E C O N O M I C S  B U L L E T I N

# Foreign political instability and U.S. agricultural exports: evidence from panel data

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## *Abstract*

The intent of this paper is to examine the impact of political instability in importing nations on U.S. agricultural trade. A panel data set representing eighty−seven importing countries covering the 1990−2000 period was used to investigate how the degree of democratic practices and three types of political instability (violent, social, and elite) affect U.S agricultural exports. The empirical results suggest that political instability do have a statistically significant effect on U.S. agricultural export demand.

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## 1. Introduction

Although an extensive empirical literature exists on the role of economic variables in explaining bilateral trade, the relationship between political variables and trade has been relatively ignored. Many previous studies have generated various trade elasticities with respect to prices, level of income, and exchange rates. However, just as macroeconomic and financial variables affect the level of bilateral trade flows and consequently, economic growth, the existence and stability of political institutions also matter for growth in bilateral trade among nations. Thus, it is important to investigate the role of political institutions in the performance of the export sector.

Political instability can be defined generally as the degree of propensity for a change in the governance of a country, which may include any type of insurrection, revolution, and military-led coups. More specifically, political instability can be defined in terms of the frequency of events that increase the likelihood of social and political unrests. Examples of such indicators of political instability include the number of politically motivated assassinations, number of people killed as a result of domestic mass violence, number of successful coups, number of anti-government demonstrations and general strikes among others. Given the implications of recent news events, political instability may also include the effect of terrorist activities that can serve to undermine the stability of governments. Countries that have been reliably stable in the past can quickly become unstable after a substantial terrorist attack domestically or in neighboring nations.

In the trade literature, the relationship between political instability and bilateral trade flows remains largely unexplored. The few attempts to integrate political variables into standard trade models have focused primarily on total trade with no explicit attention to the potential impact of political instability in foreign markets on U.S. agricultural exports. Srivastava and Green (1986) showed, with data from 45 exporting countries and 82 importing countries, that "… stable nations tend to be the higher level exporters when bilateral trade are examined. Conversely, there is very little effect of the instability of the importing nation on the intensity of trade (p. 635)." Similarly, Morrow et al (1998) tested alternative hypotheses of the effect of international politics on trade flows and found that democratic government structure and political alliances increase bilateral trade. However, their emphasis was more on politics and political arrangements rather than on political instability. In another study, Summary (1989) also tested for the role of political variables in trade and concluded from the empirical results that international political factors may be important determinants of U.S. trade in industrial products.

Nevertheless, it is interesting to note that none of these past studies examined the impact of political instability on U.S. agricultural trade. There are several reasons why it is important to examine the effect of political instability on agricultural trade. First, the impact of political instability on the agricultural sector may be different from that of the industrial sector because of its relatively smaller size and other unique attributes. For instance, does the attribute of food as a basic necessity of life make the demand for US agricultural exports more or less responsive to foreign political instability? Also, agricultural trade represents approximately 10 percent of overall U.S. trade flows in 2000. Thus in a study with aggregate U.S. trade data, the impact of political instability on the agricultural sector may be overshadowed by the sheer size of the industrial sector effects. Second, there is need to extend previous studies as many of the

developing nations analyzed in past analyses have experienced considerable political and economic changes in recent years that could have major implications for global agricultural trade. This paper bridges the gap in the literature by analyzing the impact of political instability on U.S. agricultural trade over the period 1990 - 2000.

## 2. Conceptual Framework

Political instability can affect international trade directly through its effect on income and prices and indirectly through its impact on other economic variables such as investment in physical capital. The impact of PI on trade can be viewed from the perspective of both the exporter and importer country.

### *2.1 Exporting country Impact*

In the case of the *exporting country*, internal political instability can directly affect the level of exports. Domestic production may be negatively affected by the increasing level of political and economic uncertainty. Productivity can be negatively affected by disruption of production schedules generated by political instability during periods of labor strikes and political unrest. The production inefficiency argument was empirically supported by findings of several researchers (see Alesina and Tabellini, 1989). The possibility of sudden government change to a new political administration that may engage in anti-market economic policies may be disturbing to local and foreign investors and entrepreneurs. For example, economic polices that impose new taxes on capital and productive activities would discourage expansion in domestic production. Rather, it will encourage the substitution of productive domestic investments in favor of consumption and capital flight.

