Institutional quality, macroeconomic stabilization and economic growth: a case study of IMF programme countries

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The current study is motivated by the overall lackluster performance of IMF programmes in recipient countries in terms of economic growth consequences, and tries to explore the relevance of institutional determinants (that have a positively significant role in improving institutional quality in IMF programme countries, in the first place) in enhancing real economic growth in IMF programme countries; as otherwise highlighted by New Institutional Economics literature for countries generally. Moreover, the study also investigates the impact of these determinants through the channel of macroeconomic stability. Based on a time period of 1980-2010 (coinciding with a duration of increasing number of IMF programmes), the results mainly validate that institutional determinants overall play a positive role in reducing macroeconomic instability, and through it, and also independently, enhance real economic growth.

I. Introduction

During the last three decades or so, many countries have received once or have been prolonged users[1] of International Monetary Fund (IMF; or simply the 'Fund') resources, but research literature points to the fact that most of them have not been able to achieve macroeconomic stability on sustained basis (Evrensel, 2002; Easterly, 2005).

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[1] Independent Evaluation Office (IEO, 2002, p. 9 and 24) indicates that a country which remains in an IMF programme for at least 7 years in a 10 year time period, is referred to as a prolonged user.

At the same time, it has been pointed out that too much focus of the IMF on the demand side of the economy, at the cost of supply side, has led to the impact of IMF programmes at most being neutral (and in some countries even negative) on economic growth of programme countries (Haque and Khan, 1998; Bird, 2001; Bird, 2007; Arpac *et al.*, 2008).

NIE (New Institutional Economics) literature, on the other hand, indicates that countries which saw improvement in institutional quality, also witnessed their per capita incomes improving (Acemoglu and Johnson, 2005; Afonso and Jalles, 2011). Actually, NIE points out that institutional quality improves when an environment is created (for example, by reducing transaction costs through providing better education, protecting property rights, providing better environment for businesses mainly through ensuring enforcement of contracts, improving rule of law) that incentivises people to invest in the economy, and in turn contribute to economic growth.

Given the consequence of IMF programmes at most being neutral for economic growth, on one hand, and institutional determinants significantly affecting economic growth in countries overall, on the other hand, the paper intends to explore the possibility in IMF programme countries, that significant institutional determinants (obtained from Javed, 2014) positively impact real GDP both directly, and then indirectly through the macroeconomic stability channel.

The study is structured in the following way: relevant literature is reviewed in Section II, followed by discussion of data and methodology in Section III, while Section IV highlights estimation and results. Conclusion of the study is given in the last section.

II. Literature Review

Ever since the Third World Debt crisis of the 1980s, IMF enhanced its role, mainly through its structural adjustment window; resulting in turn, in greater focus of economic research to gauge the impact of IMF programmes on the economic performance of recipient countries.

A lot of countries have been under the IMF programmes during the last three decades. Therefore, there has been an effort by researchers to understand the impact of these programmes, for which different approaches have been employed. Haque and Khan (1998; p. 7) pointed out that the difference between these methodologies fundamentally lay in the way the 'counterfactual' was formulated, which served as a benchmark to gauge the performance of the 'actual outcome' against a macroeconomic outcome existing in a world of no programme (i.e., the 'counterfactual').

Haque and Khan (1998; p. 8-12) indicated that due to informational constraints with regard to structural parameters and policy reaction function parameters, different programme evaluation methods construct counterfactuals differently; with approaches being (i) before-after (BA; evaluates macroeconomic performance under and before the programme; but

suffers from over-simplification by excluding the impact of any exogenous factors), (ii) with-without (WW; where a group of non-programme countries is taken as a 'control group' and the performance of a programme country is compared with it; with major shortcoming in terms of assuming that programme and non-programme countries are same prior to the start of the programme, which is especially problematic given the programme country is crisis hit to start with, suffering in turn the non-random selection bias with regard to selection of programme countries), (iii) generalized evaluation estimator (GEE) approach (while it also compares programme and non-programme countries, it controls for initial conditions and exogenous influences), and (iv) comparison of simulations (SIM; compares simulated performance of countries under hypothetical Fund programmes and non-Fund policies; but has the shortcoming that the required underlying econometric model that captured the whole spectrum of a typical Fund programme, is not available).

Using BA approach, while Khan and Knight (1981) reported a negative impact, Killick *et al.* (1992) pointed towards a positive impact of IMF programmes on economic growth of recipient countries; where Evrensel (2002) indicated a neutral impact on economic growth. Similarly using WW approach, while Donovan (1981) found out a positive impact of Fund programmes on economic growth, Loxley (1984) pointed towards a neutral effect on growth. Hence, the underlying weak assumptions with regard to formulation of counterfactual in the BA and WW approaches may be the reason why different studies using these methodologies produced results that are all over the place, making it difficult to conclude anything substantively with regard to the impact of IMF programmes on economic growth of recipient countries.

Having said that, formulation of a more informed counterfactual, using GEE methodology gave more consistent results, which most often than not indicated that Fund programmes had a negative impact on economic growth of recipient countries. Hence, for example, Goldstein and Montiel (1986) using data from 1974-1981, and employing GEE methodology pointed out a negative impact of Fund programmes on economic growth. Similarly, Barro and Lee (2005) using GEE methodology (and by employing data from 1975 to 2000) indicated that Fund lending retarded economic growth. Also, Dreher (2006), who covered a time period from 1970-2000, pointed out an overall negative impact on economic growth. Furthermore, Nsouli *et al.* (2004) also indicated that Fund programmes remained neutral in terms of their impact on economic growth.

