Does Industrial Concentration Impact on the Relationship between Policies and Volatility?

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Abstract

It is usually recommended that countries diversify their economies to guard against any negative shocks that might impact on one industry. However, previous research has not identified how concentration can impact on the effectiveness of macroeconomic policies. This paper attempts to evaluate the relationship between concentration, policies and economic volatility for a sample of 147 countries for the period 1970 to 2005. The study reports that more diversified countries tend to have lower rates of output, consumption and investment volatility. The effects of both expansionary monetary and fiscal policies are, however, enhanced in more diversified economies. In addition, while trade and capital account openness variables alone tend to diminish economic volatility, in relatively less diversified economies opening both the capital and trade account can kindle economic volatility.

1.   Introduction

Persistently high rates of economic volatility continue to be a key policy concern in most developing countries. Significant fluctuations in economic activity, assuming that volatility is associated with uncertainty, can cause firms to invest in the wrong projects, resulting in sluggish investment growth (Bertola and Caballero, 1994) and can also impact on poverty through growth or its effect on income distribution. Baldacci, et al. (2002) and Agénor (2002) identify a number of channels through which volatility can impact on income distribution, these include changes in relative prices, labour demand and employment, returns on physical assets and capital gains or losses, public or private transfers and community environment effects.

Ever since Brainard and Cooper (1968), it has been recognised that economic diversification can be employed as a long term strategy to reduce economic volatility.   Economic diversification reduces volatility since it makes the economy less vulnerable to sector-specific shocks (Burns, 1960). Therefore, any event that exerts a negative effect on one industry could be offset by increases in other industries of the economy. Acemoglu and Zilibotti (1997) develop a growth model with micro level non-convexities and uncertainty and showed that more sectors that are open to investment, the larger the proportion of savings economic agents will invest in risky projects. This leads to greater capital accumulation and allows the country to reach a take-

off stage characterised by full diversification of idiosyncratic risks. Similarly, Razin and Rose (1994), Sutherland (1996) and Caballero and Krishnamurthy (2000) argue that international diversification, opening the country's capital account to flows into and out of the country, provides domestic economic agents a wider variety of investment projects can also reduce macroeconomic volatility.

Despite the established theoretical link between volatility and diversification, there are relative few previous studies investigating this relationship. Mobarak (2005) considers the impact of diversification on economic volatility using a panel of 136 countries for four decade-specific time periods ending in the 1990s. Three measures of economic diversification were employed: (1) a Herfindahl concentration index of the agriculture, industry and services share of GDP, (2) services share of GDP, and (3) dummies for diversified exporters. Mobarak reports that all the proxies for diversification were negative and significantly related to economic volatility. Koren and Tenreyro (2007), in contrast, develop a variance decomposition approach to disaggregate overall volatility into three components: (1) volatility of sectoral shocks; (2) aggregate country-specific shocks, and; (3) covariance between country-specific and sector-specific shocks. The authors report that GDP growth is much more volatile in poor countries as a result of these countries specialising in more volatile industries and experiencing more recurrent and sharp aggregate shocks. Koren and Tenreyro therefore recommended that

firms in these countries use a larger variety of inputs to lessen the impact of any negative shocks affecting the efficiency of individual inputs.

Previous theoretical and empirical research has established that there exists a positive relationship between volatility and concentration. However, this literature ignores the potential impact that concentration can have on the relationship between volatility and macroeconomic policies. There are reasons to believe that diversification can change not only the potency but directional impact of macroeconomic policies. For example, previous authors have found that while openness increased volatility in developing countries, it helped to smooth output fluctuations in developing countries (Bejan, 2006). Similarly, while Gali (1994), Fátas and Mihov (2001) and Andrés, Domenech, and Fátas (2004) find a strong inverse relationship between government expenditure and economic volatility in OECD states, Virén (2005) report that this relationship is not very robust once the sample is widened to include developing countries. To the extent that developed countries are relatively more diversified, the benefits of trade openness and fiscal policy, in terms of smoothing out economic fluctuations, seems to accrue to more diversified economies.[2]

In this paper the authors employ a database containing observations on 147 countries between 1970 and 2005 to investigate the relationship between

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[2] Buch, Döpke and Strotmann (2006) provide firm-level evidence that shows that smaller less diversified firms have a higher rate of economic volatility as a result of trade openness.

volatility, macroeconomic policies and industrial concentration. Using panel data techniques, the authors first estimate a standard model of economic volatility. Three types of volatility are employed: consumption volatility, investment volatility and output volatility. The basic empirical model is then augmented with interaction terms that capture the differential impact that policies can have in less concentrated economies. Various tests of the robustness of results are employed, such as varying the measure of industrial concentration and volatility and employing different estimation techniques.

The rest of the paper is organised as follows: Section 2 provides some stylised facts on the relationship between diversification and volatility, while Section 3 outlines the econometric approach employed in the study. The empirical results are reported in Section 4 and some concluding remarks are given in Section 5.

2. Stylised Facts

One of the main predictions of international trade theory is that countries can gain from specialisation if there are differences in technology, factor endowments or increasing returns to scale. However, in the presence of uncertainty and the absence of markets for insuring risk, specialisation can lead to a higher level of output volatility. Brainard and Cooper (1968), using a two-commodity model of international trade, shows that in the presence of uncertainty a country can stabilise its export earnings by diversifying into exports that are inversely correlated with movements in world prices. Similar results are obtained by Kemp and Liviatan (1973) and Ruffin (1974).

Acemoglu and Zilibotti (1997) present an alternative channel through which diversification can influence economic volatility. In Acemoglu and Zilibotti, during a country's early stages of development a lack of diversification limits the degree of risk-spreading that the economy can achieve. Acemoglu and Zilibotti show that the inability to spread risks will hamper capital productivity and in the long run lead to relatively modest rates of capital accumulation and high output volatility.

Kraay and Ventura (2001), on the other hand, argue that business cycles in developed countries are a lot less volatile than in developing countries, because comparative advantage causes developed states to specialise in industries that use technologies that are operated by skilled workers. Because of the difficulty in imitating new technologies, countries that produce these goods have more market power and enjoy more inelastic product demands and are therefore less volatile. Building on Romer (1990) and Kraay and Ventura (2001), Koren and Tenreyo (2005) develop an endogenous growth model of technological diversification. In this framework diversification affects the productivity of inputs through two channels: (1) a larger variety of inputs implies that any given input is less important in the production process, and; (2) if a shock impacts on a particular input, firms can use other inputs to partially offset the shock. As a result, the productivity of individuals will be less volatile in the presence of greater diversification.

To provide a preliminary glimpse at the relationship between volatility and industrial concentration, Figure 1 plots the Herfindahl-Hirschman index of concentration against average volatility for the sample of countries examined in this study. The figure shows that there seems to be positive relationship between volatility and concentration, indicating that those countries that focus on a small number of industries tend to have higher rates of economic volatility. A similar finding is obtained when one investigates the link between diversification and consumption and investment volatility.