Furthermore, potential disruptions from political instability create political risk for economic agents involved in international trade. The higher the potential for political instability, the more profitable the trade should be to compensate for the risk of future disruption and loss of export revenue. Also, the potential threat of future government action to restrict trade can lead to reduction in the current production and volume of international trade (Pollins, 1989, Morrow et al, 1998). Not only does PI reduce productivity of labor and capital factors, it can also lead to significant decline in high skilled human capital because of the "brain drain" that usually accompanies political instability (Gyimah-Brempong, 1999, Fosu, 2003).

Several studies have shown that a negative relationship between PI and domestic economic performance can be established via a transmission variable such as income inequality and investment (Barro, 1991, Alesina and Rodrik, 1994, Persson and Tabellini, 1994, Easterly and Levine, 1997). Income inequality can stimulate political instability, which in turn harms capital accumulation (investment) and economic growth. Social discontent motivated by income inequality can lead to an increase in cases of socio-political instability which may cause a reduction in physical capital investment. Furthermore, foreign direct investment is reduced as foreign firms and investors may be discouraged by the regular stoppages of investment projects and productive activities due to frequent occurrences of political crises (e.g., coup d'etats, riots, guerrilla warfare, labor strikes, and kidnappings). Consequently, political instability reduces investment and thus impedes economic growth and trade.

*2.1 Importing country Impact*

In the case of the *importing country*, political instability can indirectly affect the level of imports demanded via the impact of political uncertainty on economic growth and other macroeconomic variables such as domestic prices, income, interest rates, unemployment, and exchange rates (Cukierman et al, 1992, Collins, 1996). Political instability increases financial capital flight and reduces the incentive for the accumulation of physical capital that ultimately leads to reduction in economic growth. Lower economic growth rate implies lower national income and decline in the ability to pay for imports. Thus, the demand for imports of U.S. agricultural products may decline due to political instability abroad.

Alternatively, political instability in importing countries may lead to an increase in the demand for U.S. agricultural products. This scenario is plausible if one assumes that imports serve as a foreign substitute for losses in domestic production caused by the disruptive effects of political instability. Political instability can lead to higher U.S. export demand in the short run as it could serve as a domestic supply shifter in the importing country. Assuming a composite agricultural commodity, if there is political instability in the import market (reducing domestic production)' then the domestic supply curve can shift leftward. Thus, the demand for imports could increase. This implies the possibility of a short-run increase in U.S. agricultural exports due to instability-induced shock to domestic production in the importing country. Of course, this scenario would be attenuated by the negative impact of political instability on the purchasing power of importers as income level declines. Nevertheless, people must eat, so there would still be some level of food imports even though income may decline. Hence, the relative impact of political instability compared to income effects on food imports is a matter of empirical testing.

## 3. Empirical Analysis

Early empirical formulations tried to capture the relationship between political instability and export growth by incorporating measures of political instability in an export growth equation which capture demand-side influences (Srivastava and Green, 1986, Summary, 1989, Fosu, 2003). As discussed in the previous section, the inclusion of PI and DEMOC variables in a traditional export equation allows for the consideration of internal factors that may affect export demand beyond the effects of exchange rates and income alone. An augmented export demand function is given as:[1]

$$\ln X_{it} = \beta_0 + \beta_1 \ln PX_{it} + \beta_2 \ln Y_{it} + \beta_3 DEMOC_{it} + \beta_4 PI_{it} + \varepsilon_{it} \qquad (1)$$

Where X represents real exports growth, A is a constant term, $PX_{it}$ represents the real exchange rates (price of exports), and $\beta_1$ is the price elasticity of demand for exports and the expected sign is negative. Y denotes the importing country's income, and $\beta_2$ is the income elasticity,

[1] A reviewer noted that the variability in agricultural exports could also be due to supply side factors (e.g. weather variability, U.S. agricultural policy). Although this is an accurate observation, the current study is primarily focused on the demand side with special emphasis on the possible impact of political instability abroad on foreign demand for U.S. agricultural exports. In addition, time series plot of U.S. agricultural exports over the 1990-2000 range reveals that the variable trend was not very volatile.

and t denotes time subscript. The expected sign of the income elasticity is positive. DEMOC is a measure of the degree of general openness of political (democratic) institutions and PI denotes a form of political instability in the importing country. The expected sign of $\beta_3$, the DEMOC coefficient, is positive while $\beta_4$ is also expected to be positive. $\varepsilon_{it}$ is the error term and it is normally distributed with zero mean and constant variance.

