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Institutional Quality and Net Capital Flow Episodes: Evidence from Developing Economies

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Abstract

Using local projections regression, we investigate the role of institutional quality in establishing the influence of the surge, stop, flight, and retrenchment on the real sector indicators such as GDP growth rate, employment, and savings. In this study we consider 47 developing economies from 1980–2018. We construct an institutional quality index differentiating between high-institutional and low-institutional quality. We find that both the liability flow-driven episode surges and asset flow-driven flight have a more strong influence on the real sector of the developing economies as compared to stop and retrenchment. In particular, we find that the level of institutional quality acts as a gatekeeper in the host economy. We conclude that the countries with a higher level of institutional quality are less prone to the negative impacts of the large episodes as compared to the countries with a low level of institutional quality.

Keywords: Capital Flows, Episodes, Institutions

Introduction

In principle, foreign capital inflows typically offer access to external finance, which helps to reduce the funding constraints. The existing literature shows that net capital flows (NCF) are "volatile" and "pro-cyclical" and decline during crisis times (Broner et al., 2013). These patterns are even more acute in developing economies (DEs) and are often called "sudden stops" to refer to the crumble in net inflows that often leads to crises (Calvo, 1998; Cavallo & Frankel, 2008). Nonetheless looking at GCF is useful, NCF still matters, as they are connected with the real exchange rate changes and current account adjustments (Forbes & Warnock, 2012; Ghosh et al., 2014).

In general the NCF has considerable consequences for the real sector in terms of economic growth, cost of living, and also for the country's exchange rates (Kim & Wu, 2008; Sethi & Sucharita, 2015; Zhang & Ward, 2015; Davis et al., 2021). Moreover, lack of required absorptive capacity in the DEs, inapt supervision, and also ineffective sterilization of the capital inflows may worsen the weak banking system and cause financial bubbles (Rashid & Husain, 2013; Shiller, 2014). Likewise, large outflows are capable of adversely harming the domestic economy. For example; they may cause a liquidity shortage and augment the probability of currency crises (Rashid et al., 2019).

Similarly, the NCF is also important for the transmission of real shock across the economies and the country's own macroeconomic outcomes (Avdjiev et al., 2018). Further, it is also observed that the host country's macroeconomic conditions and also the global shocks significantly influence the direction and magnitude of capital flows. Theoretically, how capital flows affect the real indicators of an economy largely depends on the source in which it inflows or outflows to the economy. Further, the macroeconomic impacts of capital flows on the real sector of the economy also depend upon whether the flows are long-lasting or temporary in nature (Rashid et al., 2019).

Large capital inflows also increase the exposure of the economy to foreign liabilities and heighten credit booms, which may consequently turn to burst when NCF are reversed. These arguments have by and large been held by the pertinent literature (Eichengreen & Leblang, 2003; Edwards, 2007; Reinhart & Reinhart, 2008; Agosin & Huaita, 2010; Ghosh et al., 2016). In a similar vein, Gunter (2004) argues that overvaluation of the local currency and higher cost of financial transactions is the major drivers of capital flight. So from a macroeconomic policy point of view, it is very important to investigate issues like how episodes of NCF (surge, stop, flight, and retrenchments) affect the real sector of the DEs.

The empirical and theoretical literature provides intuition into the Lucas paradox, by adapting the neoclassical model through the inclusion of supplementary factors. According to Martin (2018), the factors that support the Lucas paradox can be categorized into two major strands. The first strand of the variables associated to the elements of the production function, that is, differences in technologies, differences in factors of production (human capital, infrastructure among others) and government policies taxation and capital control policies (Reinhardt et al., 2013). On the other hand, the second group of the variables associated to the role of institutions and economic uncertainty such as enforcement of property rights and private contracts, control of corruption, imperfections of the capital market, moral hazard, voice and accountability, asymmetric information, government effectiveness, and sovereign default risks (Eichergreen, 2003; Reinhart & Rogoff, 2004; Alfaro et al., 2008).

Theoretically, quality institutions are considered an important catalyst for the domestic investment climate (Osei-Assibey et al., 2017). According to the existing theoretical literature, institutional quality positively influences economic activities (North, 1990; Ali et al., 2010). In addition to that, Buchanan et al. (2012) document those countries with stronger institutions are likely to attract higher foreign capital flows.

Similarly, Alvarez et al. (2013) are of the view that host countries typically attract foreign capital through; political stability, reducing corporation tax rates, providing quality infrastructure, protecting property rights, controlling corruption, rule of law and also allowing market forces to work without any distortions. In contrast, weak institutions often give rise to the capital outflow it is because the investors lose confidence and therefore transfer their funds abroad (Hermes & Lensink, 2003). In addition to that, existing literature are in line with the findings that a county with higher quality of institutions is linked with a lesser occurrence of capital outflows (Le & Zak, 2006; Cerra et al., 2008). In a similar vein, Ndikumana (2016), documents that capital outflow is much lower in better-governed government as compared to their counterparts.

The volatility of NCF and how to manage them has received a significant place on the agenda of decision-makers (De Gregorio et al., 2012). The impasse is that NCF impacts the economy from many angles (Fratzscher, 2012; Hwang et al., 2017).In general, therefore, dealing with NCF is an important issue, particularly in DEs. In the literature, capital flows are relevant from the points of view of financial stability, macroeconomic fluctuations, and the exchange rates (Tillmann, 2013; Cesa-Bianchi et al., 2015). The association between NCF and institutional quality across developed economies is well recognized in the literature (Asiedu & Lien, 2011; Kurul & Yalta, 2017; Peres et al., 2018). However, the impact of episodes on the real sectors through institutional quality is even more scant.