To examine the differences in volatility between developing and developed countries as well as more concentrated and less concentrated economies, Table 1 disaggregates the countries into various country and income groupings and calculates the average output, consumption and investment volatility for each group. Similar to Kose, Prasad and Terrones (2005), the volatility of output, consumption and investment are all higher for low to middle-income countries relative to high income states. However, the differences in volatility for low- to middle-income states are quite large. For example, the output volatility of Middle East and North Africa is almost twice that of Latin America and the Caribbean. By and large, the Middle East and North Africa is the most volatile region, followed by Sub-Saharan Africa. With the exception of low- to Middle-Income states in Europe and Central Asia, most regions experienced reductions in overall output volatility. With the output volatility of countries in Latin America and the Caribbean and

South Asia, reporting rates of economic volatility close to those in high-income countries.

Generally, most countries had relatively higher rates of consumption and investment volatility relatively to overall output volatility. Average consumption and investment volatility for high income states was about 0.043, while for output volatility it was about 0.029. Similarly, average consumption and investment volatility in low- to middle-income states was 0.074 and 0.100, compared to 0.046 for output volatility. Countries in Europe and Central Asia and Sub-Saharan Africa all experienced rising rates of consumption and investment volatility. In contrast, high income states and those in the Middle East and North Africa experienced declining rates of consumption volatility.

The table also disaggregates the countries into less and more concentrated countries. More concentrated countries are defined as those that had average concentration ratios above the median country. In terms of output, average volatility between the two country-groupings is quite similar. However, if one examines the decadal averages, it is apparent that less concentrated countries experienced a larger reduction in volatility between the 1970s and 1990s; by the 1990s less concentrated states had, on average, a lower mean rate of output volatility. Similarly, while consumption volatility for more concentrated states rose between the 1980s and 1990s, in more

diversified countries average volatility declined between the two decades. In the case of investment volatility, less concentrated nations had relatively unchanged rates of economic volatility between the three decades, while less diversified countries witnessed a significant jump in volatility, particularly during the 1990s.

3. Methodology and Data

3.2 Econometric Approach

The previous results present only a cursory analysis of the relationship between volatility and industrial concentration. There are a number of other factors that may impact on volatility that are not explicitly taken into account using basic bivariate correlation analysis. To effectively take account of these factors, a variety of empirical models linking industrial concentration to economic volatility are examined. The study first estimates a simple regression of volatility on diversification and the other main control variables identified in the previous literature:

$$vol_{it} = \alpha_i + \beta d_{it} + \delta X_{it} + u_{it}$$

(1)

where α_i are the country-specific effects, vol is a measure of volatility, d is the index of concentration, X is a matrix of control variables and u is error term observed for each country i and each time period t. Regressions are

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estimated for the full sample of countries, different regions and income groups.

The control variables employed in the study include growth in GDP per capita, inflation volatility, inflation, trade openness, financial openness, government consumption, world GDP growth, and the levels and change in the terms of trade. Economic growth can have either a positive or negative impact on economic volatility. Countries that aim at higher average growth rates must accept correspondingly higher risks since economic agents will be investing in relatively riskier projects. On the other hand, if recessions lead to tighter financial and fiscal constraints, this could reduce human capital accumulation and reduce productivity-enhancing expenditures and therefore increase economic volatility (Martin and Rogers, 1997; Talvi and Vegh, 2000). Similarly, inflation volatility creates greater business and employment uncertainty and should therefore be associated with higher levels of volatility. World growth and the levels and changes in the terms of trade are included to capture the international transmission of volatility.

The policy variables included are: inflation (monetary), government consumption (fiscal), trade openness and financial openness. A priori, a rise in inflation makes setting contracts more difficult and should be positively related to economic volatility. Government consumption is anticipated to be inversely related to economic volatility as changes in taxes and transfers over

the business cycle can reduce the volatility of disposable income, consumption and investment. The effects of trade and financial openness are also ambiguous (see Karras and Song, 1996; Easterly, Islam, and Stiglitz, 2001). If liberalisation promotes specialisation of production according to comparative advantage, the country may become more vulnerable to economic shows. Conversely, openness expands the goods and capital market and therefore allows economic agents to smooth production and investment risk.

To assess the link between concentration, policies and economic volatility, the policy variables are interacted with the diversification variables. The regression equation therefore becomes:

$$vol_{it} = \alpha_i + \beta d_{it} + \phi d_{it} \times Policies_{it} + \delta X_{it} + u_{it}$$

(2)

The coefficient on these interaction terms allows one to examine whether macroeconomic policies has a differential impact on volatility in less concentrated economies. Concentration is interacted with four economic policy indicators: government consumption, inflation, trade openness and financial openness.

The coefficient estimates for the equations above are obtained using the fixed effects model. The Hausman tests rejected the null hypothesis of no correlation between the random effects and the explanatory variables and a

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joint test of the significance of the fixed-effects was significant at the 1 percent level of testing. However, given that volatility may be endogenously related to some of the explanatory variables, for example policymakers may respond to increased economic volatility by enlarging the size of government, the authors also employ an instrumental variable estimation technique to explicitly account for simultaneity bias.

One of the drawbacks of the standard deviation measure is that it is sensitive to outliers and noise in the series. As a result, authors such as Bekaert, Harvey and Lundblad (2005) and Mobarak (2005) both use a measure of volatility based on the high-low range of output or consumption growth over a given period. This approach avoids the problems associated with standard deviation measure of volatility, but does not capture volatility in between the two extreme points. In addition, a large amount of the data is discarded if one makes use of these measures in cross-country regressions and the degrees of freedom associated with these sample standard deviation measures are likely to be very small. To investigate the robustness of the results to changes in the measurement of volatility used, the authors instead employ a business cycle type measure of volatility defined as the deviation of output growth from median output growth over the review period.

Countries are more likely to be concerned about volatility when growth has the potential to become negative: volatility that results in GDP growth

varying between 3 and 5 percent per annum is likely to be less problematic than when growth varies between -1 and 1 percent. As a result, Mobarak (2005) also generates an indicator of whether growth changed sign (from positive to negative or vice versa) and interacts this with the volatility indicator. A similar measure is adopted in this study.

3.2   Data

The database employed in this study contains cross-sectional time-series data on 147 countries for 1970 to 2005 from the United Nations (UN) National Accounts Main Aggregates Database, the International Monetary Fund's International Financial Statistics Database (2007) and the World Bank's World Development Indicators Database (2005) (see appendix for more information on data sources). Three types of economic volatility are considered: output, private consumption and private investment and are measured by the five-year standard deviations of annual growth rates of each economic indicator.

The main independent variable, industrial concentration, is captured by a Herfindahl-Hirschman index of concentration for the share of the six main industrial components of GDP (agriculture, hunting, forestry and fishing; mining, manufacturing and utilities; construction; wholesale, retail trade,

restaurants and hotels; transport, storage and communication, and; other activities). Previous studies calculated the concentration index based on share of agriculture, manufacturing and services GDP. However, since developed countries tend to have relatively large services industry, they may appear to be more concentrated diversified based on the traditional measure. By further disaggregating the contribution of services value-added, this should reduce the upward bias in this measure for countries with relatively large service industries. Nevertheless, the authors also use the services share of GDP, the agricultural share of GDP and manufacturing share of GDP as additional indicators of concentration. However, the main conclusions did not vary.

