * * (2.08)
Log population	0.010 (0.02)	0.067 (0.09)	0.623 (0.73)
Observations	190	181	112
Fisher test on the model[a]	0.001	0.000	0.000
Fisher test on fixed effects[b]	0.000	0.000	0.000
Nakamura test on socio-political instability[c]	0.006	0.001	0.000
Overidentification test[d]	0.184	0.990	0.240
Nested test on squared instability[e]	0.644	0.626	0.241
Nested test on squared income[f]			0.135

Heteroscedasticity-consistent *t*-statistic in parentheses. All regressions include time dummies.

[a] Probability that the constrained model (on the constant) is preferred to the unconstrained model.
[b] Probability that the fixed effects are not significant.
[c] Probability that socio-political instability variable is exogenous.
[d] Probability that the specification of the model is accepted.
[e] Probability that squared instability is not significant.
[f] Probability that squared initial income is not significant.
  * Significant at the 10% level.
 * * Significant at the 5% level.
* * * Significant at the 1% level.

For low-income countries, socio-political instability is more likely to be a need variable. However, Table 6 shows that when low-income countries face violent instability, they surprisingly receive relatively less aid (whereas in the first row violent instability has a positive effect on aid allocation of middle-income countries). This suggests that violent

Table 6
Coefficients of the three types of socio-political instability according to country category

	Violent instability	Elite instability	Social instability
Middle-income non-oil-exporting countries	0.127	0.656	− 0.083
Low-income countries	− 0.219	0.059	− 0.013
Oil-exporting countries	− 0.243	0.143	0.024

All coefficients are significant at least at the 10% level in Table 5.

instability is a need variable but, for the poorest countries, violent instability discourages donors instead of leading to compensation. It is likely that the increased number of weaknesses—poverty, social and political chaos—creates an incentive for donors to direct their aid to where the aid may have a more perceptible and faster effect, and away from countries sinking into problems against which donors feel powerless. Elite instability is, however, positive for poorest countries. This suggests that the discouragement effect due to violent instability does not arise in the case of elite instability. This may be due to the fact that elite instability is most of the time less destructive than violent instability. Social instability has a small negative coefficient, which can either indicate the discouragement effect—in this case, we can infer that social instability is viewed by donors as more destructive than elite instability—or the willingness of donors to reward more stable countries.

The third and more general regime—that of middle-income non-oil-exporting countries—suggests that both stories 1 and 3 can be accepted. Indeed, violent instability seems to be a need variable, otherwise it would be negative as in the case of oil-exporting countries; and social instability seems to be a merit variable, otherwise it would be positive as in the case of oil-exporting countries. To discriminate between stories 1 and 3, we need to know whether elite instability is a safeguard or a need variable for middle-income non-oil-exporting countries. It is, however, difficult to determine donors motivation in this case, since elite instability has a positive effect on both oil exporters and low-income countries.

I can, therefore, conclude that violent instability is a need variable, except for oil exporters for which it is an interest variable. Similarly, social instability is a merit variable

Notes to Table 7:
Heteroscedasticity-consistent t-statistic in parentheses. All regressions include time dummies.
   [a] Probability that constrained model (on the constant) is preferred to the unconstrained model.
   [b] Probability that fixed effects are not significant.
   [c] Probability that socio-political instability variable is exogenous.
   [d] Probability that the specification of the model is accepted.
   [e] Probability that squared instability is not significant.
   [f] Probability that squared initial income is not significant. In regression (12), the oil exporter dummy was not used as instrument. In regression (13), I did not used: the oil exporter dummy interacted with "leader popularity," the low-income dummy interacted with higher schooling and "contested institutions," and both dummies interacted with total population and urban population.
   *   Significant at the 10% level.
   **   Significant at the 5% level.
   *** Significant at the 1% level.