A further review of literature to see the detailed impact of IMF programmes revealed a lackluster performance in terms of individual macroeconomic indicators of recipient countries, along with highlighting the emergence and persistence of recidivism in IMF programme countries. While Khan (1990) and Pastor (1987) discovered significant positive impacts on the overall balance of payments, Conway (2006) indicated that the impact has reduced since the 1970s and 1980s. Evrensel (2002; p. 586) found out that previous programme countries entered a new one at the back of an even worse macroeconomic situation (as compared to the situation when they were not in the programme in the first place), because of the existence of moral hazard in terms of easily available financing. Also, he indicated that significant improvement achieved in terms of current account and foreign exchange reserves, could not be sustained after the duration of

the programme. Also, Przeworski and Vreeland (2000), using data from 1951 to 1990, show that countries in a programme lowered their growth rates, which otherwise grew faster once they left the programme.

Furthermore, the research conducted by Barro and Lee (2005) did not see any significant consequence of IMF programmes for either investment or inflation; and could not find positive consequence on economic growth in recipient countries, who remained frequent borrowers from IMF. Bird (1996) pointed out that till the Fund programmes focused on improving economic growth as the top priority on its agenda (taking in turn a long term perspective of the BOP), recipient countries would continue to remain recidivist. Similarly, Hutchison and Noy (2003), pointed out low programme completion rates and recidivism, high output costs, and no improvement of current account for Latin America.

Butkiewicz and Yanikkaya (2005) using actual monetary values of IMF lending (rather than the number of programmes approved by the Fund, since according to the them there remained a high level of non-completion of IMF programmes) pointed out that while Fund's overall objective for crisis-hit countries was to put them on stable economic growth footings, yet the impact of Fund programmes is either neutral or negative, given their policies have an adverse impact for public and private investment; revealing in turn that the Fund in putting too much emphasis on the demand side, neglecting the supply side of the economy in the process. One of the main steps in this regard, according to NIE is improving institutions so that the transaction costs can be lowered to induce investment (which in turn helps boost economic growth).

With regard to the prolonged users, Easterly (2005) indicated that during 1980-99 these countries were unable to achieve either reasonable growth or deal convincingly with macroeconomic distortions.

Given this background while the Fund also realized and internalized this performance and criticism (IMF 2005a; IEO, 2007), researchers have criticised and asked IMF to improve its Financial Programming Framework (FPP) for better results for recipient countries in terms of consequences for macroeconomic stability and economic growth (IEO, 2007; Bird and Willett, 2004). For instance, Bird (2007) found the criticism to be legitimate since it found IMF programmes to be 'over simplistic'. Moreover, Buira (1983) called on the Fund to revisit its financial programming techniques for certain cases. Also, Bird (2001) asked IMF to redesign its programmes. More specifically, Abbot *et al.* (2010) while analyzing impact of programmes on developing countries, criticized Fund to be too rigid and conventional/uniform in its approach in terms of its conditionalities[2], and this formed as one of the reasons for its impact neutral performance with regard to economic growth; in turn asked for a fresh approach.

In terms of suggesting specific remedies, Khan and Knight (1985), for instance, indicated the negative impact on economic growth could be restricted to short-term in case supply-side policies were pursued. Moreover, Arpac *et al.* (2008) suggested to IMF to focus on domestic politics also while forming expectations about the extent of programme

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[2] The process of conditionality is whereby installments are released on a quarterly basis, at the back of successfully meeting benchmarks, which are pre-decided with regard to performance (Barro and Lee, 2005, p.1248).

implementation in a country. At the same time, Nsouli *et al.* (2004) pointed out that most research on gauging impact of Fund programmes did not take into account the underlying role of institutional quality in programme success rate. Furthermore, pointed out that in programme countries, better institutional quality and conducive political environment had positive consequences for macroeconomic outcomes, and programme implementation rates.

Research literature of NIE has found that improvement in institutional determinants had an overall positive and significant bearing on the economic growth of countries (for example, Rodrik *et al.*, 2002; Hall and Jones, 1999). For instance, Acemoglu *et al.* (2004) while analyzing the different institutions of North and South Korea, pointed out that unlike the North, in the South, by taking political and economic institutions were strengthened for example, policy decisions were taken democratically, protecting private property, and developing markets. This led to greater economic growth and development in South Korea over the years, as compared to North Korea, even though both countries shared the same culture since they were one country under the Japanese occupation (which ended in 1945, and the division subsequently). Similarly, improvement in institutions (both political and economic) led Botswana experience very high growth rates during the last three decades or so (Acemoglu *et al.*, 2003a; Parsons and Robinson, 2006).

III. Data and Methodology

Theoretical design

The main motivation of the current study is based on the 'missing link', which identifies itself as the effect of institutions on economic growth of IMF programme countries; given the background of a lackluster performance of IMF programmes for recipient countries in terms of economic growth consequence (mainly due to insufficient focus on the supply side of the economy) and the importance of institutions in improving growth rates in countries, as revealed by the research literature of NIE. Hence, the current study makes an effort to explore this 'missing link' by analysing the impact of institutional determinants on economic growth of IMF programme countries, with the underlying premise that improvement in institutional determinants both directly, and indirectly (through the channel of macroeconomic stability) positively impact real GDP.

As indicated earlier, NIE literature indicates that institutions have a significantly positive bearing on real economic growth (Rodrik *et al.*, 2002; Ugur, 2010). Ugur (2010) for example, drew the same conclusion from many studies conducted between 1995-2004, indicating also at the same time that the direction of causation was significantly from institutions to economic performance (Ugur, 2010, p.16). In the current analysis, the same is being premised for IMF programme countries:

Real GDP = f (institutional determinants, other variables)   [a]
                              (+)

At the same time, it has been advocated, for example by Acemoglu *et al.* (2003b) that the main reason behind macroeconomic instability and the varying levels of volatility among different countries were related more with institutional reasons than the traditionally identified macroeconomic determinants. Similarly, better budgetary institutions (which are important economic institutions) had a negatively significant impact on (budget) deficit (von Hagen, 1991). Hence, the current study considers the notion that institutional determinants in IMF programme countries negatively impact macroeconomic instability:

Macroeconomic Instability = f (institutional determinants, other variables)   [b]
                            (-)

In a case study of Iran conducted by Haghighi *et al.* (2012) it was pointed out that there existed a long-term relation between economic growth and macroeconomic instability. Therefore, lastly, it is also premised here that macroeconomic instability has a negative bearing on real GDP in IMF programme countries:

Real GDP = f (macroeconomic instability, other variables)   [c]
                 (-)

For the purpose of analysis, the institutional determinants to be employed will be the significant determinants of institutional quality taken from Javed (2014).