The four main policy variables considered are fiscal, monetary and openness of the economy to trade and financial flows. The ratio of government consumption to GDP is employed as a proxy for fiscal policy stance of government, while monetary policy impulses are captured by rate of inflation. Trade openness is approximated by the of total trade flows to GDP while financial openness is measured by the Chinn and Ito (2006) financial openness index.

4. Empirical Results

4.1 Volatility and Diversification

In this section, the results of the basic econometric regression relating economic volatility and concentration are reported. These are presented so as to evaluate whether the model specification gives a reasonable representation of volatility in the full sample of countries as well as different country groupings. The basic regression estimates are provided in Tables 2, 3 and 4 for output, consumption and investment volatility respectively.

Looking first at the results for output volatility (Table 2), the econometric model specification chosen is able to explain between 40 and 67 percent of annual output volatility over the review period. In addition, various tests for heteroskedasticity, autocorrelation, and normality (available from the authors upon request) suggest that the errors are well-behaved. Turning now to the regression coefficients, most of the variables have their a priori expected signs and are statistically significant. Similar to Kose, Prasad and Terrones (2005), growth has a negative and statistically significant impact on economic volatility for the full sample of countries, but there exists important differential impacts for high income and developing countries. For high income countries, growth has a positive and statistically significant association with volatility, but in all the other developing country groups considered, there is a negative and significant link between the two variables. This result could suggest that in developing countries where financial and fiscal constraints are likely to be more prevalent, recessions

reduce human capital accumulation and reduce productivity-enhancing expenditures and therefore increase economic volatility (Martin and Rogers, 1997; Talvi and Végh, 2000). Improvements in the terms of trade was inversely related to output volatility, while inflation volatility tended to expand output volatility. Of the four policy variables considered only two have a statistically significant impact on output volatility: trade openness (positive) and capital account openness (negative). Both inflation (a proxy for monetary policy) and government consumption (fiscal policy) have a statistically insignificant association with economic volatility. For the variable of interest, concentration, the positive coefficient on the concentration index suggests that more concentrated economies tend to have statistically significant higher rates of economic volatility; this result was consistent across every country grouping.

In the case of consumption volatility, the results are quite similar (see Table 3): less concentrated economies tend to have lower rates of economic fluctuations. There is some divergence in the results for some regions: in Europe and Central Asia as well as Latin America and the Caribbean. One of the essential characteristics of countries in these regions is that they are small and are therefore only able to develop comparative advantages in a few key areas. In contrast to the results for output volatility, trade and capital account openness as well as government consumption can also play a role in influence consumption volatility.

Most of the variables identified earlier that had a significant influence on output and consumption volatility, also had a statistically significant association with investment volatility. Diversification was inversely related to investment volatility for the full sample of countries and most of the regions considered: particularly East Asia and Pacific, South Asia and Sub-Saharan Africa. There were only a few differences. In particular, inflation volatility had a larger influence on investment volatility relative to both output and consumption volatility; reflecting the role that inflation uncertainty can have on investment decisions. In contrast to the previous regressions, world GDP growth had a statistically significant link with investment volatility. The negative coefficient on this variable probably reflects the role that international volatility transmission can have on investment.

4.2   Does Diversification Influence the Effectiveness of Policies?

Given that the basic regression model provides an adequate representation of economic volatility in the sample of countries under investigation, the estimated equation is then augmented with various policy-diversification measures. These interaction terms provide estimates of the differential impact of economic policies for the full group of countries as well as for

particular country groupings. The results from augmenting these estimated equations with policy interaction terms are provided in Tables 5, 6 and 7.

The results given in Table 5 suggest that the policy-concentration terms have a significant influence on output volatility. In contrast to the previous regressions, all the policy variables are now significantly related to output volatility. In terms of individual policy results, both expansionary monetary (inflation) and fiscal (government consumption) policies tend to lead to greater economic volatility. The significance of the interaction term suggests that in relatively less concentrated economies, the effects of these policies are enhanced. The results related to trade and capital account openness resolve two of the puzzles of empirical research on economic volatility. Theoretical models of trade and capital account liberalisation generally suggests that there should be an inverse link between the economic volatility and liberalisation. However, the empirical literature usually finds evidence to the contrary: liberalisation enhances economic volatility. The results presented in Table 5 resolves this contradiction by incorporating concentration. The negative coefficients on trade and capital account openness variables suggest that liberalisation tends to diminish economic volatility. However, in relatively more concentrated economies opening both the capital and trade account can kindle economic volatility. These results explain the mixed results related to liberalisation episodes in various countries. This non-linear relationship between liberalisation and economic

volatility is particularly apparent in the regressions for Sub-Saharan Africa, Latin America and the Caribbean, High Income countries and East Asia and Pacific.

In relation to consumption volatility (Table 6), the two most important policy variables are trade and capital account openness. Both the monetary and fiscal policy variables, as well as the interaction terms are statistically insignificant at normal levels of testing, suggesting that while these policies can be employed to tackle output volatility, there is relatively little or no feed-through effect to consumption volatility. This finding is particularly important for policymakers, since they are usually concerned about the distributional effects of their policies. However, trade and capital account openness do have statistically significant links with consumption volatility. While trade liberalisation reduced output volatility, the positive coefficient of this variable in the consumption volatility equation suggests that trade liberalisation can have important household effects and may trigger consumption volatility. The negative coefficient on the policy-concentration interaction term suggests that the distributional effects of liberalisation may offset the potential benefits from diversification. In contrast, the impact of capital account liberalisation and its interaction with concentration are similar to those obtained for output volatility, suggesting that opening the capital account benefits both firms and households. There are some important regional differences that should also be highlighted. In high-

income states, monetary and trade policies have important non-linear effects on consumption volatility, while in developing countries, the most important policy variables are fiscal, capital account and trade policies.

The results reported in Table 7, which employ investment volatility as the dependent variable, while generally similar to those obtained earlier, suggest that trade, fiscal and, to a lesser extent, capital account policies are the key policy determinants of investment volatility. For the full sample of countries, opening the capital account, liberalising trade policies and expansionary fiscal policies tend to increase investment volatility; these effects are enhanced in less concentrated economies. In Middle East and North African countries both trade and capital account openness reduces investment fluctuations, particularly in more diversified economies. In South Asian countries, however, trade liberalisation kindles investment volatility, while capital account liberalisation reduces investment volatility.

4.3   Robustness of Results

The results presented in the previous section suggest that the effects of economic policies differ depending on the level of industrial concentration in the country under consideration. However, these results may be influenced by the measurement of economic volatility and the estimation approach

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employed. To evaluate whether the results change significantly in response to each of these criticisms, Table 8 presents the results of re-estimating the output volatility equation allowing for any potential model misspecifications. The previous results are presented in the final column of the table for comparison purposes.