Literature Review

Capital Flows, Real sector and Institutions: Prior Evidence

According to Wei (2000) lack of quality institutions and the levels of distortions in the economy create an environment which is harmful for both domestic and foreign business. Rodrik (2000) discusses the types of quality institutions and their role in the markets to perform effectively. According to the author participatory political systems are the effective tools for aggregating local knowledge and thus, enhance higher quality economic growth. Gagliaridi (2008) discuss the channels in which institutions influence the economic change and how it leads to economic development. Study concludes that institutions matters for the economic performance of a country.

In principal foreign firms mostly favor stable, credible and honest political institutions (Globerman & Shapiro, 2003), because they enhance legitimacy within the host economy. Moreover, the political instability in a recipient economy is less attractive for the foreign investors (Woodward & Rolfe, 1993; Loree & Guisinger, 1995; Buthe & Milner, 2008) that can disrupt economic processes (Schneider & Frey, 1985). The countries with low IQ along with less developed domestic financial markets raises the costs of the production and ultimately, affects profitability (Jensen, 2003).
Asteriou and Price (2000) find strong association between DGDPg and political instability. Pin (2008) measures the political instability and its impact on DGDPg. They reported that higher growth rates correlates to the lower levels of politically motivated violence. Kim (2010) examines the relationship between political stability and capital flows. Researcher concludes that FDI inward performance is positively correlated with the level of corruption of governments and negatively associated with the level of democracy. Aisen and Veiga (2013) find that political instability is linked with lower growth rates.

Theory also suggests that, higher IQ is positively associated with NCF however, the empirical findings provide mixed results. For example, some authors document that political stability is positively associated with capital flows see for instance (Campos & Nugent, 2003; Sethi et al., 2003). However, Globerman & Shapiro (2003) finds no association between institution and NCF.Haan and Sturm (2000) explore the connection between

economic freedom and economic growth. They conclude that higher economic freedom leads to higher level of economic growth. Bengoa and Sanchez-Robles (2003) examine the association among capital flows, economic freedom and economic growth. Study utilized the panel data analysis over the period of 1970 to 1999 and find that economic freedom find positive and significant with capital inflows.

Bissoon (2012) report that IQ matters for the capital inflows in the host country. The author concluded that as the institutions are complementary in nature to each other, the combined effect of the overall institutions on the capital inflows is more significant than the quality of a specific institution. Tun et al. (2012) find that institutions play important role in determining the inward FDI because if improvement in local institution takes place it will reduce the cost of doing business, reduce uncertainty and thus it will enhance the productivity. Buchanan et al. (2012) empirically examined the effects of NCF on IQ. The authors find that IQ has positive effects on NCF but negatively associated with foreign capital volatility.

After reviewing the existing literature, we conclude that the impact of IQ on macroeconomic variables is inconclusive. Moreover, countries with weak institutions often harm the growth and development process. In addition to that, due to the lack of research on moderating impact of IQ it is critical to investigate the impact of episodes on real sector of the DEs. To this end, we extend the ongoing debate by considering the role of IQ in an attempt to uncover the impacts of surge, stop, flight and retrenchment on the real sector.

Data Description And Empirical Framework

In this study we use local projection framework to assess the role of IQ in establishing the impact of episodes on the real sectors of the 47 developing economies for the period of 1980 to 2018. A list of sample countries is provided in Appendix (Table A1). The major sources our data are the International Country Risk Guide (ICRG), published by Political Risk Services (PRS), Penn World Table, the IMF's International Financial Statistics database, World Bank's World Development Indicators.

The Description of the Variables

The selection criterion of the variables is purely based on the existing literature, the requirement of our study and the nature of the relationship between the variables as suggested by the economic theories. In this study, the dependent variables are; GDP per capita, gross savings, and employment. In this empirical analysis we use age dependency ratio, exports, import, trade openness, Nominal effective exchange rate (NEER), real effective exchange rate (REER), broad money % of GDP, gross capital formation, human capital index and Capital Account Openness (KAOPEN) as control variables. Most of these are already used in prior studies (Hwang et al., 2017; Rashid et al., 2019).

Empirical Framework

We identify the extreme episodes such as surge, stop, flight, and retrenchment based on NCF. Using local projections regression we investigate the role of IQ in establishing the impact of episodes on the real sector of the DEs.

Identification of the Episodes

Following Forbes and Warnock (2012) and Hwang et al. (2017), we divide NCF into four episodes as follows: (i) surge (ii) stop (iii) flight and (iv) retrenchment. In the following sub-sections we discuss the criteria through which we identify each episode of NCF.

Surge and Stop

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We identify surge and stop episodes based on the deviation of NCF to GDP ratio from its historical trend (Cardarelli et al., 2010; Imran & Rashid, 2023). Given that the volatility of NCF can vary across countries. Therefore, the extremely large movements of NCF are relative to not only to their own trend in each specific country during that period, but also, to the volatility of episodes, that particular country experience in general. Thus, an episode of large NCF in a year t is identified when indicator variables D_{it}^{surge} and D_{it}^{stop} are equal to 1 according to the following rule:

$$D_{it}^{surge} = \begin{cases} 1 & TDev_t >+ \sigma_{TDev} and \frac{NCF_t}{GDP_t} > 1\% \\ 0 & otherwise \end{cases} \quad (1)$$

$$D_{it}^{stop} = \begin{cases} 1 & TDev_t <+ \sigma_{TDev} and \frac{NCF_t}{GDP_t} > 1\% \\ 0 & otherwise \end{cases} \quad (2)$$

In equations (1) and (2), NCF_t represents the net capital flows and $TDev_t = \left(\frac{NCF_t}{GDP_t}\right) - trend$ is the deviation from the historical trend. Similarly, σ_{TDev} describe the standard deviation of detrended NCF. Further, the each episode is linked with sequence of years in which the criterion is met. We identify surge episode if NCF are more than one standard deviation above the historical average. Similarly, stop episode is defined as NCF are above the historical average and below one standard deviation above the historical average.