*3.1 Measures of Political and Institutional Instability*

DEMOC is an index with scores ranging from 0 (lowest) to 10 (highest). The DEMOC variable scores each country by using four criteria: (i) competition in participation in the political process, (ii) competition in recruitment of the executive, (iii) openness of the recruitment of the executive, and (iv) independence of the chief executive. Several authors have shown that the existence of democratic institutions is a key determinant of trade (Pollins, 1989, Morrow et al, 1998). For instance, high DEMOC scores are recorded by democratic political systems in nations such as the United States, Canada, and most members of the European Union. Historically, U.S. trade policy is an integral part of its overall foreign policy. Summary (1989) noted that the U.S. engages in more trading activities with other democratic nations since this policy serves both U.S. economic and political interests.

Three alternative measures of political instability were used. The first variable, Elite_PI, is measured as the frequency of government crises. It serves as a proxy measure of executive transition in national government. As in Alesina and Perotti (1996), it is assumed that a high propensity to executive changes implies political uncertainty and potential threat to property rights. In contrast to the first measure of political instability, the remaining two measures are based upon indicators of *social unrest and political violence*. The second measure of political instability, Social_PI, is the frequency of riots and protests. This variable serves as a measure of national social unrest. The third political instability variable, Violent_PI, is proxied by the number of assassinations. This is a measure of the frequency of the occurrence of violent political activities. As discussed previously, PI is hypothesized to disrupt domestic production process in the importing countries and thus serve as a domestic supply shifter. The reduction of domestic production by importers will lead to an increase in excess demand for imports and consequently lead to higher world price. As the world price rises, it would stimulate more supply of exports from the exporting country. Therefore, the effect of political instability on U.S. agricultural export is expected to be positive.

*3.2 Data*

The explanatory variables used in the empirical analysis are divided into two broad categories: (a) economic variables designed to measure the recent national economic trends, and (b) political variables that capture the significant political events that may signal future political disruptions. The full data set used covers 87 countries that imported U.S. agricultural products over the post Cold War sample period (1990 -2000). Table 1 presents a listing of the 87 countries included in the study. The dependent variable is the value of exports from the U.S. to nation i, in time t, in millions of constant U.S. dollars. The control economic variables are real GDP of importers in millions of constant U.S. dollars, and the real exchange rates. The data on GDP, and real exchange rates were obtained from the Penn World Tables 6.1 (Heston et al, 2002). Data on agricultural exports were obtained from USDA's Foreign Agricultural Service

(FAS). The political variables, democracy and various measures of political instability were obtained from the Polity IV (Marshall et al, 2003) and Banks (2002) databases, respectively. Natural logarithmic transformations of all variables (except DEMOC and PI) are used in the estimation.

Table 1. Countries Included in the Sample Panel Data.

| Africa | South America | OECD | Middle East | Asia |
|---|---|---|---|---|
| Benin | Argentina | Australia | Bangladesh | China |
| Botswana | Bolivia | Austria | Egypt | Indonesia |
| Cameroon | Brazil | Belgium | India | Korea Republic |
| Chad | Chile | Canada | Iran | Malaysia |
| Cote d'Ivoire | Colombia | Denmark | Israel | Philippines |
| Ethiopia | Costa Rica | Finland | Jordan | Thailand |
| Gabon | Dominican Republic | France | Morocco | |
| Ghana | Ecuador | Germany | Nepal | |
| Kenya | El Salvador | Greece | Pakistan | |
| Madagascar | Guatemala | Iceland | Sri Lanka | |
| Malawi | Guyana | Ireland | Syria | |
| Mali | Haiti | Italy | Tunisia | |
| Mauritius | Honduras | Japan | Turkey | |
| Mozambique | Jamaica | Netherlands | | |
| Niger | Mexico | New Zealand | | |
| Nigeria | Nicaragua | Norway | | |
| Rwanda | Panama | Portugal | | |
| Senegal | Paraguay | Spain | | |
| Sierra Leone | Peru | Sweden | | |
| South Africa | Trinidad | Switzerland | | |
| Tanzania | Uruguay | United Kingdom | | |
| Togo | Venezuela | | | |
| Uganda | | | | |
| Zambia | | | | |
| Zimbabwe | | | | |

Regional groupings of countries are based on the classifications used by the World Bank.