Sample

Out of the total IMF member countries at 188 IMF member country data from IMF website[3], countries that have remained under the IMF programme at one time or the other (otherwise called 'programme countries') have been found out from, to stand at 129 during the sample period (1980-2010). Furthermore, for the purposes of analysis, programme countries have been sub-divided into two groups of 'prolonged users' and 'non-prolonged users[4]'. They are 44 and 85 programme countries, respectively, during the same time period[5].

Data and variable description

Data on real GDP is taken from the World Economic Outlook (WEO) of the IMF[6].

Based on the methodology and definitions of Ismihan (2003), Macroeconomic Instability Index (MII)[7] has been constructed using the following five[8] indicators:

(i) inflation rate (calculated by taking data on GDP Deflator from WEO),

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[3] See complete list of IMF member countries at: http://www.imf.org/external/country/
[4] The author has used the terminology of non-prolonged users to represent a group of programme countries that have remained under an IMF programme for less than 7 years in a decade.
[5] See lists of prolonged users and non-prolonged users at Appendix-A.
[6] http://www.imf.org/external/pubs/ft/weo/2013/02/weodata/index.aspx
[7] For details, see Ismihan (2003; pp. 214-15), who constructed MII.
[8] It may be indicated here that while Ismihan (2003) only included the first four indicators to construct the MII, the current study augments it with one more indicator.

(ii) budget deficit as percentage of GDP is (taken from WEO),

(iii) general government gross debt as percentage of GDP (obtained from WEO),

(iv) exchange rate variability has been calculated on the basis of 12 month end-of-period

nominal exchange rate in SDR, taken from International Finance Statistics (IFS; IMF)[9]

and,

(v) Real Effective Exchange Rate Index (REERI; taken from WDI[10] of the World Bank).

This indicator has been included in Ismihan (2003) to augment MII to include the impact

of competitiveness in it. Furthermore, it needs to be indicated that another index in this

regard called the Macroeconomic Stability Subindex[11], produced by World Economic

Forum. The reason it has not been employed in the current analysis because of lack of

consistency of its methodology; in turn, inhibiting comparability of data over longer

periods of time.

Political/governance related indicators. From Javed (2014), significant variables include

regime, military, civil liberties, and aggregate governance index[12].

Economic variables. From Javed (2014) significant variables include KOF Index of

Globalization, monetary freedom, investment freedom, and property rights[13]. The other

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[9] Data taken from IFS-CD ROM (Version 1.2.133).
[10] http://data.worldbank.org/data-catalog/world-development-indicator
[11] http://www.weforum.org/pdf/Global_Competitiveness_Reports/Reports/GCR_05_06/Composition_of_the_Growth_Competitiveness_Index
[12] For details see Javed (2014).
[13] For details see Javed (2014).

significant determinant of institutional quality from Javed (2014) that is real GDP, has not been included here, since the dependent variable is also real GDP.

Control variables. They include government spending and population taken from WDI.

Endogeneity. Based on literature review (for instance discussion of institutions in NIE literature; see for example Acemoglu *et al.*, 2001), it has been realized that the problem of endogeneity exists for many variables. Endogenous variables include lagged GDP, MII (lagged and predicted also), government spending, aggregate governance index, KOF Index of Globalization, monetary freedom, investment freedom, and property rights. The exogenous variables on the other hand, include, population, regime, military, and civil liberties.

Econometric methodology

As explained in the theoretical design, the purpose here is to estimate the impact of institutional determinants (obtained from Javed, 2014) both directly and then indirectly (through Macroeconomic Instability Index) on real GDP, in terms of 'prolonged users' and 'non-prolonged users'. Therefore, in line with the design, the first equation will be estimated as follows:

$$LGDP_{it} = \alpha_i + \alpha_1 LGDP_{i,t-1} + \alpha_2 X_{it} + \alpha_3 Z_{it} + \alpha_4 M_{it} + \omega_t + \epsilon_{it} \qquad [1]$$

where, $LGDP_{it}$ stands for log real GDP. α_i is the country-fixed effect. $LGDP_{i,t-1}$ stands for

lagged log real GDP. X_{it} is a vector of significant political/governance related indicators,

and Z_{it} is a vector of significant economic variables from Javed (2014); while M_{it} is a

vector of control variables. ω_t is the t-1 time specific dummy. ϵ_{it} is the error term.

While Eq[1] is estimated to check the direct impact of significant determinants of

institutional quality on real GDP, the next two equations will together indirectly estimate

this impact, as follows:

$$MII_{it} = \beta_i + \beta_1 MII_{i,t-1} + \beta_2 X_{it} + \beta_3 Z_{it} + \gamma_t + \eta_{it} \qquad [2]$$

where, MII stands for Macroeconomic Instability Index, while $MII_{i,t-1}$ stands for lagged

MII. β_i is the country-fixed effect, while X_{it}, Z_{it}, once again are a vector of significantly

positive determinants of institutional quality from Javed (2014); γ_t is a t-1 time specific

dummy, and η_{it} is the error term.

and,

$$GDP_{it} = \gamma_i + \gamma_1 \widehat{MII}_{it} + \gamma_2 M_{it} + \phi_t + \varphi_{it} \qquad [3]$$

where, GDP_{it} stands for log real GDP. γ_i is the country-fixed effect. $\widehat{MII}_{it}$ stands for

predicted values of MII for Eq [2]. M_{it} are the control variables, ϕ_t is the t-1 time specific

dummy, while φ_{it} is the error term.