Flight and Retrenchment

Episode flight is defined as a sharp increase in outflows. Similarly, retrenchment episode is defined as a sharp decrease in outflows (Forbes & Warnock, 2012). Similarly, we identify flight episode if NCF areless than one-standard deviation below the historical average. Similarly, retrenchment episode is defined as NCF are below the historical average and above one-standard deviation below its historical average. Therefore, an episode of NCF in a year t is recognized when D_{it}^{flight} and D_{it}^{retr} equals 1 according to the following rule:

$$D_{it}^{flight} = \begin{cases} 1 & \mathrm{TDev_t} <- \sigma_{\mathrm{TDev}} \text{and} \ \frac{NCF}{\mathrm{GDP_t}} <- 1\% \\ 0 & otherwise \end{cases} \quad (3)$$

$$D_{it}^{retr} = \begin{cases} 1 & TDev_t >- \sigma_{TDev} \ and \ \frac{NCF_t}{GDP_t} <- 1\% \\ 0 & otherwise \end{cases} \quad (4)$$

In equations (3) and (4), NCF_t represents NCF and $TDev_t = \left(\frac{NCF_t}{GDP_t}\right) - trend$ is the deviation from the historical trend. Similarly, σ_{TDev} describe the standard deviation of detrended NCF. Moreover, each episode is related with the sequence of years in which the criterion is met. Using the underlying procedure, we identified the episodes in the sample. Specifically, 204 surge, 1047 stop, 101 flight and 183 retrenchment episodes identified in the sample are presented in Appendix (Table A5). Further, the national distribution of each episode is also provided in Appendix (Table A6).

The Empirical Model (Local Projections Framework)

We utilize data set namely ICRG published by the PRS group. ICRG data set is produced annually and covers three different aspects of government – law and order, bureaucratic quality, and corruption. ICRG has been used widely in the economic literature to proxy IQ. Following Ghalia et al. (2019), Law and Soon (2020) and Asamoah et al. (2021), we develop an index with aggregating six different dimensions of the IQ index using principal component analysis (hereafter PCA). Next, we set threshold criteria on the basis of their mean value, which enable us to categorize institutions into two different categories namely high quality and low-quality institutions. Further, these two different categories of institutions namely high and low-quality institutions incorporated into the empirical model to interact with episodes to establish the impact on real sectors of the underlying economies. Further, we separately measure the model for each episode twice i.e., one for the high institutional quality and second for the low level institutional quality. We use LPs by Jorda (2005) to examine the role of IQ in assessing the impact of surge, stop, flight, and retrenchment on the real sector of the DEs.

$$Z_{i,t+k} - Z_{i,t} = \delta_i + \delta_t + \sum_{j=1}^{R} \delta_{jk} Z_{i,t-r} + \beta_k Surge * IQ_{i,t} + \gamma_k Control_{i,t} + \epsilon_{i,t} \quad (5)$$

$$Z_{i,t+k} - Z_{i,t} = \delta_i + \delta_t + \sum_{j=1}^{R} \delta_{jk} Z_{i,t-r} + \beta_k Stop * IQ_{i,t} + \gamma_k Control_{i,t} + \epsilon_{i,t} \quad (6)$$

$$Z_{i,t+k} - Z_{i,t} = \delta_i + \delta_t + \sum_{r=1}^{R} \delta_{jk} Z_{i,t-r} + \beta_k Flight * IQ_{i,t} + \gamma_k Control_{i,t} + \epsilon_{i,t} \quad (7)$$

$$Z_{i,t+k} - Z_{i,t} = \delta_i + \delta_t + \sum_{j=1}^{R} \delta_{jk} Z_{i,t-r} + \beta_k Retr * IQ_{i,t} + \gamma_k Control_{i,t} + \epsilon_{i,t} \quad (8)$$

The empirical models presented in the equations (5), (6), (7) and (8) access the impact of episodes; surge, stop, flight, and retrenchment on the real sector, where, Z_{t+k} represents real sector variables. Particularly, Z_{t+k} represents a set of real sector indicators, the GDP growth rate, employment and domestic savings. Subscript k, $k = 1, ...10$, refers to the k^{th} after the occurrence of the each episode. We select the lag "q" in order to address the autocorrelation problem in the error terms, and is set at 3. With this specification, $\delta_i and \delta_t$ represents the country fixed effects, and time trend respectively.

Further, Teimouri and Zietz (2018) are of the view that bias is small for sample with long time dimensions . Moreover, δ_{jk} measures the persistence of the dependent variable, while δ_k captures the impact of lag values of dummy variable on the change in real indicators for the each future period k and takes the value 1 if positive and 0 if negative. On the other hand, γ_k measures the impact of set of the control variables on the of real indicators for the each future period, k. As discussed earlier, in LP, we estimate a separate regression of each horizon k, $k = 1, \ldots, 10$. In addition to that, the coefficient of β_k estimates for each horizon k estimates the cumulative impact of a surge on outcome variable $Z_{i,t+k}$. For example, if $Z_{i,t+k}$ is DGDPg, $\beta_k$represents cumulative percentage point change in the DGDPg relative to its value in year 0 that is a start of each episode. Moreover, IRF are drawn by plotting the estimated coefficients of the β_k against the each horizon for k. Following Furceri et al. (2012) and Bernardini and Forni (2020) we considered different control variables in order to consider the omitted variable bias, in our model, which can influence the dynamics of our alternative

outcome variable. Moreover, in our estimation, we also avoid the "potential-reverse causality" as we are interested in the changes in our response variables ($Z_{i,t+k}$) in the years, following the start of each episode.