Table 7
Effects of the three types of socio-political instability on bilateral and multilateral aid (1974–1993)

Type of ODA per capita (in logarithm)	BILA (8)	MULTI (9)	BILA (10)	MULTI (11)	BILA (12)	MULTI (13)
Violent instability	0.114	0.169*				
	(1.36)	(1.71)				
Violent instability × dummy low income	− 0.389*	− 0.128				
	(− 1.81)	(− 0.71)				
Violent instability × dummy oil exporter	− 0.267	− 0.553*				
	(− 1.56)	(− 1.77)				
Elite instability			0.618**	0.585*		
			(2.20)	(1.87)		
Elite instability × dummy low income			− 0.601*	− 0.463		
			(− 1.65)	(− 1.14)		
Elite instability × dummy oil exporter			− 0.475	− 0.644**		
			(− 1.47)	(− 2.09)		
Social instability					− 0.080**	− 0.071***
					(− 2.32)	(− 2.10)
Social instability × dummy low income					0.059*	0.014
					(1.65)	(0.19)
Social instability × dummy oil exporter					0.094**	0.038
					(2.07)	(0.63)
Log initial income per capita	15.174***	7.108*	12.748***	4.416	9.157**	− 1.031**
	(3.71)	(1.89)	(3.58)	(1.46)	(2.25)	(− 1.93)
Log initial income per capita, squared	− 1.086***	− 0.565**	− 0.907***	− 0.354*	− 0.660**	
	(− 3.87)	(− 2.23)	(− 3.68)	(− 1.70)	(− 2.35)	
Arms imports, lagged	0.008	− 0.026	− 0.003	− 0.032***	− 0.004	− 0.003
	(0.42)	(− 1.38)	(− 0.24)	(− 2.81)	(− 0.84)	(− 0.34)
Openness policy, lagged	− 0.788	− 2.419	− 0.850	− 1.762	1.133	− 2.276
	(− 0.51)	(− 1.11)	(− 0.47)	(− 0.89)	(0.73)	(0.94)
Democracy, lagged	0.091***	0.024	0.105***	0.047	0.004	0.024
	(2.76)	(0.65)	(3.03)	(1.26)	(0.13)	(0.71)
Real value of exports instability	0.001***	0.0002	0.001**	0.0000	0.001**	− 0.0001
	(2.69)	(0.79)	(2.13)	(0.00)	(2.32)	(− 0.31)
Log population	− 0.040	0.023	− 0.128	0.773	0.231	1.125
	(− 0.05)	(0.03)	(− 0.15)	(0.82)	(0.21)	(0.96)
Observations	185	187	176	177	108	109
Fisher test on the model[a]	0.001	0.000	0.000	0.000	0.000	0.001
Fisher test on fixed effects[b]	0.000	0.000	0.000	0.000	0.000	0.000
Nakamura test on socio-political instability[c]	0.034	0.017	0.011	0.005	0.002	0.077
Overidentification test[d]	0.294	0.090	0.901	0.633	0.181	0.124
Nested test on squared instability[e]	0.225	0.183	0.418	0.614	0.121	0.318
Nested test on squared income[f]						0.637

except for oil exporters, for which it is an interest variable. Some doubts remain as to whether social instability is a need or a merit variable for low-income countries. Elite instability seems to be a safeguard variable for oil-exporting countries and a need variable for low-income countries. Interpretation for middle-income non-oil-exporting countries remains difficult at this stage and requires further research.

6.3. Differentiation of the sources of aid

Results of differentiating out the sources of aid are shown in Table 7.[35] Regressions (8)–(13) confirm that bilateral and multilateral aid do not have the same determinants. First, the quadratic relationship between the each kind of aid and income per capita are rather different. The turning point for bilateral aid is US$1080 per capita on average for regressions (8), (10), and (12), whereas it is almost half of it for multilateral aid (it is on average US$526 per capita in regressions (9) and (11), and the quadratic relationship even disappears in regression (13)).[36] Moreover, democracy and vulnerability are significant in bilateral regressions only. These results suggest altruistic motivations for both kinds of aid, but expressed in different ways.