Hence, in Eq [2], the impact of significant determinants of institutional quality is investigated on MII, while in Eq [3] the impact of MII is explored on real GDP.

The underlying premise for employing this indirect approach is to see the importance of institutional focus for IMF programmes in improving macroeconomic stability, and also, economic growth. The basis for this here is that as institutional quality improves, it will reduce macroeconomic instability, and also as macroeconomic instability decreases it will enhance real GDP.

The above equations (Eq[1] to Eq[3]) are being estimated using Arellano and Bover (1995) approach. The big advantage of this approach is that it uses the information in the equations simultaneously from level and difference forms. For this purpose, we take the difference of all equations, as follows:

$$\Delta LGDP_{it} = \delta_1 \Delta LGDP_{i,t-1} + \delta_2 \Delta X_{it} + \delta_3 \Delta Z_{it} + \theta_t + \varepsilon_{it} \qquad [4]$$

$$\Delta MII_{it} = \pi_1 \Delta MII_{i,t-1} + \pi_2 \Delta X_{it} + \pi_3 \Delta Z_{it} + \tau_t + \sigma_{it} \qquad [5]$$

$$\Delta LGDP_{it} = \xi_1 \Delta LGDP_{i,t-1} + \xi_2 \Delta \widehat{MII}_{it} + \xi_3 \Delta X_{it} + \xi_4 \Delta Z_{it} + \Omega_t + \mu_{it} \qquad [6]$$

These equations also serve the purpose of removing any possible heterogeneity in the models above (where Δ indicate change between years t and t-1 for a variable).

For the estimation of the models, like the ones above, the approach of Generalized Method of Moments (GMM) has been recommended by Arellano and Bover (1995) and Blundell and Bond (1998)[14]. The GMM approach in the estimation of these types of models enhances efficiency through addition of more instruments to the system of equations, i.e. on level and difference. Furthermore, all available lagged values of endogenous variables are used as instruments to resolve the problem of autocorrelation. All the above models are estimated using robust standard errors to address the problem of autocorrelation and heteroskedasticity.

IV. Estimation and Results

All the models have been estimated separately on the two sub-groups of programme countries, being 'prolonged users' and 'non-prolonged users'. The reason behind taking these two groups is based on the inherent difference in economic environment of these two sub-groups, where the prolonged users are generally composed of very underdeveloped economies (and hence the need for entering frequent IMF programmes), while the non-prolonged users are more representative of economies that are overall more developed than the prolonged users.

Tables 1(a) and 1(b) highlight the impact of institutional determinants on real GDP for prolonged and non-prolonged users, respectively. On the other hand, Tables 2(a) and 2(b), estimate the impact of institutional determinants on MII (once again for both prolonged

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[14] The Stata command, 'xtabond2' developed by Roodman (2009) was used to estimate all equations.

and non-prolonged users). Thereafter, Tables 3(a) and 3(b), estimate the impact of predicted MII ($\widehat{\text{MII}}$) on real GDP (in terms of the two sub-groups of programme countries).

Upfront it may be pertinent to indicate that instruments were valid and exogenous[15], since they passed the Hansen-J statistic test of Over-Identifying Restrictions (OIR; Hansen, 1982).

In Tables 1(a) and 1(b), Lagged real GDP is positive and significant for real GDP in the case of both prolonged users and non-prolonged users; hence, highlighting the presence of dynamic process. At the same time, in both the sub-groups of program countries, population in many of the models has a significantly negative bearing on real GDP, while government spending overall has positive consequence for real GDP.

It can be seen in Tables 1(a) and 1(b) through the institutional determinant 'regime', that as compared to presidential form of democracy, parliamentary form of democracy is more conducive for enhancing real GDP. At the same time, a military officer as chief executive is detrimental to improvement in real GDP (i.e. has a significantly negatively impact) for prolonged users; the same consequence is also prevalent although insignificantly in the case of non-prolonged users. Moreover, the two tables highlight that civil liberties positively and significantly contribute in enhancing real GDP in the case of both sub-groups.

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[15] For details, see Roodman (2007).

Aggregate governance index highlights its importance in enhancing real economic growth since it holds significantly positive consequence for real GDP in both the prolonged and non-prolonged users. Similarly, Toye (1993) for example, highlighted the significance states hold in providing conducive environment for better functioning of markets, which in turn helps reduce transactions costs, supporting economic activity in the process.

The importance of openness of the economy is reflected in KOF index of globalization having a significantly positive impact on real GDP. Also, monetary freedom significantly enhances real GDP for both the sub-groups. At the same time while investment freedom overall holds a positive consequence for non-prolonged users, it is significant in the case of prolonged users.

Property rights that play an important role in reducing transaction costs (that helps enhance investment) remains positive for real GDP for both the sub-groups. Acemoglu and Johnson (2005; p. 953) pointed out that countries where institutions protected property rights more, performed better in terms of indictors related with investment, credit to private sector, stock markets, and income per capita. A similar result is pointed out by Acemoglu and Robinson (2012) in terms of Netherlands and UK paying greater attention to developing private property protection institutional framework, and in turn growing quicker than their neighbours. Having said that, the fact that the institutional determinant of property rights is insignificant in both the sub-groups, underlines the need for strengthening the supporting institutional set up so that the impact of property rights on real GDP could possibly become more effective.