Results And Discussions

Descriptive Statistics

Table 1 presents the summary statistics of the variables used in this empirical analysis. For example DCP documented an average of 32.90%. This shows that the low level of financial sector development in DEs. We use ICRG data set to proxied IQ of a country. The index is constructed based on PCA (see Tables A2 & A3). The IQ index reported with a mean value of 3.579 with standard deviation of 0.738.The mean value of the GDP per capita (in natural log form) is 7.706 with standard deviation of 0.984. These statistics present the different level of economic development among the sample of the DEs.

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Table 1: Summary Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
Dependent Variables					
GDP per capita (log)	1780	7.70	0.984	5.61	9.59
Gross Savings	1733	20.63	9.690	-11.47	53.21
Employment (log)	1700	4.260	1.710	0.577	8.978
Inflation	1771	21.44	68.020	-8.19	586.28
Domestic Credit to Private Sector % of GDP (DCP)	1702	32.90	29.720	0.403	166.50
Independent Variables					
Surge	1833	0.111	0.315	0	1
Stop	1833	0.571	0.495	0	1
Flight	1833	0.055	0.228	0	1
Ret	1833	0.100	0.300	0	1
Control Variables					
Institutional Quality	1,535	3.579	0.738	1.184	5.279
Age Dependency ratio	1833	73.820	18.640	36.49	112.74
Exports	1798	8.540	1.980	1.860	14.690
Import	1798	8.690	1.820	3.800	14.520
Trade Openness	1798	0.490	0.270	0.090	1.991
NEER	1092	4.830	0.828	3.010	15.150
REER	1804	4.700	0.364	2.410	6.440
Broad Money % of GDP	1678	44.04	31.68	6.540	251.61
Gross Capital Formation	1696	3.130	0.346	0.150	4.490
Human Capital (log)	1662	0.670	0.280	0.020	1.220
KAOPEN	1661	0.361	0.290	0	1.00

The Role of IQ, Episodes and the Real Sectors

In this study the methodology is based on LPs framework proposed by Jorda (2005). First, we present the responses of the real sectors namely the GDP growth rate, employment and savings considering the role of IQ. Moreover, we estimate the responses of the real sector indicators for the low and high IQ.

The Impact Episodes on Economic Growth through IQ

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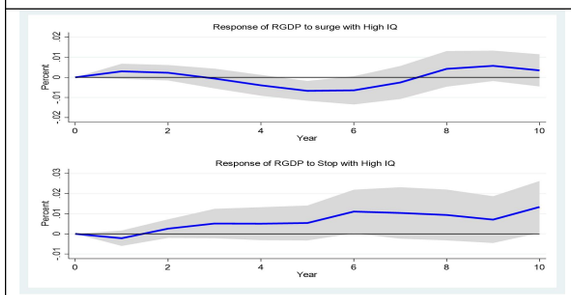
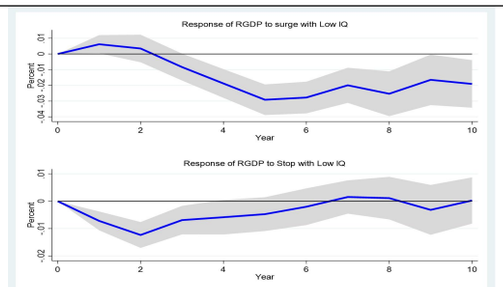
In this section, we present local projections impulse response functions (LPIRFs) for RGDP. We obtain the response of RGDP on each episode estimating Equations (5) to (8) by considering the moderating role of the high and low IQ separately for each future period k, k=10. Thus, Figure 1 is divided into two columns (a) and (b). Column (a) shows LPIRFs of RGDP to the episodes considering the moderating role of high IQ. On the other hand, Column (b) shows LPIRFs of RGDP to the each episode considering the role of low IQ for the sample countries. The impact of surge on RGDP is presented for the 10 periods of horizon as shown on horizontal axis. Particularly, the impact of surge shock on RGDP is positive and remains positive till almost 3rd period. The correlation become negative and pertains and become positive after the 7th period till 10th period. The impact of surge on RGDP while considering the moderating role of low IQ is initially positive. The RGDP response becomes negative after the 2nd period of the shock and it persists over the forecasted period.

The impact of stop on RGDP is negative for the first period. Conversely, it shows gradual rise in the RGDP over the forecasted period with the increasing trend. On the other hand, we observe that in case of low IQ the influence of gradually decrease in capital inflows (stop) to the RGDP decrease to more than 1 percentage point and remains negative till second period followed by the gradual rise in the RGDP.The response of RGDP to the flight (sharp decrease in capital outflows) shows that the negative association in first period or we see dip in the response of RGDP to the flight in case of countries high IQ. On contrary to short-term period, RGDP response remains positive over the medium term to the shock of flight. In 7th and 9th period it becomes negative as shown, in Figure 1.