Although the standard deviation measure of volatility is the most popular approach, there are some drawbacks of this technique. The approach is particularly sensitive to outliers and noise in the series and there is the issue of degrees of freedom. As a result, the authors instead employ a business cycle type measure of volatility defined as the deviation of output growth from median output growth over the review period. Similar to the results obtained earlier, both government consumption and capital account liberalisation have important non-linear effects on economic volatility. However, both the inflation and trade openness variables have a statistically insignificant link with this measure of volatility. This might be due to the differences between the two measures of volatility: while the deviation from median growth indicates where the country is on the business cycle, the standard deviation volatility measures fluctuations in growth. The results therefore suggest that fiscal policy and capital account openness have a more important impact on influencing the business-cycle position of countries, while the four main policy variables identified in this paper have more of an influence on fluctuations in output growth.

Previous papers have indicated that there is a simultaneous relationship between growth and economic volatility (Kose, Prasad and Terrones, 2005). If this is indeed the case, one should employ an instrumental variables approach to estimate the econometric equation, to explicitly account for this simultaneity bias. Table 8 display the results from estimating the equation using two stage least squares. The coefficient on the growth variable retains the same sign and remains statistically significant, however, the magnitude of the growth variable rises significantly: from -0.06 to -0.407. However, the coefficients on the other variables and therefore the inferences obtained earlier are unchanged.

As noted by Mobarak (2005), policymakers may potentially be more interested in economic fluctuations that occur when growth changes signs, i.e. from positive to negative growth than fluctuations that occur in the positive range. To account for this, the dependent variable is interacted with a dummy variable that takes a value of 1 if there is change in the sign of growth during the year, and zero otherwise. The coefficient estimates are also presented in Table 8. The results are essential similar to those obtained earlier: there are non-linear concentration effects of monetary policy, fiscal policy and capital account openness. However, trade openness does not have a statistically significant impact on this measure of volatility.

5. Summary and Conclusions

This paper provides an investigation of whether or not concentration impacts on the relationship between macroeconomic policies and economic volatility. The basic stylised facts regarding the relationship between volatility, concentration and policies suggests that there is a positive association between volatility and concentration, indicating that those countries that focus on a smaller number of industries tend to have high rates of economic volatility. When the countries are disaggregated into less and more concentrated countries, more diversified countries experienced a larger reduction in volatility between the 1970s and 1990s and, by the 1990s, had a lower mean rate of output volatility.

The paper then provided a more formal analysis of the relationship between the three variables by estimating panel regression models. Several interesting results from this analysis stand out. The study reports that less concentrated countries tend to have lower rates of output, consumption and investment volatility; this result was consistent across every country grouping. In addition, economic policies tend to have differential effects on output volatility in less concentrated economies. For example, both expansionary monetary (inflation) and fiscal (government consumption) policies tend to lead to greater economic volatility, with the significance of

the interaction term suggesting that in relatively less concentrated economies, the effects of these policies are enhanced. Similarly, trade and capital account openness variables alone tend to diminish economic volatility. However, in relatively more concentrated economies opening both the capital and trade account can kindle economic volatility. These results explain the mixed results related to liberalisation episodes found in previous studies. This non-linear relationship between liberalisation and economic volatility is particularly apparent in the regressions for Sub-Saharan Africa, Latin America and the Caribbean, High Income countries and East Asia and Pacific.

In relation to consumption volatility, the two most important policy variables are trade and capital account openness, while for investment volatility fiscal policy is also important. In high-income states, monetary and trade policies have important non-linear effects on consumption volatility, while in developing countries, the most important policy variables are fiscal, capital account and trade policies. In particular, while in Middle East and North African countries both trade and capital account openness reduces investment fluctuations, particularly in less concentrated economies, in South Asian countries, trade liberalisation kindles investment volatility and capital account liberalisation reduces investment volatility.

The empirical results presented earlier are then subjected to robustness of results tests that evaluate whether or not the findings obtained earlier are

influenced by the measurement of economic volatility and the estimation approach employed. However, when a business cycle-type measure of volatility and a panel instrumental variables approach are employed to estimate the econometric equation the key findings of the paper do not change. The main results were also unchanged when the dependent variable is interacted with a dummy variable that gives more weight to observations when growth changes sign.

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Table 1: Concentration and Volatility

	Full Sample	Decade		
	1970-2005	1970s	1980s	1990s
Output Volatility				
Low to Middle-Income Countries				
East Asia and Pacific	0.050	0.073	0.059	0.040
Europe and Central Asia	0.040	0.017	0.030	0.063
Latin America and the Caribbean	0.034	0.036	0.039	0.032
Middle East and North Africa	0.061	0.102	0.071	0.054
South Asia	0.038	0.042	0.038	0.032
Sub-Saharan Africa	0.053	0.059	0.052	0.057
High Income	0.029	0.048	0.029	0.025
MCE	0.043	0.052	0.041	0.046
LCE	0.043	0.056	0.049	0.038
Consumption Volatility				
East Asia and Pacific	0.068	0.074	0.069	0.069
Europe and Central Asia	0.046	0.029	0.035	0.068
Latin America and the Caribbean	0.069	0.069	0.077	0.071
Middle East and North Africa	0.108	0.175	0.108	0.110
South Asia	0.055	0.052	0.043	0.057
Sub-Saharan Africa	0.096	0.081	0.090	0.109
High Income	0.043	0.059	0.047	0.041
MCE	0.071	0.075	0.060	0.080
LCE	0.075	0.077	0.080	0.077
Investment Volatility				
East Asia and Pacific	0.088	0.096	0.089	0.103
Europe and Central Asia	0.101	0.029	0.079	0.179

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Latin America and the Caribbean	0.083	0.108	0.083	0.083
Middle East and North Africa	0.093	0.133	0.107	0.083
South Asia	0.092	0.135	0.073	0.087
Sub-Saharan Africa	0.137	0.104	0.124	0.161
High Income	0.044	0.054	0.051	0.042
MCE	0.092	0.089	0.085	0.110
LCE	0.090	0.095	0.092	0.094