Table 1(a). Dependent variable -real GDP- prolonged users

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lag Log GDP	0.978***	0.852***	0.912***	0.304***	0.357***	0.361***	0.353***	1.007***
	(0.00974)	(0.0357)	(0.0193)	(0.0486)	(0.0472)	(0.0471)	(0.0499)	(0.0101)
Log Population	-0.000131	0.00177	-0.0594*	-0.204***	-0.175***	-0.177***	-0.188***	-0.00186
	(0.00352)	(0.0197)	(0.0352)	(0.0717)	(0.0667)	(0.0685)	(0.0689)	(0.00336)
Government Spending	-4.49e-05	0.000101	0.000212	0.000430***	0.000290**	0.000306**	0.000253*	-0.000146
	(0.000151)	(0.000203)	(0.000173)	(0.000148)	(0.000139)	(0.000139)	(0.000141)	(0.000274)
Regime	0.0299**							0.0112
	(0.0152)							(0.0106)
Military	-0.0250**							-0.00430
	(0.0115)							(0.0105)
Agg. Gov. Index		0.00110**						7.29e-05
		(0.000436)						(0.000389)
Civil Liberties			0.00932*					0.000423
			(0.00516)					(0.00308)
KOF Index of Glob.				0.00141*				-0.000934
				(0.000747)				(0.000881)
Monetary Freedom					0.000407**			-0.000462
					(0.000199)			(0.000373)
Investment Freedom						0.000435**		1.44e-05
						(0.000209)		(0.000194)
Property Rights							0.000236	-0.000154
							(0.000273)	(0.000537)
Constant	0.180**	0.935**	1.515**	8.174***	7.417***	7.429***	7.320***	0.0887
	(0.0716)	(0.387)	(0.646)	(1.361)	(1.288)	(1.311)	(1.296)	(0.0622)
Observations	713	578	725	639	725	725	725	486
Number of countries	42	44	44	44	44	44	44	42
Hansen OIR test	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
AR(1)	4.21e-05	3.65e-05	2.54e-05	0.456	0.139	0.0140	0.0785	0.00137
AR(2)	0.0176	0.00987	0.0122	0.528	0.811	0.912	0.895	0.0286
AR(3)	0.200	0.268	0.424	0.0442	0.0720	0.0181	0.0153	0.268

*** $p<0.01$, ** $p<0.05$, * $p<0.1$. Note: Robust standard errors in parentheses. Columns indicate models, which have been estimated using System-GMM approach. Time dummies not reported to save space, while all available lagged values of endogenous variables used as instruments. The p-values of the Hansen OIR test is used to check the null hypothesis of instrument set being valid and exogenous, while the null of no autocorrelation is checked through Arellano-Bond AR(1), AR(2) and AR(3) tests.

Table 1(b). Dependent variable -real GDP- non-prolonged users

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lag Log GDP	0.792***	0.856***	0.971***	0.895***	0.877***	0.672***	0.676***	0.825***
	(0.0733)	(0.0284)	(0.0153)	(0.0318)	(0.0366)	(0.0718)	(0.0724)	(0.0432)
Log Population	-0.0456*	-0.0154	-0.00202	-0.0231**	-0.104	-0.0722***	-0.0713***	-0.0245*
	(0.0261)	(0.00976)	(0.00473)	(0.0113)	(0.0733)	(0.0264)	(0.0265)	(0.0148)
Government Spending	6.89e-05	0.000179	0.000134	0.000231	0.000111	9.82e-05	0.000146	-0.000219
	(0.000227)	(0.000269)	(0.000333)	(0.000201)	(0.000221)	(0.000178)	(0.000176)	(0.000330)
Regime	0.131*							-0.0227
	(0.0740)							(0.0299)
Military	-0.0698							0.0245
	(0.0438)							(0.0472)
Agg. Gov. Index		0.00352***						0.00420***
		(0.000895)						(0.000900)
Civil Liberties			0.0119**					0.00585
			(0.00533)					(0.00514)
KOF Index of Glob.				0.00296**				0.00311**
				(0.00119)				(0.00131)
Monetary Freedom					0.000482*			0.000583
					(0.000284)			(0.000619)
Investment Freedom						0.000281		0.000131
						(0.000352)		(0.000469)
Property Rights							0.000261	0.000628
							(0.000331)	(0.000526)
Constant	2.314**	1.198***	0.226	1.044***	2.565*	3.753***	3.708***	1.340***
	(0.909)	(0.325)	(0.159)	(0.382)	(1.359)	(0.898)	(0.905)	(0.452)

Observations	1,082	945	1,172	1,034	1,182	1,182	1,182	731
Number of countries	70	77	75	77	77	77	77	69
Hansen OIR test	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
AR(1)	0.00292	0.00113	0.00752	0.00729	0.00446	0.00290	0.00258	0.00366
AR(2)	0.00292	0.0136	0.00394	0.0257	0.00309	0.00892	0.00898	0.110
AR(3)	0.128	0.222	0.145	0.190	0.145	0.0643	0.0680	0.388

*** $p<0.01$, ** $p<0.05$, * $p<0.1$. Note: Robust standard errors in parentheses. Columns indicate models, which have been estimated using System-GMM approach. Time dummies not reported to save space, while all available lagged values of endogenous variables used as instruments. The p-values of the Hansen OIR test is used to check the null hypothesis of instrument set being valid and exogenous, while the null of no autocorrelation is checked through Arellano-Bond AR(1), AR(2) and AR(3) tests.

It may be pertinent here to indicate that the discussion will now move towards estimating and analysing Eq[2] for the purpose of establishing the first part (i.e., institutional impact on MII) of the overall indirect effect of institutional determinants on real GDP through macroeconomic stability. Tables 2(a) and 2(b), once again highlight the presence of dynamic process since lagged MII feeds positively (and virtually always significantly) in current MII, for both the prolonged and non-prolonged users.