However, in case of low IQ, the effects of flight on RGDP show more fluctuations. As in Figure 1, column (b), in the 1st period the RGDP response decreases followed by the sharp rise. However, over the medium term it remains positive. The response of RGDP to retrenchment (shock variable) in short-term- one year immediately after the retrenchment episode- decreases and then rises and becomes positive. However, the RGDP response decreases over the medium term period and remains negative 9th period as shown in Figure 1, column (a). LPIRFs of RGDP to the retrenchment in case of low IQ is positive in short-term to medium term range as shown in Figure 1, column (b).

Figure 1: The Effects of Episodes on RGDP with High and Low Institutional Quality

Column(a)	Column (b)
	

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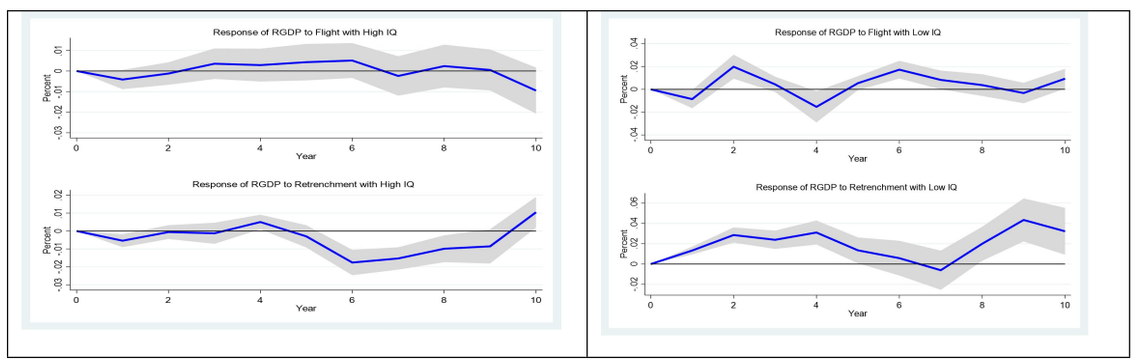
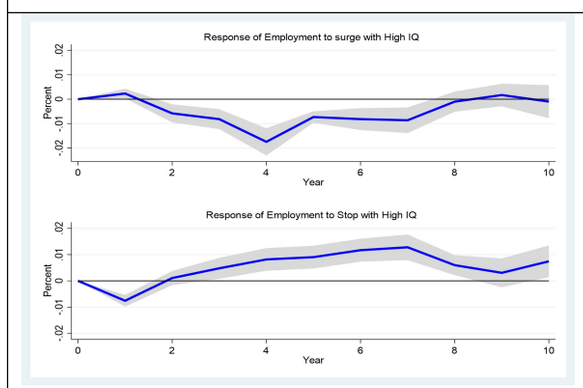
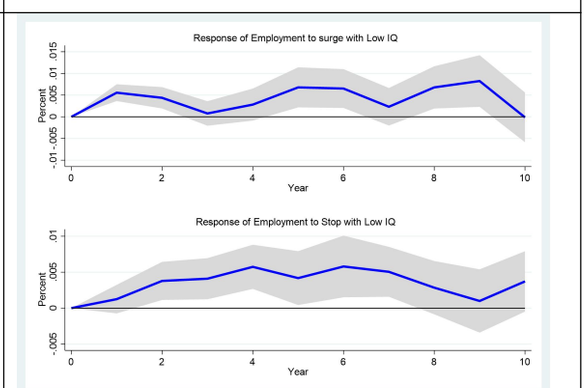


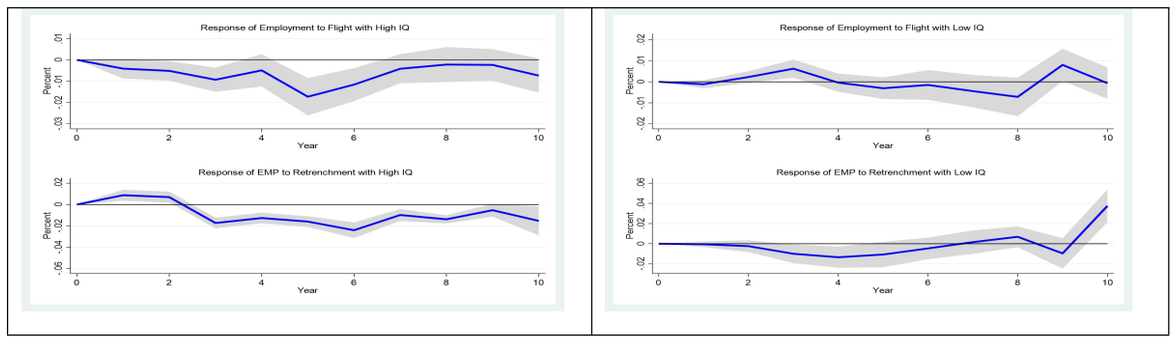
The Impact of Episodes on Employment through IQ

Thus, Figure 2 is divided into two columns (a) and (b). Column (a) shows LPIRFs of the employment to the episodes considering the moderating role of high IQ. On the other hand, Column (b) shows LPIRFs of the employment to the each episode considering the role of low IQ for the sample countries. LPIRFs obtained from estimating the impact of surge episode on the employment considering the role of high IQ, using Equation (5) show that in the first year following the beginning of stop episode the employment decreases about 1 percentage points as shown in Figure 2, column (a). The effects are however, remained positive over the forecasted periods. Moreover, countries with low IQ the influence of stop episode on employment remains positive all throughout the forecasted period.