## 4. Estimation and Empirical Results

Hsiao (2003) argue that OLS estimates of equation (1) may yield biased estimates if certain specification issues are not adequately addressed. First, for a large and diverse cross-section of countries as in this study, OLS is subject to unobservable heterogeneity bias. A common remedy is the specification of a model that includes country specific fixed effects in the panel regressions. The fixed effects estimator, which accounts for the unobserved country-specific effects require the transformation of equation (1) so that each variable for each country is normalized in such a way that the time-invariant country-specific effects are removed.

Second, endogeneity problem may exist because the causal link between export demand, price, and political instability may be bi-directional. For example, while export growth may affect PI, the reverse is also possible. If endogeneity problem is confirmed, then an instrumental variable (IV) estimation method will be more appropriate. The Hausman test was used to determine the presence of the endogeneity problem and the test results fail to provide statistically significant evidence in support of endogeneity of the regressors. Since heteroskedasticity is a problem for panel data, the parameter estimates were calculated based on robust standard errors from White's (1980) heteroskedasticity-consistent covariance matrix.

Although many previous studies aggregated data from many countries, some authors have shown that income and price elasticities can vary widely across regions (Senhadji and Montenegro, 1999, Santos-Paulino, 2002). Hence, parameter estimates from widely aggregated countries data may be unreliable given the diverse nature of the trade policies, economic, and political characteristics of these nations. To determine if the elasticities and impact of political instability differ across geographical regions, the importing countries in the sample were divided into five sub-groups: Sub-Sahara Africa, East Asia, Middle East, OECD, and South America.

Table 2 presents the results from the panel fixed effect model[2] using the number of assassinations as the measure of violent political instability. The results for all countries in column 2 show a statistically significant relationship between U.S. agricultural exports and the economic control variables (importer income growth and change in prices). The income elasticity of 0.919 and the export price elasticity of -0.017 have the expected sign and are both significantly different from zero. The income elasticity estimate is broadly consistent with those of earlier studies for U.S. agricultural exports (Belongia, 1986, Batten and Belongia, 1986, Cho et al, 2002). The low price elasticity may reflect loss of export revenues in the 1990s as many importers made themselves more competitive via the devaluation of their currencies relative to the U.S. dollar. Furthermore, the democracy index has a positive and significant impact on U.S. agricultural trade.

Similar to the significant democracy coefficient, the measure of violent PI is also positive and statistically significant at the one percent level. This implies that U.S. export demand increases in order to make up for the short term shortage in food availability due to domestic political instability in the importing country. Some of the impact of PI on US agricultural trade with the poorer nations may reflect the effect of the U.S. food aid program

[2] This study also considered the random effects model, but the Hausman test indicates that the fixed effect model is better. This is to be expected as the sample of 87 countries included in this study contains the vast majority of countries that import agricultural products from the U.S.

exports. The impact of the Public Law 480 Program (PL480), also known as the Food for Peace Program, is greater for low-income countries with under-developed economic and political institutions. Under Title I of the PL480 program, the U.S. government provides long-term concessional credit (up to thirty-year loan) to the recipient nation for the purchase of U.S. agricultural commodities. It is reasonable to assume that food aid programs account for part of the increase in food exports to politically unstable nations in parts of Sub-Sahara Africa and Southeast Asia. Importing nations such as Angola, Ethiopia, and Bangladesh are perennial beneficiaries of the PL480 Food for Peace Program.