In the case of prolonged users, a military officer as chief executive significantly enhances MII, while as compared to presidential form of democracy, a parliamentary form of democracy significantly reduces macroeconomic instability. In a similar result, Satyanath and Subramanian (2004) indicated democracy significantly and positively affected macroeconomic stability.

Aggregate governance index remains significantly negative for MII in the case of prolonged users, while it continues to dent (though insignificantly) in the case of non-prolonged users. Having said that, a combined effect of other institutional determinants makes governance significantly negative for MII even in the case of non-prolonged users (as indicated in model 8 of Table 2(b)). Also civil liberties holds a negative consequence (though insignificantly) for prolonged users.

Arpac *et al.* (2008), for instance, indicated that trade openness helped in improving the implementation record of IMF programmes. In the current study, it can be seen that an improvement in KOF index of globalization significantly reduces MII in both the sub-groups, highlighting the importance of openness here (as was in the case of its impact on real GDP). Also, in both the sub-groups monetary freedom remains negatively significant for MII.

In the case of prolonged users, the fact that investment freedom holds a negative yet insignificant consequence points towards the possible need of augmenting pro-investment institutional setup in these countries. On the other hand, in the case of non-prolonged users, the impact is positive (though insignificant; see model 6 of Table 2(b)) on MII. A remedy in offering may be to enforce certain needed controls on investment freedom so that investment freedom functions in a way so as to reduce MII (and in turn helps avoid an East Asian Crisis like situation of the late 90s, when lack of capital controls resulted in capital flight, in turn causing macroeconomic instability), and can significantly increase real GDP.

Property rights has an insignificantly negative consequence for MII in the case of prolonged users, giving way to the argument that the supporting institutional framework needs to be strengthen to translate into a significant consequence for MII. Having said that, in the case on non-prolonged users, the impact of property rights is significantly positive on macroeconomic instability.

Table 2(a). Dependent variable -Macroeconomic Instability Index- prolonged users

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lag MII	0.485***	-0.0976	0.258***	0.518***	0.232***	0.176**	0.302***	0.496***
	(0.0340)	(0.105)	(0.0773)	(0.0353)	(0.0806)	(0.0885)	(0.0450)	(0.0426)
Regime	0.00815							-0.0232
	(0.0142)							(0.0213)
Military	0.0232*							0.0310**
	(0.0132)							(0.0145)
Agg. Gov. Index		-0.0127**						-0.000523
		(0.00643)						(0.00103)
Civil Liberties			-0.00955					-0.00275
			(0.00590)					(0.00768)
KOF Index of Glob.				-0.00170***				-0.00122
				(0.000507)				(0.000835)
Monetary Freedom					-0.00167*			0.000992
					(0.000998)			(0.000603)
Investment Freedom						-0.00125		0.000579
						(0.00122)		(0.000538)
Property Rights							-0.00106	0.00104
							(0.000844)	(0.000858)
Constant	0.271***	0.822***	0.418***	0.279***	0.376***	0.422***	0.357***	0.0753
	(0.0356)	(0.237)	(0.103)	(0.0628)	(0.0794)	(0.0810)	(0.0490)	(0.0595)
Observations	1,211	610	1,279	1,197	725	725	725	490
Number of countries	42	44	44	44	44	44	44	42
Hansen OIR test	1.000	0.857	1.000	1.000	1.000	0.991	1.000	1.000
AR(1)	1.04e-07	0.0254	6.50e-05	7.25e-08	0.000164	0.000262	6.44e-07	2.38e-05
AR(2)	0.106	0.000975	0.0271	0.115	0.00275	0.00343	0.0120	0.235
AR(3)	0.396	0.304	0.726	0.123	0.239	0.325	0.468	0.107

*** $p<0.01$, ** $p<0.05$, * $p<0.1$. Note: Robust standard errors in parentheses. Columns indicate models, which have been estimated using System-GMM approach. Time dummies not reported to save space, while all available lagged values of endogenous variables used as instruments. The p-values of the Hansen OIR test is used to check the null hypothesis of instrument set being valid and exogenous, while the null of no autocorrelation is checked through Arellano-Bond AR(1), AR(2) and AR(3) tests.

Table 2(b). Dependent variable -Macroeconomic Instability Index- non-prolonged users

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lag MII	0.526***	0.511***	0.601***	0.501***	0.152	0.343**	0.258***	0.603***
	(0.0427)	(0.108)	(0.0534)	(0.0303)	(0.144)	(0.138)	(0.0834)	(0.0530)
Regime	-0.0890**							0.101
	(0.0445)							(0.0818)
Military	-0.0203							-0.0493
	(0.0282)							(0.0445)
Agg. Gov. Index		-0.00260						-0.00679*
		(0.00408)						(0.00397)
Civil Liberties			0.00389					0.0186
			(0.00293)					(0.0208)
KOF Index of Glob.				-0.00287*				2.39e-05
				(0.00161)				(0.00605)
Monetary Freedom					-0.00365*			0.00251
					(0.00193)			(0.00211)
Investment Freedom						0.00160		0.00319***
						(0.00151)		(0.00120)
Property Rights							-0.00503*	0.00133
							(0.00292)	(0.00215)
Constant	0.250***	0.288	0.264***	0.306***	0.660***	0.110	0.483***	0.183
	(0.0491)	(0.183)	(0.0370)	(0.0930)	(0.150)	(0.106)	(0.156)	(0.449)
Observations	2,029	1,129	2,206	2,148	1,196	1,196	1,196	748
Number of countries	74	84	81	82	79	79	79	70
Hansen OIR test	1.000	0.115	1.000	1.000	0.395	0.280	0.304	1.000
AR(1)	0	1.28e-06	3.12e-09	0	0.0474	0.00683	0.000687	3.39e-06

AR(2)	0.0113	0.916	0.293	0.483	1.66e-05	7.93e-05	0.000290	0.492
AR(3)	0.221	0.610	0.265	0.586	0.539	0.141	0.171	0.207

*** p<0.01, ** p<0.05, * p<0.1. Note: Robust standard errors in parentheses. Columns indicate models, which have been estimated using System-GMM approach. Time dummies not reported to save space, while all available lagged values of endogenous variables used as instruments. The p-values of the Hansen OIR test is used to check the null hypothesis of instrument set being valid and exogenous, while the null of no autocorrelation is checked through Arellano-Bond AR(1), AR(2) and AR(3) tests.