In addition, LPIRFs for employment to the extreme capital outflows shows that the negative association throughout the forecasted period in case of high IQ. Further, in case of low IQ the response of the employment after first period of shock remain constant. In medium term range, the response remains negative till 8thperiod as shown in Figure 2, column (b). Moreover, in the case of retrenchment, the effect of the employment is positive in short-term period and for medium to long-term range it remains negative for high IQ. LPRIFs of employment to retrenchment in low IQ level of economies are almost zero in short-term period. However, over the intermediate period to the long period it remains almost negative. The possible rationale behind the negative response of the employment is that in case of DEs does not reap the potential benefits of capital flows because of the economic fundamentals and country specific characteristic including the skill labor.

Figure 2: The Effects of Episodes on Employment with High and Low Institutional Quality

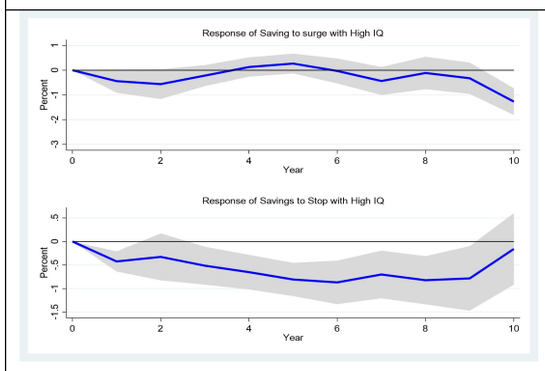
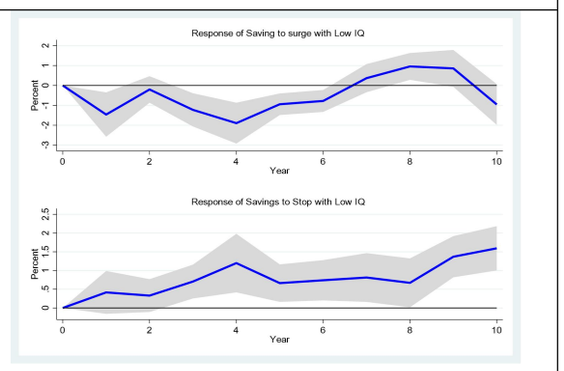
Column (a)	Column (b)
	

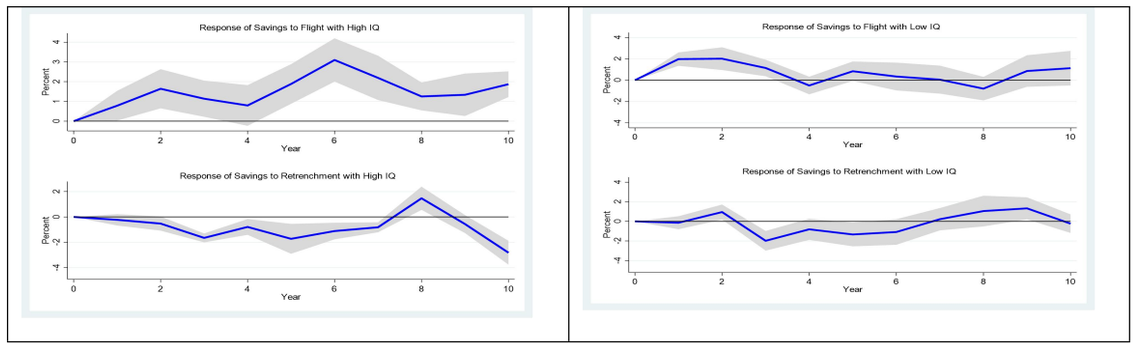


The Impact of Episodes on Savings through IQ

The response of savings to surge in capital inflows is negative over the short-term period and in medium term period is positive that is a from 4th period to 6th period and observed negatively associated over the long-term period in case of high IQ as shown in Figure 3, Column (a). On contrary, the effect of surge on savings is negative over the short-term to medium term period. LPIRF of employment becomes positive after the 6th period to 9thperiod as shown in Figure 3, column (b). The impact of stop episode on savings is negative throughout the forecasted period as presented in Figure 3, column (a) while the impact of stop on savings is positive for the 10 periods of horizon in case of low IQ (see Figure 3, Column (b)). We also obtain LPIRFs for the savings to extreme capital outflows. The effects of flight on savings is positive for whole forecasted period as presented in Figure 3, Column (a). Moreover, the response of the savings to flight is positive in short-term period. We observe that, the savings are positively associated with flight for a shorter period and become negatively associated in 7th to 8th period (Figure 3, Column (b)).LPIRFs for the savings to retrenchment is negative from short-term period to medium term period followed by sharp rise which again falls sharply (see Figure 3, Column (a)). In contrast, the response of the retrenchment is positive for the short-term and long-term period while in medium term the said response is negative in case of low IQ as presented in Figure 3, Column (b).

Figure 3: The Effects of Episodes on Savings with High and Low Institutional Quality

Column (a)	Column (b)
	



The impact of episodes in the short and long-run confirms the significance on the role of IQ on the real sector in the context of the DEs. For example, in the first row of Figure 1 the responses of DCP to surge are different considering the moderating role of the high and low IQ. In general, our findings on the impact moderating role of IQ and growth support the earlier empirical findings of Arya et al. (2019) and Aisen and Veiga (2013) that the capital flows and growth relation depends on the threshold level of IQ. Similarly Compton and Giedeman(2011) and Baharumshah and Wohar (2015) pointed that IQ affect the economy on different levels and relationship between capital flows and real sector growth depends on the threshold level of IQ.

Conclusion and Policy Recommendations

We construct an institutional quality index, and examine the moderating role of IQ in establishing the impact of episodes on real sector by differentiating between high-institutional and low-institutional quality. Using LPs regression proposed by Jorda (2005), we obtain the impulse response functions to explore the impact of NCF, and episodes on the real and nominal indicators. We find that these episodes have strong impacts on the real indicators of the DEs. For example, we find that the impact of surge on growth rate is a negative and persistent. The impact of stop on the growth rate is a positive over the medium term to long-term period.