Table 2. Effect of Violent Political Instability on U.S. Agricultural Exports (1990-2000).

| Independent Variables | Total | OECD | Africa | Asia | Middle East | South America |
|---|---|---|---|---|---|---|
| Income | 0.919*** | 0.453*** | 0.147*** | 0.883*** | 1.499*** | 0.863*** |
| | (18.99) | (2.98) | (2.91) | (4.93) | (6.99) | (3.56) |
| Export Price | -0.017* | -0.174*** | 0.009* | 0.002 | 0.020 | -0.024** |
| | (-1.89) | (-3.08) | (1.80) | (0.13) | (0.93) | (-2.14) |
| DEMOC | 0.002* | 0.060*** | -0.001 | 0.005* | 0.002 | -0.006 |
| | (1.66) | (3.72) | (-1.37) | (1.67) | (0.50) | (-1.25) |
| Violent_PI | 0.016*** | -0.001 | 0.028** | 0.005 | 0.022* | 0.006** |
| | (7.68) | (-0.21) | (2.02) | (0.33) | (1.72) | (2.33) |
| $R^2$ | 0.45 | 0.28 | 0.06 | 0.88 | 0.68 | 0.32 |

Heteroskedasticity-consistent t-statistics in parentheses. All regressions include time dummies.

* Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level.

Next, the results from the regionally disaggregated data are presented in Table 2 (columns 3-7). As expected the estimated parameters vary by region. The income elasticity, which is statistically significant at the one percent level for all regions, is largest for the Middle East (1.499) and smallest for Africa (0.147). Export price elasticity estimates are statistically significant and negative for OECD and South American countries. Similarly, the degree of democratic practices positively affects U.S. exports to OECD and Asian countries. The impact of PI on U.S. exports is positive and statistically significant for Sub-Sahara Africa, Middle East, and South America. This outcome is plausible since these three regions have experienced a considerable number of political events that can be perceived as sources of regional instability.

Tables 3 and 4 present estimates for measures of social and elite political instabilities, respectively.[3] Relative to earlier conclusions for Violent_PI (in Table 2), the estimated income and price elasticities and democracy estimates for the models are very similar. The key difference in the empirical results is in the estimates for PI. From Table 3, U.S. export demand responds to social PI (Riots) using the aggregate (total) data. However at the regional level, U.S. export does not respond to Social_PI (Riots). The only exception is Africa. This finding is supported by popular news reports of regular occurrences of civil unrests and mass riots in many cities in Sub-Sahara Africa. As shown in Table 4, while the estimated impact of Elite_PI (Government crises) is statistically significant for the aggregate data, it is not significant for most of the regions. The southeast Asia region is the only exception where the Elite_PI coefficient is significant at the one percent level. Many Asian democracies subscribe to the parliamentary form of government that is more prone to unexpected changes at the executive level due to cabinet reshuffles or changes in the prime ministerial office. Such abrupt changes can have significant impact on foreign investment and key macroeconomic indicators (e.g., inflation, interest rate, and exchange rate) which ultimately affect trade levels.

Table 3. Effect of Social Political Instability on U.S. Agricultural Exports (1990-2000).

| Independent Variables | Total | OECD | Africa | Asia | Middle East | South America |
|---|---|---|---|---|---|---|
| Income | 0.920*** | 0.444*** | 0.158*** | 0.875*** | 1.457*** | 0.837*** |
| | (18.57) | (2.83) | (3.15) | (5.16) | (6.84) | (3.57) |
| Export Price | -0.015* | -0.176*** | 0.009* | -0.005 | 0.015 | -0.024** |
| | (-1.67) | (-3.09) | (1.75) | (-0.51) | (0.66) | (-2.32) |
| DEMOC | 0.002* | 0.058*** | -0.002 | 0.005** | 0.002 | -0.007 |
| | (1.65) | (4.02) | (-1.50) | (1.96) | (0.58) | (-1.49) |
| Social_PI | 0.007*** | -0.005 | 0.014*** | 0.001 | 0.003 | 0.006 |
| | (3.48) | (-1.11) | (3.28) | (0.61) | (0.80) | (0.76) |
| $R^2$ | 0.43 | 0.28 | 0.07 | 0.88 | 0.66 | 0.31 |

Heteroskedasticity-consistent t-statistics in parentheses. All regressions include time dummies.

* Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level.

[3] To test the robustness of the three PI measures reported in Tables 2-4, each model was also estimated with alternative PI proxies as follows: Revolutions; Coup d'etats; General labor strikes; Anti-government demonstrations; and Guerilla warfare. The empirical results from these alternative indicators of PI provide conclusions similar to those reported.