As can be seen in Tables 3(a) and 3(b), predicted MII in most of the cases impact negatively on real GDP; while in certain cases the impact becomes significant, along with being negative. It can also be noted that while $\widehat{MII}$, determined on the basis of a combined effect of all the institutional determinants, is significantly negative for real GDP in the case of prolonged users, it also reduces real GDP (though insignificantly) in the case of non-prolonged users.

Table 3(a). Dependent variable -real GDP- prolonged users

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lag Log GDP	1.008***	0.402***	1.008***	1.007***	0.999***	1.004***	1.007***	0.994***
	(0.00756)	(0.0441)	(0.00874)	(0.00959)	(0.0125)	(0.00934)	(0.00898)	(0.00861)
Government Spending	0.000448	0.000241*	0.000344	7.27e-05	0.000181	0.000658*	0.000504	0.000354
	(0.000360)	(0.000144)	(0.000390)	(0.000341)	(0.000526)	(0.000390)	(0.000395)	(0.000475)
Log population	-0.00617**	-0.0803	-0.00466	-0.00413	-0.0149***	-0.00590*	-0.00547*	-0.00246
	(0.00299)	(0.0805)	(0.00313)	(0.00294)	(0.00567)	(0.00321)	(0.00293)	(0.00322)
Predicted MII: Regime & Military	-0.0528							
	(0.0506)							
Predicted MII: Agg. Gov. Index		-0.0947***						
		(0.0332)						
Predicted MII: Civil Liberties			-0.0830					
			(0.0999)					
Predicted MII: KOF Index of Glob.				-0.0383				
				(0.0467)				
Predicted MII: Monetary Freedom					-0.107			
					(0.116)			
Predicted MII: Investment Freedom						-0.0700		
						(0.155)		
Predicted MII: Property Rights							-0.100	
							(0.0894)	
Predicted MII: All Institutional Det.								-0.207***
								(0.0661)
Constant	0.0611	5.552***	0.0576	0.0514	0.311*	0.0750	0.0719	0.150***
	(0.0465)	(1.467)	(0.0583)	(0.0583)	(0.163)	(0.0893)	(0.0641)	(0.0427)
Observations	712	576	723	639	723	723	723	486
Number of countries	42	44	44	44	44	44	44	42
Hansen OIR test	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.978
AR(1)	5.30e-05	0.329	4.65e-05	0.000197	6.22e-05	1.40e-05	2.95e-05	0.00256
AR(2)	0.0137	0.163	0.0118	0.0401	0.0148	0.0160	0.0125	0.0305
AR(3)	0.107	0.555	0.155	0.204	0.186	0.238	0.129	0.688

*** p<0.01, ** p<0.05, * p<0.1. Note: Robust standard errors in parentheses. Columns indicate models, which have been estimated using System-GMM approach. Time dummies not reported to save space, while all available lagged values of endogenous variables used as instruments. The p-values of the Hansen OIR test is used to check the null hypothesis of instrument set being valid and exogenous, while the null of no autocorrelation is checked through Arellano-Bond AR(1), AR(2) and AR(3) tests.

Table 3(b). Dependent variable -real GDP- non-prolonged users

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lag Log GDP	1.001***	0.447***	1.002***	1.013***	0.987***	1.023***	0.883***	0.510***
	(0.00227)	(0.0672)	(0.00208)	(0.00842)	(0.00913)	(0.0103)	(0.0368)	(0.119)
Government Spending	-4.89e-05	0.000186	5.10e-05	0.000382	-0.000589	-4.76e-05	0.000248	0.000457
	(0.000105)	(0.000238)	(0.000116)	(0.000494)	(0.000820)	(0.000741)	(0.000218)	(0.000659)
Log population	0.00164	-0.120*	0.00232	0.00395	0.00694	0.00371	-0.121	-0.0466
	(0.00146)	(0.0710)	(0.00182)	(0.00315)	(0.00772)	(0.00766)	(0.0754)	(0.0723)
Pred. MII: Regime & Military	-0.0662***							
	(0.0218)							
Predicted MII: Agg. Gov. Index		-0.0233						
		(0.0182)						
Predicted MII: Civil Liberties			-0.0477*					
			(0.0266)					
Predicted MII: KOF Index of Glob.				-0.166**				
				(0.0839)				
Predicted MII: Monetary Freedom					-0.596**			
					(0.257)			
Predicted MII: Investment Freedom						-0.223		
						(0.168)		
Predicted MII: Property Rights							-0.00176	
							(0.0339)	
Predicted MII: All Institutional Det.								-0.0451
								(0.306)
Constant	0.0199	6.342***	-0.0113	-0.104	0.310	-0.120	2.883**	4.636***
	(0.0355)	(1.303)	(0.0431)	(0.113)	(0.226)	(0.160)	(1.416)	(1.705)
Observations	1,068	930	1,158	1,032	1,166	1,166	1,166	731
Number of countries	70	77	75	77	77	77	77	69
Hansen OIR test	1.000	1.000	1.000	0.519	0.754	0.215	1.000	0.185
AR(1)	0.0146	0.166	0.0114	0.0196	0.0108	0.0187	0.00448	0.243
AR(2)	0.00539	0.103	0.00385	0.0241	0.00257	0.00464	0.00438	0.209
AR(3)	0.166	0.0585	0.139	0.184	0.147	0.125	0.132	0.226

*** $p<0.01$, ** $p<0.05$, * $p<0.1$. Note: Robust standard errors in parentheses. Columns indicate models, which have been estimated using System-GMM approach. Time dummies not reported to save space, while all available lagged values of endogenous variables used as instruments. The p-values of the Hansen OIR test is used to check the null hypothesis of instrument set being valid and exogenous, while the null of no autocorrelation is checked through Arellano-Bond AR(1), AR(2) and AR(3) tests.