Earlier we argue that the capital flows are associated with range of benefits however, large capital flows also carry risk because they have the potential to bring macroeconomic imbalances in the DEs due to low absorptive capacity and less diversified domestic economy. We conclude that episodes have significant impacts on the real sectors of DEs and our findings support this notion that large capital flows bring imbalances in the DEs. We also conclude that surges and flight have more strong influence on the real sectors of the DEs as compare to stop and retrenchment. We find that in order to reap the potential benefits of the NCF the level of IQ matters for DEs. In particular, we find that level of IQ act as a gate keeper in the host economy. Finally, we conclude that the countries with higher level of IQ are less prone the negative impacts of extreme episodes as compared to the countries with low level of IQ.

Policy Implications

Institutional development should also be a policy concern for the policymakers to reap the benefits of NCF and its episodes in a better way. One of the important findings of this study is that IQ plays a vital role in broadening the growth-enhancing impact of capital surge and stop episodes. Therefore, strengthening institutions are crucial for DEs if these economies aim to make the most of the benefits of large capital inflows. Finally, study makes a significant contribution to the developing discussion on the pros and cons of the episodes of NCF on the real sectors of the developing economies. The findings of this study can help the policymakers, academicians, researchers, and practitioners to lift the debate to a next level on how NCF and its episodes are managed for the host economy to reap the maximum benefits.

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APPENDIX

Table A1: List of Countries

Albania	Congo, Rep.	Jamaica	Niger	South Africa
Angola	Costa Rica	Jordan	Nigeria	Sri Lanka
Bangladesh	Dominican Republic	Kenya	Pakistan	Tanzania
Bolivia	Egypt, Arab Rep.	Libya	Papua New Guinea	Thailand
Botswana	Gabon	Madagascar	Paraguay	Togo
Brazil	Guatemala	Malaysia	Peru	Uganda
Bulgaria	Guinea-Bissau	Mali	Philippines	Venezuela, RB
Cameroon	Honduras	Mexico	Romania	
China	India	Mongolia	Russian Federation	
Colombia	Indonesia	Morocco	Senegal	

Table A2: Institutional Quality Results based on PCA

Component	Eigenvalue	Difference	Proportion	Cumulative
GS	3.298821	2.146475	0.5498	0.5498
IP	1.152355	0.517312	0.1921	0.7419
CP	0 .635042	0 .274809	0.1058	0.8477
LO	0.360233	0.053379	0.0600	0.9077
DA	0.306854	0.060163	0.0511	0.9589
BQ	0.246691		0.0411	1.0000

Source: Authors' calculations using Stata 16.0

Table A3: Principal Components (Eigenvectors/Loadings)

Variable	Comp1	Comp2	Comp3	Comp4	Comp5	Comp6
GS	0.2495	0.7535	0.2101	0.5226	0.1226	-0.1941

IP	0.4011	0.4249	-0.4172	-0.5105	0.1651	0.4435
CP	0.4206	-0.3864	0.3796	0.2678	0.4808	0.4762
LO	0.4543	-0.0029	0.4737	-0.2095	-0.7218	0.0653
DA	0.4034	-0.2595	-0.6428	0.5065	-0.3158	-0.0204
BQ	0.4805	-0.1871	-0.0014	-0.3069	0.3252	-0.7309

Source: Authors' calculations using Stata 16.0

Figure A1: Scree Plot

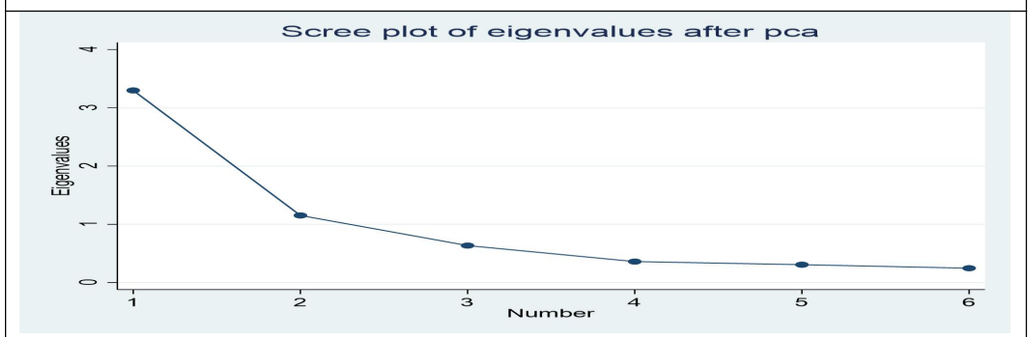

Table A5: Total Number of Episodes

SR#	Total Surge Observed	Total Stop Observed	Total Flight Observed	Total Retrenchment Observed	Share in Total Observations
1	204				13.29%
2		1047			68.21%
3			101		6.50%
4				183	12.00%

Source: Authors' calculations using Stata 16.0

Table A6: National Distribution of Episodes

Sr#	Country	Surge	Stop	Flight	Retrenchment
1	Albania	2	27	1	2
2	Angola	2	18	1	10
3	Bangladesh	4	22	1	0
4	Bolivia	5	28	3	0
5	Botswana	4	12	3	13
6	Brazil	8	19	0	0
7	Bulgaria	2	21	3	9