Although the positive signs on the PI measures may indicate that more political unrest and instability abroad is good for U.S. agricultural exports, there is need for caution. The empirical results need to be placed in perspective and within the context of actual bilateral trade flow by regions. The income elasticity estimates are much larger than the PI and democracy variable estimates. This indicates that the foreign income growth effect has a larger impact than PI on the demand for U.S. exports abroad. In addition, since PI has been shown to negatively impact domestic national income, the small positive impact of PI on export demand is even smaller as the effect is possibly weakened by the corresponding reduction in purchasing power in the importing country. Furthermore, historical trade data show that the majority of U.S. trade is with other industrial nations, such as the OECD members.[4] In comparison to the economically poorer regions, the industrial nations tend to have stronger political institutions and higher income level that translates into higher purchasing power. Therefore, relative to the effects of economic variables (income and price) on trade, the impact of political variables on U.S. agricultural trade may be rather limited.

Table 4. Effect of Elite Political Instability on U.S. Agricultural Exports (1990-2000).

| Independent Variables | Total | OECD | Africa | Asia | Middle East | South America |
|---|---|---|---|---|---|---|
| Income | 0.911*** | 0.456*** | 0.147*** | 0.836*** | 1.474*** | 0.799*** |
| | (18.65) | (3.04) | (2.89) | (5.55) | (6.66) | (3.19) |
| Export Price | -0.017* | -0.174*** | 0.009* | 0.051* | 0.014 | -0.023** |
| | (-1.73) | (-3.05) | (1.76) | (1.87) | (0.66) | (-2.15) |
| DEMOC | 0.002 | 0.060*** | -0.001 | 0.007*** | 0.002 | -0.007 |
| | (1.61) | (3.56) | (-1.36) | (3.10) | (0.40) | (-1.48) |
| Elite_PI | 0.012** | 0.001 | 0.021 | -0.032*** | 0.015 | -0.011 |
| | (2.18) | (0.09) | (1.22) | (-3.28) | (1.23) | (-1.38) |
| $R^2$ | 0.43 | 0.28 | 0.05 | 0.90 | 0.65 | 0.31 |

Heteroskedasticity-consistent t-statistics in parentheses. All regressions include time dummies.

* Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level.

[4] Trade data in 2001 show that eight of the top ten importers of US agricultural products were high income industrial nations (Japan, Canada, Mexico, South Korea, Taiwan, Netherlands, Hong Kong, and the United Kingdom) and they accounted for about sixty-one percent of total US agricultural export value.

## 5. Concluding Remarks

This paper examined the potential impact of foreign political instability on U.S. agricultural exports by analyzing a sample panel data set that includes 87 importing countries of U.S. agricultural products covering the 1990-2000 period. Three alternative measures of political instability were used: a measure of executive transition in national government (Elite_PI), a measure of the frequency of social unrest (Social_PI), and a measure of the frequency of the occurrence of violent political unrest (Violent_PI).

The empirical results show that the three measures of political instability are statistically significant, but with a positive sign. This suggests that cases of political instability can actually increase the foreign export demand for U.S. agricultural products. This finding is only plausible if we assume that domestic political instability disrupt local agricultural production, but does not cut off communication and transportation routes necessary for imports of food and other agricultural products. Furthermore, consistent with previous studies, U.S. agricultural export demand is also found to be significantly affected by economic variables such as foreign income and export price.

As discussed earlier, the results from this analysis do not necessarily imply that political instability is beneficial for U.S. exports. The econometric model estimates tell a partial story and the conclusions from the results must be interpreted with care. A closer examination of the estimates in Tables 2-4 shows that the impact of the economic factors on trade is relatively larger than the impact of the political variables. Previous studies have established the negative relationship between political instability and economic growth (Barro, 1991, Alesina and Rodrik, 1994, Persson and Tabellini, 1994, Easterly and Levine, 1997). This implies that a politically unstable nation will have lower productivity and national income. Thus, in the long run, political instability will lead to a reduction in a nation's ability to pay for its imports. As seen in many politically unstable and low-income economies, the net importer nation's ever increasing trade imbalance and larger national debt burden may not be sustainable. Future export demand will have to be reduced. Although political instability can encourage more trade in the short-term horizon, it will ultimately cause negative consequences for the domestic importing nations and the global economy. In terms of policy implications of this study, the short term spike in U.S. exports due to foreign political instability is outweighed by the income growth effect. One limitation of this study is that it only focused on the short-run effects of political instability. However in future research, the framework presented in this study could be extended to the analysis of long-run effects of political instability on exports.