Table 2: Output Volatility and Concentration

	Full Sample	East Asia and Pacific	Europe and Central Asia	Latin America and the Caribbean	Middle East and North Africa	South Asia	Sub-Saharan Africa	High Income
Growth	-0.058 (0.009)***	-0.044 (0.024)*	-0.175 (0.033)***	-0.035 (0.016)*	0.002 (0.030)	-0.007 (0.029)	-0.107 (0.016)***	0.039 (0.022)*
Inflation Volatility	0.083 (0.007)***	0.119 (0.018)***	-0.007 (0.019)	0.021 (0.008)**	0.154 (0.029)**	0.102 (0.030)**	0.047 (0.016)**	0.109 (0.013)**
World GDP Growth	-0.018 (0.033)	0.103 (0.093)	-0.184 (0.117)	0.032 (0.043)	-0.397 (0.174)**	0.069 (0.109)	-0.090 (0.076)	-0.101 (0.053)*
Terms of Trade	-0.003 (0.001)**	-0.008 (0.002)***	-0.038 (0.028)	0.003 (0.005)	0.047 (0.007)**	-0.041 (0.016)*	0.009 (0.004)*	0.015 (0.008)*
Change in Terms of Trade	-0.005 (0.004)	-0.010 (0.001)	0.042 (0.028)	0.001 (0.007)	-0.030 (0.015)*	0.011 (0.021)	-0.011 (0.008)	-0.042 (0.014)**
Inflation	0.003 (0.004)	-0.012 (0.012)	-0.008 (0.011)	0.005 (0.005)	0.044 (0.020)*	0.039 (0.016)*	-0.012 (0.009)	0.000 (0.001)
Trade Openness	0.008 (0.002)***	-0.016 (0.004)***	0.009 (0.011)	0.002 (0.004)	0.009 (0.016)	0.059 (0.012)**	0.016 (0.004)**	-0.002 (0.003)
Government Consumption	0.019 (0.014)	-0.033 (0.028)	0.250 (0.073)***	0.079 (0.021)***	0.214 (0.059)**	-0.116 (0.096)	-0.028 (0.035)	0.073 (0.033)*
Capital Account Openness	-0.002 (0.001)***	0.006 (0.003)*	-0.004 (0.003)	-0.003 (0.001)**	0.004 (0.003)	-0.009 (0.004)*	-0.006 (0.002)**	-0.001 (0.001)
Concentration Index	0.112 (0.012)***	0.230 (0.062)***	0.006 (0.046)	0.001 (0.011)	0.256 (0.087)**	0.168 (0.024)**	0.153 (0.026)**	0.167 (0.027)**
R-squared	0.427	0.456	0.562	0.409	0.615	0.671	0.364	0.445
Observations	4496	563	115	885	341	248	1240	1042

Cross Sections	147	19	5	29	11	8	40	35
S.E. of Regression	0.035	0.035	0.031	0.020	0.049	0.026	0.042	0.026

Note: (1) Standard errors are provided in parentheses below coefficients.
(2) ***, ** and * indicates significance at the 1, 5 and 10 percent levels of testing, respectively.

Table 3: Consumption Volatility and Concentration

	Full Sample	East Asia and Pacific	Europe and Central Asia	Latin America and the Caribbean	Middle East and North Africa	South Asia	Sub-Saharan Africa	High Income
Growth	-0.069 (0.009)***	0.050 (0.020)***	-0.033 (0.035)	0.049 (0.017)***	0.109 (0.034)***	0.048 (0.028)*	0.040 (0.017)*	0.153 (0.019)***
Inflation Volatility	0.106 (0.011)***	0.059 (0.020)***	0.022 (0.020)	0.008 (0.017)	0.366 (0.053)***	0.046 (0.039)	0.147 (0.027)***	0.147 (0.024)***
World GDP Growth	-0.089 (0.056)	-0.086 (0.102)	-0.123 (0.119)	0.085 (0.093)	-0.537 (0.310)*	-0.126 (0.147)	-0.301 (0.128)*	0.013 (0.094)
Terms of Trade	-0.002 (0.002)	-0.000 (0.002)	0.031 (0.028)	0.027 (0.010)***	0.052 (0.012)*	-0.018 (0.022)	-0.027 (0.006)***	0.038 (0.014)***
Change in Terms of Trade	0.000 (0.007)	0.002 (0.011)	-0.004 (0.029)	-0.022 (0.017)	-0.018 (0.026)	-0.016 (0.028)	0.020 (0.013)	-0.081 (0.024)***
Inflation	-0.000 (0.007)	-0.027 (0.014)*	-0.004 (0.011)	-0.013 (0.012)	0.028 (0.035)	0.028 (0.021)	0.008 (0.015)	0.013 (0.013)
Trade Openness	0.021 (0.003)***	-0.002 (0.005)	-0.009 (0.011)	-0.004 (0.009)	0.018 (0.029)	0.117 (0.015)***	0.041 (0.006)***	0.009 (0.006)
Government Consumption	0.075 (0.024)***	-0.081 (0.032)**	0.051 (0.076)	0.096 (0.045)**	-0.240 (0.107)**	-0.494 (0.127)***	0.122 (0.059)**	-0.063 (0.057)
Capital Account Openness	-0.003 (0.001)***	0.004 (0.003)	-0.008 (0.003)**	-0.002 (0.001)	0.009 (0.006)	-0.007 (0.006)	-0.008 (0.003)***	-0.001 (0.002)
Concentration Index	0.121 (0.020)***	0.239 (0.068)***	-0.152 (0.047)***	-0.053 (0.026)**	0.315 (0.160)*	0.110 (0.032)***	0.264 (0.044)***	0.044 (0.048)
R-squared	0.457	0.516	0.536	0.539	0.496	0.549	0.424	0.542
Observations	4466	563	115	885	341	248	1240	1042
Cross Sections	147	19	5	29	11	8	40	35

| S.E. of Regression | 0.059 | 0.037 | 0.018 | 0.043 | 0.087 | 0.034 | 0.071 | 0.046 |

Note: (1) Standard errors are provided in parentheses below coefficients.

(2) ***, ** and * indicates significance at the 1, 5 and 10 percent levels of testing, respectively.

Table 4: Investment Volatility and Concentration

	Full Sample	East Asia and Pacific	Europe and Central Asia	Latin America and the Caribbean	Middle East and North Africa	South Asia	Sub-Saharan Africa	High Income
Growth	-0.006 (0.009)	0.034 (0.028)	-0.126 (0.071)*	0.027 (0.017)	-0.034 (0.026)	0.148 (0.036)***	-0.040 (0.016)*	-0.026 (0.020)
Inflation Volatility	0.134 (0.014)***	0.142 (0.039)***	0.397 (0.102)***	0.044 (0.020)*	0.254 (0.035)***	-0.098 (0.074)	0.130 (0.033)***	0.063 (0.023)***
World GDP Growth	-0.174 (0.068)***	-0.228 (0.198)	0.996 (0.637)	-0.251 (0.112)*	-0.203 (0.201)	-0.284 (0.271)	-0.170 (0.158)	-0.075 (0.088)
Terms of Trade	-0.005 (0.003)**	-0.006 (0.004)	0.338 (0.154)**	0.039 (0.012)***	0.015 (0.008)*	0.036 (0.041)	-0.023 (0.008)***	0.063 (0.013)***
Change in Terms of Trade	0.006 (0.008)	0.022 (0.021)	-0.116 (0.154)	-0.010 (0.020)	-0.022 (0.017)	0.027 (0.053)	0.019 (0.016)	-0.065 (0.023)***
Inflation	-0.004 (0.008)	-0.024 (0.026)	-0.009 (0.061)	0.005 (0.014)	0.058 (0.023)*	0.023 (0.039)	-0.012 (0.018)	-0.008 (0.013)
Trade Openness	0.011 (0.004)***	-0.009 (0.009)	-0.155 (0.057)**	-0.026 (0.011)*	0.050 (0.019)**	0.051 (0.029)*	0.027 (0.008)**	0.000 (0.006)
Government Consumption	0.086 (0.028)***	-0.003 (0.060)	1.692 (0.400)**	-0.074 (0.056)	0.086 (0.071)	-0.759 (0.243)**	-0.006 (0.076)	0.003 (0.054)
Capital Account Openness	-0.001 (0.001)	0.003 (0.007)	-0.010 (0.018)	-0.004 (0.002)*	0.005 (0.004)	-0.025 (0.011)*	0.008 (0.004)*	-0.000 (0.002)
Concentration Index	0.158 (0.024)***	0.254 (0.132)*	0.326 (0.249)	-0.010 (0.031)	-0.150 (0.102)	0.329 (0.060)***	0.434 (0.055)***	-0.073 (0.046)
R-squared	0.446	0.344	0.549	0.478	0.561	0.373	0.379	0.445
Observations	4496	563	115	885	341	248	1240	1042
Cross Sections	147	19	5	29	11	8	40	35