Regarding the different types of socio-political instability, even though the results are less clear-cut than previously, they are consistent with the predictions of Table 2 and results of Tables 5 and 6. For bilateral aid, the qualitative threshold hypothesis between the safeguard and diversion attitudes of donors remains sustained. The coefficient of violent instability for oil-exporting countries in regression (8) is −0.267,[37] and coefficients of elite and social instability in regressions (10) and (12) are, respectively, 0.618 and 0.015. This result suggests that bilateral donors take into account the effects of the different kinds of socio-political instability on their own interests. For low-income countries, the discouragement effect appears for violent and social types of instability, but not for elite instability (for which the coefficient is positive). Finally, for middle-income non-oil-exporting countries, violent instability is no longer significant. Social instability is negative (suggesting that it captures merit of recipients), and elite instability is positive. For this latter case, we cannot, as for total ODA, discriminate between compensation and safeguard motivations of donors.

The picture is rather different regarding multilateral aid. First, the low-income dummy interacted with the different types of instability is never significant in regressions (9), (11), and (13). Violent and elite kinds of instability, therefore, remain positive and social instability is negative for the poorest countries. Violent and elite instabilities, thus, seem to be viewed by multilateral donors as need variables and social instability as a merit variable. Thus, the discouragement effect stressed in the case of total and bilateral aid does not appear in the case of multilateral aid. The negative effect of violent (−0.384), elite (−0.059), and social (−0.071) instabilities for oil-exporting countries in regres-

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[35] Estimations of Eqs. (8)–(13) with no interaction terms are available from the author by e-mail.

[36] The turning point of Alesina and Dollar (2000) for aggregate bilateral aid is on average US$840 per capita for their first five regressions.

[37] However, this coefficient is only significant at the 12% level. Also note that the coefficient of violent instability is not significant in regression (8).

sions (9), (11), and (13) can be interpreted in the following way: for those oil exporters that possess a large amount of natural resources, socio-political instability is seen by multilateral donors as merit variables. Therefore, donors try to reward more stable countries when they have a large amount of natural wealth. This result is consistent with the predictions of Table 2.

Another interesting point to note from Table 7 is that for middle-income non-oil-exporting countries, the effect of socio-political instability is similar for both sources of aid (with the exception of violent instability, which is not significant in regression (8) for bilateral aid). We can conclude that the two kinds of aid react similarly to the three types of socio-political instability, except for extreme case countries such as oil exporters or low-income countries.

7. Concluding remarks

The results presented in this paper show the socio-political instability influences on aid allocation by donors. The mechanisms are, however, complex, and differ depending on the type of instability. Three notions of socio-political instability have been considered that represent different signals for donors. Violent instability is the signal of social disorder, or even deep chaos, whereas elite instability reveals a rupture in the political life of a country, and social instability is the sign of a dissatisfaction of the people, or even a social upheaval.

Recipient countries' characteristics, and the kinds of aid, are crucial to an understanding of the effects of the different types of instability on aid allocation. Three regimes of aid allocation have been identified. The first regime concerns middle-income non-oil-exporting countries. For these countries, bilateral and multilateral aid react similarly: violent and elite forms of instability have a positive effect on aid allocation, whereas social instability has a negative effect. For low-income countries, a discouragement effect appears in the case of bilateral aid, but not for multilateral aid. For oil-exporting countries, bilateral donors' reactions to socio-political instability are influenced by risk aversion: a qualitative threshold is suggested, with a negative effect of violent instability and a positive effect of social and elite forms of instability. Unstable oil-exporting countries receive less multilateral aid, whatever the kind of socio-political instability they are facing. Finally, a normative approach to these issues would be interesting and would consist of determining how aid should react to socio-political instability. A further step in this line of analysis is, thus, to study the impact of aid on socio-political instability.