## References


Alesina, A., and R. Perotti (1996) "Income Distribution, Political Instability, and Investment" *European Economic Review* **40**, 1203-28.

Alesina, A., and D. Rodrik (1994) "Distributive Politics and Economic Growth" *Quarterly Journal of Economics* **109**, 465-90.

Alesina, A., and G. Tabellini (1989) "External Debt, Capital Flight and Political Risk" *Journal of International Economics* **27**, 199-220.

Banks, A.S. (2002) *Cross-National Time Series Data Archive*. Center for Social Analysis, State University of New York at Binghamton, Binghamton: New York.

Barro, R. J. (1991) "Economic Growth in a Cross Section of Countries" *Quarterly Journal of Economics* **106**, 407-43.

Batten, D. S., and M. T. Belongia (1986) "Monetary Policy, Real Exchange Rates, and U.S. Agricultural Exports" *American Journal of Agricultural Economics* **68**, 422-27.

Belongia, M. T. (1986) "Estimating Exchange Rate Effects on Exports: A Cautionary Note" *Federal Reserve Bank of St Louis Review* **68**, 5-16.

Cho, G., I. M. Sheldon, and S. McCorriston (2002) "Exchange Rate Uncertainty and Agricultural Trade" *American Journal of Agricultural Economics* **84**, 931-42.

Collins, S. M. (1996) "On Becoming More Flexible: Exchange Rate Regimes in Latin America and the Caribbean" *Journal of Development Economics* **51**, 117-38.

Cukierman, A., S. Edwards, and G. Tabellini (1992) "Seigniorage and Political Instability" *American Economic Review* **82**, 537-55.

Easterly, W., and R. Levine (1997) "Africa's Growth Tragedy: Policies and Ethnic Divisions" *Quarterly Journal of Economics* **112**, 1203-50.

Fosu, A. K. (2001) "Political Instability and Economic Growth in Developing Economies: Some Specification Empirics" *Economics Letters* **70**, 289-94.

Fosu, A. K. (2003) "Political Instability and Export Performance in Sub-Saharan Africa." *Journal of Development Studies* **39**, 68-83.

Gyimah-Brempong, K., and T. L. Traynor (1999) "Political Instability, Investment and Economic Growth in Sub-Saharan Africa" *Journal of African Economies* **8**, 52-86.

Heston, A., R. Summers, and B. Aten (2002) Penn World Table Version 6.1, Center for International Comparisons at the University of Pennsylvania (CICUP). Website: http://www.nber.org.

Hsiao, C. (2003) *Analysis of Panel Data*, Second Edition, Cambridge University Press: Cambridge.

Marshall, M.G., K. Jaggers, and T.R. Gurr (2003) Polity IV Project: Political Regime Characteristics and Transitions. Website: http://www.cidcm.umd.edu/inscr/polity/index.htm.

Morrow, J.D., R.M. Siverson, and T.E. Tabares (1998) "The Political Determinants of International Trade: The Major Powers, 1907-90" *American Political Science Review* **92**, 649-661.

Persson, T., and G. Tabellini (1994) "Is Inequality Harmful for Growth?" *American Economic Review* **84**, 600-621.

Pollins, B. (1989) “Conflict, Cooperation, and Commerce: The Effect of international

Political Interactions on International Trade Flows" *American Political Science Review* **33**, 737-761.
Santos-Paulino, A. U. (2002) "Trade Liberalisation and Export Performance in Selected Developing Countries" *Journal of Development Studies* **39**, 140-64.
Senhadji, A. S., and C. E. Montenegro (1999) "Time Series Analysis of Export Demand Equations: A Cross-Country Analysis" *IMF Staff Papers* **46**, 259-73.
Srivastava, R. K., and R. T. Green (1986) "Determinants of Bilateral Trade-Flows." *Journal of Business* **59**, 623-640
Summary, R. M. (1989) "A Political-Economic Model of U S Bilateral Trade" *Review of Economics and Statistics* **71**, 179-82.
United States Department of Agriculture, Foreign Agricultural Service. U.S. Trade Exports, FATUS Commodity Aggregations. Website: http://www.fas.usda.gov/ustrade/USTExFatus.asp?QI=
White, H. (1980) "A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity" *Econometrica* **48**, 817-38.