| S.E. of Regression | 0.071 | 0.073 | 0.095 | 0.052 | 0.057 | 0.064 | 0.088 | 0.026 |

Note: (1) Standard errors are provided in parentheses below coefficients.
(2) ***, ** and * indicates significance at the 1, 5 and 10 percent levels of testing, respectively.

Table 5: Output Volatility, Concentration and Policies

	Full Sample	East Asia and Pacific	Europe and Central Asia	Latin America and the Caribbean	Middle East and North Africa	South Asia	Sub-Saharan Africa	High Income
Growth	-0.060 (0.009)***	-0.019 (0.024)	-0.170 (0.035)***	-0.034 (0.016)*	-0.007 (0.030)	-0.015 (0.030)	-0.116 (0.016)***	0.037 (0.021)*
Inflation Volatility	0.078 (0.007)***	0.117 (0.018)***	-0.001 (0.021)	0.020 (0.008)*	0.137 (0.030)***	0.089 (0.030)***	0.047 (0.016)**	0.101 (0.013)***
World GDP Growth	-0.035 (0.033)	0.066 (0.091)	-0.205 (0.120)*	0.031 (0.043)	-0.393 (0.175)**	0.034 (0.110)	-0.100 (0.076)	-0.083 (0.051)*
Terms of Trade	-0.003 (0.001)**	-0.005 (0.002)***	-0.040 (0.029)	0.004 (0.005)	0.047 (0.007)***	-0.040 (0.017)*	0.008 (0.004)*	0.026 (0.008)***
Change in Terms of Trade	-0.004 (0.004)	-0.008 (0.010)	0.048 (0.030)	0.001 (0.008)	-0.030 (0.015)*	0.008 (0.021)	-0.009 (0.008)	-0.037 (0.013)***
Inflation	0.054 (0.018)**	-0.061 (0.075)	-0.062 (0.048)	0.039 (0.031)	0.122 (0.126)	0.033 (0.038)	0.120 (0.036)***	0.054 (0.043)
Inflation*Concentration	-0.170 (0.057)***	0.189 (0.274)	0.154 (0.133)	-0.123 (0.110)	-0.291 (0.470)	0.002 (0.115)	-0.435 (0.114)***	-0.170 (0.132)
Trade Openness	-0.017 (0.004)***	-0.074 (0.029)*	0.022 (0.039)	-0.008 (0.012)	-0.114 (0.102)	0.063 (0.038)*	0.002 (0.010)	-0.047 (0.013)***
Trade Openness*Concentration	0.054 (0.010)***	0.178 (0.083)*	-0.047 (0.123)	0.038 (0.046)	0.445 (0.358)	-0.008 (0.090)	0.024 (0.019)	0.139 (0.039)***
Government Consumption	0.345 (0.040)***	0.256 (0.074)***	0.476 (0.337)	0.089 (0.099)	0.846 (0.368)*	-0.499 (0.277)*	0.288 (0.115)*	0.884 (0.131)***
Government Consumption*Concentration	-1.070 (0.128)***	-1.052 (0.250)***	-0.615 (0.867)	-0.046 (0.357)	-2.161 (1.258)*	1.153 (0.794)	-1.014 (0.361)***	-2.550 (0.388)***
Capital Account	-0.012	0.040	-0.020	-0.009	-0.016	-0.022	-0.021	-0.020

	Full Sample	East Asia and Pacific	Europe and Central Asia	Latin America and the Caribbean	Middle East and North Africa	South Asia	Sub-Saharan Africa	High Income
Openness	(0.002)***	(0.012)***	(0.014)	(0.002)***	(0.015)	(0.019)	(0.005)***	(0.006)***
Capital Account Openness*Concentration	0.035 (0.007)***	-0.116 (0.039)***	0.045 (0.041)	0.020 (0.010)*	0.074 (0.054)	0.046 (0.070)	0.054 (0.017)***	0.063 (0.018)***
Concentration Index	0.232 (0.027)***	0.339 (0.115)***	0.170 (0.166)	-0.009 (0.046)	0.125 (0.390)	0.146 (0.170)	0.297 (0.072)***	0.290 (0.102)***
R-squared	0.445	0.490	0.573	0.414	0.622	0.681	0.383	0.493
Observations	4496	563	115	885	341	248	1240	1042
Cross Sections	147	19	5	29	11	8	40	35
S.E. of Regression	0.035	0.034	0.018	0.020	0.048	0.025	0.042	0.025

Note: (1) Standard errors are provided in parentheses below coefficients.
   (2) ***, ** and * indicates significance at the 1, 5 and 10 percent levels of testing, respectively.

Table 6: Consumption Volatility, Concentration and Policies

	Full Sample	East Asia and Pacific	Europe and Central Asia	Latin America and the Caribbean	Middle East and North Africa	South Asia	Sub-Saharan Africa	High Income
Growth	0.066 (0.009)***	0.048 (0.020)**	-0.019 (0.034)	0.048 (0.017)***	0.068 (0.034)*	0.007 (0.027)	0.021 (0.016)	0.154 (0.019)***
Inflation Volatility	0.107 (0.011)***	0.062 (0.020)***	0.022 (0.020)	0.008 (0.017)	0.305 (0.052)**	0.081 (0.036)*	0.131 (0.025)**	0.143 (0.024)**
World GDP Growth	-0.076 (0.056)	-0.084 (0.104)	-0.153 (0.116)	0.077 (0.093)	-0.562 (0.299)*	-0.126 (0.134)	-0.182 (0.121)	0.013 (0.094)
Terms of Trade	-0.001 (0.002)	-0.000 (0.002)	0.022 (0.028)	0.027 (0.010)***	0.050 (0.012)***	-0.026 (0.020)	-0.019 (0.006)***	0.037 (0.014)***
Change in Terms of Trade	0.001 (0.007)	0.003 (0.011)	0.011 (0.029)	-0.023 (0.017)	-0.008 (0.025)	0.005 (0.025)	0.012 (0.012)	-0.090 (0.025)***
Inflation	-0.017 (0.030)	-0.105 (0.087)	-0.004 (0.047)	-0.020 (0.067)	0.567 (0.217)***	0.042 (0.046)	0.022 (0.058)	-0.178 (0.080)*
Inflation*Concentratio	-0.062	0.281	0.011	0.025	-2.006	0.012	-0.062	0.594