Appendix A. Presentation of socio-political events

Assassination	Any politically motivated murder or attempted murder of a high government official or politician.
General strike	Any strike of 1000 or more industrial or service workers that involves more than one employer and that is aimed at national government policies or authority.
Guerilla warfare	Any armed activity, sabotage, or bombings carried on by independent bands of citizens or irregular forces and aimed at the overthrow of the present regime.
Major government crisis	Any rapidly developing situation that threatens to bring the downfall of the present regime—excluding situations of revolt aimed at such overthrow.
Riot	Any violent demonstration or clash of more than 100 citizens involving the use of physical force.
Revolution	Any illegal or forced change in the top governmental elite, any attempt at such a change, or any successful or unsuccessful armed rebellion whose aim is independence from the central government.
Antigovernment demonstration	Any peaceful public gathering of at least 100 people for the primary purpose of displaying or voicing their opposition to government policies or authority, excluding demonstrations of a distinctly antiforeign nature.
Coup d'état	The number of extraconstitutional or forced changes in the top government elite and/or its effective control of the nation's power structure in a given year. Unsuccessful coups are not counted.
Civil war	If (a) military action is involved, (b) the national government at the time is actively involved, (c) effective resistance (as measured by the ratio of fatalities of the weaker to the stronger forces) occurs on both sides and (d) at least 1000 battle deaths.

Data on civil wars are from Singer and Small (1994) and are available at http://www.umich.edu/~cowproj/. Data of A Banks are available at http://www.worldbank.org/research/growth/GDNdata.htm.

Appendix B. Statistical correlations

	Assasination	Guerilla	Civil war	Coup d'état	Major government crisis	Revolution	Strike	Riot	Demonstration
Assasination	1								
Guerilla	0.310 (0.00)	1							
Civil war	0.312 (0.00)	0.474 (0.00)	1						
Coup d'état	0.120 (0.01)	0.148 (0.00)	0.150 (0.00)	1					
Major government crisis	0.249 (0.00)	0.454 (0.00)	0.167 (0.00)	0.335 (0.00)	1				
Revolution	0.275 (0.00)	0.471 (0.00)	0.576 (0.00)	0.493 (0.00)	0.402 (0.00)	1			
Strike	0.282 (0.00)	0.192 (0.00)	0.086 (0.01)	0.124 (0.01)	0.267 (0.00)	0.150 (0.00)	1		
Riot	0.228 (0.00)	0.223 (0.00)	0.088 (0.01)	0.040 (0.26)	0.221 (0.00)	0.094 (0.01)	0.447 (0.00)	1	
Demonstration	0.138 (0.01)	0.169 (0.01)	0.048 (0.36)	− 0.018 (0.75)	0.110 (0.04)	0.065 (0.23)	0.395 (0.00)	0.706 (0.00)	1

p-values in parentheses.

Appendix C. Descriptive statistics of the three types of socio-political instability

Type of instability	Mean	S.D.	Minimum	Maximum	No. of observations
Violent	1.450	3.561	0	27.810	190
Elite	0.775	1.223	0	7.174	181
Social	5.046	10.946	0	78.165	108

Appendix D. Correlations between socio-political instability variables and the other control variables of the model

	Violent instability	Elite instability	Social instability
Violent instability	1		
Elite instability	0.185 ** (0.035)	1	
Social instability	0.151 * (0.087)	− 0.023 (0.795)	1
Income per capita	0.136 (0.125)	− 0.089 (0.318)	0.174 * (0.050)
Population	− 0.003 (0.976)	− 0.060 (0.497)	0.106 (0.233)
Arms imports	− 0.014 (0.872)	0.084 (0.344)	− 0.012 (0.890)
Openness policy	0.079 (0.373)	− 0.108 (0.226)	0.073 (0.411)
Democracy	0.031 (0.726)	0.036 (0.685)	− 0.159 * (0.073)
Real value of export instability	0.008 (0.928)	− 0.053 (0.550)	− 0.058 (0.517)

p-values in parentheses.
   * Significant at 10% level.
   ** Significant at 5% level.

Appendix E. Instrumental variables used for each socio-political instability

	Violent	Elite	Social
Democratization	×	×	×
"Popularity" dummy variable	×	×	×
Average years of primary schooling (population aged 25), lagged and log	×	×	
Average years of secondary schooling (population aged 25), lagged and log	×	×	
Oil exports, lagged	×	×	
Square of oil exports, lagged	×	×	
(GDP per capita growth-3.Population growth), lagged	×		×
Population density	×		
"Contested institutions" dummy variable, lagged		×	×
Average years of higher schooling (population aged 25), lagged			×
Freedom status, lagged			×
Urban population, lagged and log			×

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