8	Cameroon	5	28	2	0
9	China	9	14	2	0
10	Colombia	6	26	1	0
11	Congo, Rep.	7	16	7	6
12	Costa Rica	1	34	0	0
13	Dominican Republic	6	27	1	0
14	Egypt, Arab Rep.	3	24	2	6
15	Gabon	2	4	3	22
16	Guatemala	6	30	0	0
17	Guinea-Bissau	1	20	1	6
18	Honduras	4	32	1	0
19	India	3	31	0	0
20	Indonesia	6	20	4	1
21	Jamaica	5	27	1	0
22	Jordan	4	30	3	0
23	Kenya	7	25	2	0
24	Libya	0	4	3	16
25	Madagascar	4	31	1	0
26	Malaysia	8	10	5	13
27	Mali	2	33	1	0
28	Mexico	4	27	0	0
29	Mongolia	4	29	1	2
30	Morocco	7	24	2	0
31	Niger	3	29	1	3
32	Nigeria	4	6	2	15
33	Pakistan	7	23	2	0
34	Papua New Guinea	3	17	7	9
35	Paraguay	3	22	4	1
36	Peru	9	26	0	0
37	Philippines	4	19	3	2

38	Romania	5	22	2	8
39	Russian Federation	3	1	4	9
40	Senegal	2	32	1	0
41	South Africa	7	14	1	5
42	Sri Lanka	7	31	0	0
43	Tanzania	2	34	1	0
44	Thailand	4	18	4	8
45	Togo	3	29	4	0
46	Uganda	1	31	2	0
47	Venezuela, RB	6	0	8	17
	Total	204	1047	101	183

Source: Authors' calculations using Stata 16.0

Table A7: List of Variables

Variable	Definition	Source
Net capital flows	"Net capital flows are equal to the difference capital inflows and capital outflows".	IMF-IFS
Capital Inflows	Capital Inflows by Foreign Agents (Scaled by Trend GDP). "Capital inflows are equal to the net purchases of domestic assets by non- residents; namely, it is the sum of all liability inflows".	IMF-IFS
Capital Outflows	Capital Outflows by Domestic Agents (Scaled by Trend GDP). "Capital outflows are equal to the net purchases of foreign assets by domestic agents; in other words, it is the negative of the sum of all asset inflows including international reserves".	IMF-IFS
Surge	Rapid increase in capital inflows by foreign investors. Dummy equal to "one" if there is a surge episode in NCF.	Author's own calculation
Stop	Rapid decrease in capital inflows by foreign investors Dummy equal to "one" if there is a stop episode in NCF.	Author's own calculation
Flight	Rapid increase in capital outflows by domestic investors. Dummy equal to "one" if there is a flight episode in NCF.	Author's own calculation
Retrenchment	Rapid decrease in capital outflows by domestic investors. Dummy equal to "one" if there is a retrenchment episode NCF.	Author's own calculation
Global Growth Rate	World Real GDP Growth Rate	IMF-IFS

Global Interest Rate	Interest rate on long-term government bonds for US.	Federal Reserve Economic Data (FRED)
World Uncertainty Index (WUI)	WUI stands for World Uncertainty Index (WUI). The index is unbalanced GDP weighted average for 142 countries. This index measures overall uncertainty across the globe.	FRED
World Commodity Prices	Global Price Index of All Commodities, Index.	FRED
Domestic Interest Rate	Deposit interest rate is the rate paid by commercial or similar banks for demand, time, or savings deposits. The terms and conditions attached to these rates differ by country, however, limiting their comparability.	WDI
Real Effective Exchange Rate (REER)	Foreign exchange rate regime data - classification from 1-6.	IMF
GDP Growth rate	GDP Growth rate.	IMF–WEO
Current Account	Current account balance is the sum of net exports of goods and services, net primary income, and net secondary income.	WDI (2019)
Exchange Rate Regime	Exchange rate regime data classification from 1-4.	IMF
Capital Account Openness (KAOPEN)	Capital account openness index (high=liberalized; low=closed).	Chinn and Itto (2008)
Institutional Quality	Institutional Quality Index.	ICRG–Published by the PRS Group
Real GDP Per Capita	GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2010 U.S. dollars.	WDI (2019)
Employment	Number of persons engaged (in millions). Employment can be defined by either the national definition, the ILO harmonized definition, or the OECD harmonized definition. Persons who during a specified brief period such as one week or one day, (a) performed some work for wage or salary in cash or in kind, (b) had a formal attachment to their job but were temporarily not at work during the reference period, (c) performed some work for	Penn world Table 9.1

	profit or family gain in cash or in kind, (d) were with an enterprise such as a business, farm or service but who were temporarily not at work during the reference period for any specific reason.	
Domestic Savings	Gross Domestic Savings (% of GDP). Gross savings are calculated as gross national income less total consumption, plus net transfers. Data are in current local currency.	WDI (2019)
Inflation	Inflation, GDP deflator (annual %) Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.	WDI (2019)
Domestic Credit to Private Sector	Domestic credit to private sector (% of GDP). Domestic credit to private sector by banks refers to financial resources provided to the private sector by other depository corporations (deposit taking corporations except central banks), such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment. For some countries these claims include credit to public enterprises.	WDI (2019)
Age Dependency Ratio	Age dependency ratio is the ratio of dependents--people younger than 15 or older than 64--to the working-age population--those ages 15-64. Data are shown as the proportion of dependents per 100 working-age population.	WDI (2019)
Trade Openness	Trade Openness is defined as sum of exports and imports of goods and services measured as a share of GDP.	WDI (2019)
Real Interest Rate	Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator. The terms and conditions attached to lending rates differ by country, however, limiting their comparability.	WDI (2019)