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n	(0.097)	(0.314)	(0.129)	(0.238)	(0.808)**	(0.134)	(0.183)	(0.244)**
Trade Openness	0.064 (0.008)***	0.016 (0.033)	-0.040 (0.038)	-0.016 (0.027)	-0.155 (0.175)	-0.020 (0.046)	0.157 (0.016)***	0.061 (0.024)**
Trade Openness*Concentration	-0.107 (0.017)***	-0.052 (0.096)	0.077 (0.118)	0.051 (0.101)	0.653 (0.619)	0.292 (0.109)***	-0.204 (0.031)***	-0.160 (0.073)*
Government Consumption	0.089 (0.074)	-0.119 (0.130)	0.877 (0.330)***	0.323 (0.215)	1.915 (0.637)***	1.902 (0.336)***	-0.809 (0.184)***	0.140 (0.241)
Government Consumption*Concentration	-0.079 (0.235)	0.116 (0.412)	-2.085 (0.843)**	-0.848 (0.776)	-7.521 (2.176)***	-7.331 (0.963)***	-2.900 (0.582)***	-0.567 (0.718)
Capital Account Openness	-0.016 (0.004)***	0.007 (0.014)	-0.037 (0.014)***	-0.007 (0.007)	-0.100 (0.026)***	-0.026 (0.023)	-0.016 (0.008)*	-0.011 (0.011)
Capital Account Openness*Concentration	0.042 (0.011)***	-0.012 (0.047)	0.080 (0.039)*	0.016 (0.023)	0.413 (0.095)***	0.087 (0.084)	0.039 (0.028)	0.032 (0.034)
Concentration Index	0.266 (0.048)***	0.249 (0.129)*	-0.156 (0.160)	0.067 (0.101)	0.740 (0.671)	0.620 (0.203)***	0.149 (0.116)	0.232 (0.188)
R-squared	0.482	0.518	0.591	0.541	0.546	0.669	0.488	0.547
Observations	4466	563	115	885	341	248	248	1042
Cross Sections	147	19	5	29	11	8	8	35
S.E. of Regression	0.058	0.037	0.018	0.043	0.083	0.030	0.067	0.046

Note: (1) Standard errors are provided in parentheses below coefficients.

(2) ***, ** and * indicates significance at the 1, 5 and 10 percent levels of testing, respectively.

Table 7: Investment Volatility, Concentration and Policies

	Full Sample	East Asia and Pacific	Europe and Central Asia	Latin America and the Caribbean	Middle East and North Africa	South Asia	Sub-Saharan Africa	High Income
Growth	-0.004 (0.009)	0.033 (0.028)	-0.138 (0.067)**	0.028 (0.016)	-0.044 (0.025)*	0.090 (0.033)***	-0.045 (0.016)**	-0.023 (0.020)
Inflation Volatility	0.136 (0.014)***	0.148 (0.039)***	0.481 (0.103)***	0.053 (0.020)***	0.218 (0.036)***	0.034 (0.068)	0.122 (0.033)***	0.070 (0.023)***
World GDP Growth	-0.178 (0.068)***	-0.243 (0.199)	0.664 (0.613)	-0.281 (0.108)***	-0.165 (0.199)	-0.085 (0.245)	-0.127 (0.158)	-0.080 (0.088)
Terms of Trade	-0.003 (0.003)	-0.006 (0.004)	0.295 (0.150)**	0.040 (0.012)***	0.015 (0.008)*	0.004 (0.004)	-0.019 (0.008)***	0.059 (0.013)***
Change in Terms of Trade	0.006 (0.008)	0.023 (0.021)	0.059 (0.154)	-0.009 (0.019)	-0.022 (0.017)	0.060 (0.047)	0.013 (0.016)	-0.070 (0.023)***
Inflation	0.015 (0.036)	-0.082 (0.165)	-0.090 (0.244)	0.033 (0.077)	0.084 (0.145)	0.124 (0.084)	0.016 (0.075)	-0.081 (0.076)
Inflation*Concentration	-0.063 (0.118)	0.216 (0.601)	0.349 (0.673)	-0.123 (0.275)	-0.086 (0.540)	-0.260 (0.254)	-0.110 (0.238)	0.196 (0.231)
Trade Openness	0.043 (0.009)***	-0.017 (0.062)	-0.158 (0.198)	0.021 (0.031)	-0.235 (0.117)*	0.226 (0.083)***	0.121 (0.020)***	-0.001 (0.023)
Trade Openness*Concentration	-0.083 (0.021)***	0.033 (0.181)	-0.128 (0.619)	-0.175 (0.116)	1.028 (0.415)*	-0.528 (0.195)***	-0.185 (0.040)***	0.005 (0.069)
Government Consumption	0.354 (0.083)***	-0.133 (0.161)	8.024 (1.718)***	1.059 (0.249)***	1.191 (0.424)***	3.303 (0.646)***	-0.070 (0.239)	-0.277 (0.228)
Government Consumption*Concentration	-0.966 (0.263)***	0.457 (0.543)	-16.621 (4.401)***	-4.163 (0.894)***	-3.712 (1.444)*	-11.983 (1.825)***	0.127 (0.755)	0.829 (0.678)
Capital Account Openness	0.007 (0.004)	0.037 (0.026)	-0.012 (0.072)	0.006 (0.007)	-0.033 (0.017)**	-0.148 (0.043)***	0.006 (0.011)	0.014 (0.010)

Capital Account Openness*Concentration	-0.025 (0.014)*	-0.116 (0.086)	0.024 (0.206)	-0.033 (0.026)	0.147 (0.063)**	0.500 (0.154)**	0.017 (0.036)	-0.046 (0.032)
Concentration Index	0.390 (0.056)***	0.147 (0.252)	2.573 (0.836)***	0.917 (0.116)***	-0.715 (0.452)	2.344 (0.378)**	0.672 (0.149)**	-0.153 (0.178)
R-squared	0.450	0.347	0.610	0.523	0.606	0.518	0.396	0.470
Observations	4496	563	115	885	341	248	1240	1042
Cross Sections	147	19	5	29	11	8	40	35
S.E. of Regression	0.071	0.074	0.090	0.050	0.056	0.057	0.087	0.043

Note: (1) Standard errors are provided in parentheses below coefficients.
(2) ***, ** and * indicates significance at the 1, 5 and 10 percent levels of testing, respectively.

Table 8: Robustness of the Relationship between Output Volatility, Concentration and Policies

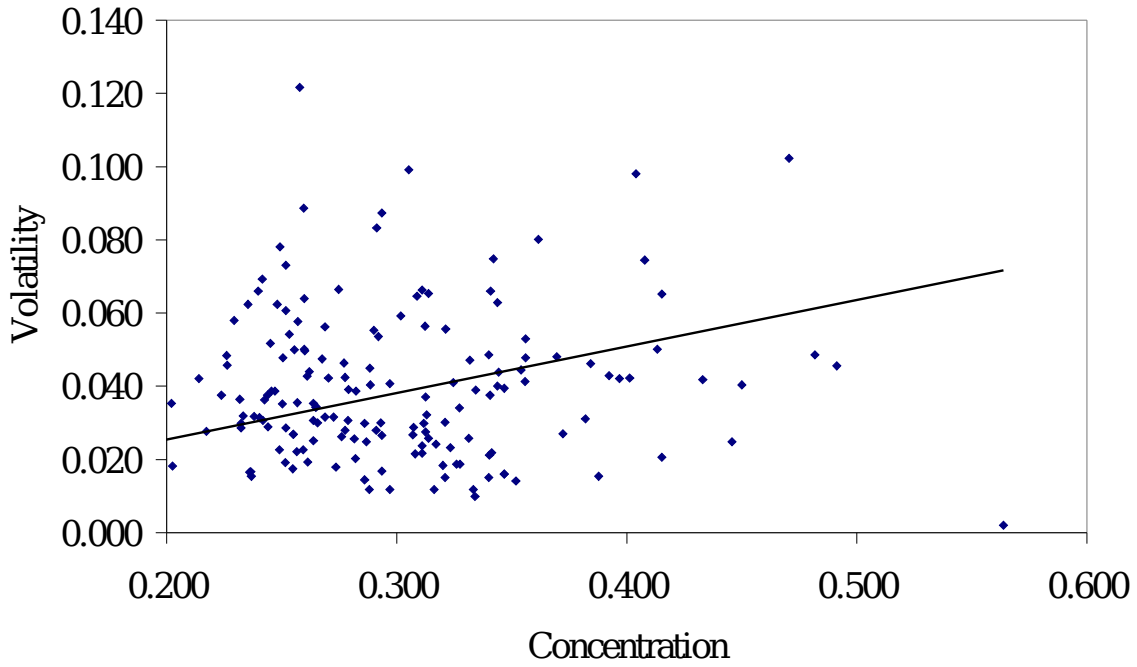|	Deviation From Median Growth	Instrumental Variables	Volatility*Sign Change	Previous Results
Growth	0.312 (0.001)***	-0.407 (0.028)***	-0.038 (0.008)***	-0.060 (0.009)***
Inflation Volatility	0.001 (0.000)***	0.101 (0.009)***	0.036 (0.007)***	0.078 (0.007)***
World GDP Growth	-0.000 (0.001)	-0.060 (0.041)	0.001 (0.032)	-0.035 (0.033)
Terms of Trade	-0.000 (0.000)	-0.003 (0.002)**	-0.001 (0.001)	-0.003 (0.001)**
Change in Terms of Trade	-0.000 (0.000)	-0.048 (0.009)***	-0.003 (0.004)	-0.004 (0.004)
Inflation	0.000 (0.001)	0.228 (0.077)***	0.036 (0.017)**	0.054 (0.018)**
Inflation*Concentration	-0.002 (0.002)	-0.715 (0.254)***	0.114 (0.057)**	-0.170 (0.057)***
Trade Openness	0.001 (0.001)	-0.019 (0.006)**	-0.006 (0.004)	-0.017 (0.004)***

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*

Trade Openness*Concentration	-0.002 (0.002)	0.081 (0.013)***	-0.004 (0.010)	0.054 (0.010)***
Government Consumption	0.002 (0.001)***	0.322 (0.053)***	0.140 (0.039)***	0.345 (0.040)***
Government Consumption*Concentration	-0.007 (0.003)***	-1.008 (0.171)***	-0.455 (0.126)***	-1.070 (0.128)***
Capital Account Openness	-0.001 (0.000)*	-0.017 (0.003)***	-0.008 (0.002)***	-0.012 (0.002)***
Capital Account Openness*Concentration	0.001 (0.000)***	0.057 (0.011)***	0.029 (0.007)***	0.035 (0.007)***
Concentration Index	0.003 (0.001)***	0.253 (0.039)***	0.127 (0.027)***	0.232 (0.027)***
R-squared	0.131	0.215	0.182	0.445
Observations	4496	4496	4496	4496
Cross Sections	147	147	147	147
S.E. of Regression	0.552	0.041	0.034	0.035

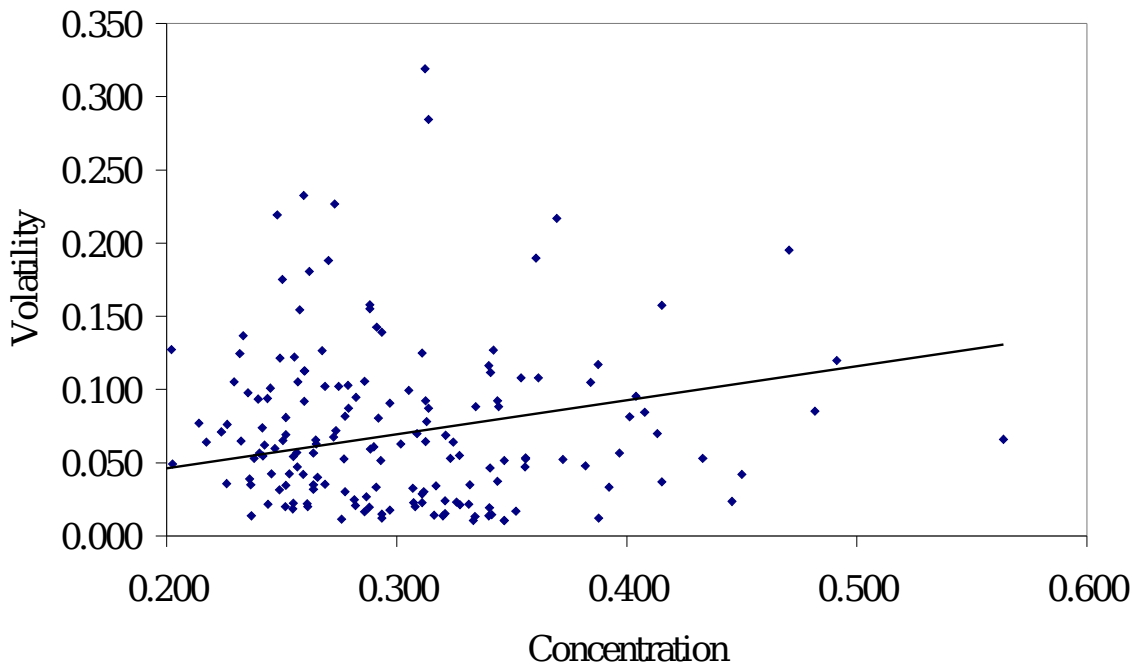Note: (1) Standard errors are provided in parentheses below coefficients.
(2) ***, ** and * indicates significance at the 1, 5 and 10 percent levels of testing, respectively.

Figure 1: Volatility and Concentration

Output

Consumption

Investment