Summing up. Tables 1(a) and 1(b) are in line with the premise laid out in Eq[1], which indicates that institutional determinants have an overall significantly positive effect on real GDP, for both the prolonged and non-prolonged users. At the same time, support for the second premise that institutional determinants negatively impact MII (indicated in Eq[2]) can be seen in the estimations reflected in Tables 2(a) and 2(b), where most of the institutional determinants have a negative, and in certain cases, a significant effect on MII. Lastly, the third premise that the predicted MII (estimated from institutional determinants in Eq[2]) have a negative impact on real GDP, stands also supported by most of the

estimations indicated by Tables 3(a) and 3(b). This, along with the fact that these institutional determinants, in the first place, are the ones that significantly impacted economic- and political institutional quality in programme countries during 1980-2010 (the same time period as of the current study)[16]. Overall, therefore, it makes sense to highlight in the light of estimations above, that the missing link of institutions for reaching a positive economic growth consequence does in fact exist in IMF programme countries. Hence, these significant institutional determinants need to be focused upon in future IMF programmes, since it can be seen that they positively affect real GDP both directly, and also indirectly through first negatively impacting MII, and then the predicted MII negatively affecting real GDP.

Robustness check

Table 4 estimates the impact of MII data on the real GDP data, indicating in turn that there exists a significantly negative relationship between real GDP and MII, in both the prolonged users and the non-prolonged users. This can be seen as a robustness check for estimations of real GDP and predicted MII (in Tables 3(a) and 3(b)), where a negative relationship also exists in most of the cases, in both the sub-groups.

Table 4. Dependent variable -real GDP- prolonged and non-prolonged users

VARIABLES	(1) Prolonged Users	(2) Non-Prolonged Users
Lag Log GDP	1.000***	0.683***
	(0.00165)	(0.0687)
Government Spending	6.57e-05	0.000118
	(0.000143)	(0.000158)
Log Population	-0.00307*	-0.0722***

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[16] For details see Javed (2014).

	(0.00164)	(0.0270)
MII	-0.0457***	-0.0464***
	(0.0106)	(0.00987)
Constant	0.0820***	3.624***
	(0.0303)	(0.863)
Observations	719	1,153
Number of countries	44	77
Hansen OIR test	1.000	1.000
AR(1)	3.73e-05	0.00142
AR(2)	0.0175	0.0183
AR(3)	0.591	0.0558

*** $p<0.01$, ** $p<0.05$, * $p<0.1$. Note: Robust standard errors in parentheses. Columns indicate models, which have been estimated using System-GMM approach. Time dummies not reported to save space, while all available lagged values of endogenous variables used as instruments. The p-values of the Hansen OIR test is used to check the null hypothesis of instrument set being valid and exogenous, while the null of no autocorrelation is checked through Arellano-Bond AR(1), AR(2) and AR(3) tests.

V. Conclusion

The problem of a lackluster performance of IMF programmes in terms of economic growth in recipient countries on one hand, and NIE literature's highlighting of the important role institutions play in enhancing economic growth in many countries, on the other, created in turn, a 'missing link' that served as a motivation for the current study. Subsequently, the impact of institutional determinants (both political and economic) were found to be overall significant for enhancing real economic growth of the prolonged- and non-prolonged users of IMF. At the same time, institutional determinants were also found to be significant in reducing macroeconomic instability, which in turn, indirectly (through the channel of macroeconomic instability) enhanced real GDP growth.

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Appendix-A					
IMF Programme Countries					
Non-Prolonged Users				**Prolonged Users**	
1	Afghanistan	45	Korea	Mali	1
2	Angola	46	Kosovo	Senegal	2
3	Antigua and Barbuda	47	Latvia	Mexico	3
4	Azerbaijan	48	Lebanon	Mozambique	4
5	Bangladesh	49	Lesotho	Niger	5
6	Barbados	50	Liberia	Madagascar	6
7	Belarus	51	Lithuania	Malawi	7
8	Belize	52	Maldives	Mauritania	8
9	Bosnia and Herzegovina	53	Mauritius	Tanzania	9
10	Brazil	54	Moldova	Uganda	10
11	Cambodia	55	Morocco	Benin	11
12	Cape Verde	56	Nepal	Burkina Faso	12
13	Central African Republic	57	Papua New Guinea	Cameroon	13
14	Chile	58	Peru	Albania	14
15	China	59	Poland	Argentina	15
16	Comoros	60	Portugal	Bolivia	16
17	Congo, Democratic Republic of the	61	Romania	Kyrgyz Republic	17
18	Congo, Republic of	62	Samoa	Guyana	18
19	Costa Rica	63	Serbia	Sierra Leone	19
20	Cyprus	64	Singapore	Armenia	20
21	Czech Republic	65	Slovak Republic	Chad	21
22	Côte d'Ivoire	66	Slovenia	Pakistan	22
23	Djibouti	67	Solomon Islands	Rwanda	23
24	Ecuador	68	Somalia	Georgia	24
25	Egypt	69	Spain	Guinea	25
26	Equatorial Guinea	70	Sri Lanka	Philippines	26
27	Estonia	71	St. Kitts and Nevis	Zambia	27
28	Ethiopia	72	St. Lucia	Bulgaria	28
29	Fiji	73	St. Vincent and the Grenadines	Burundi	29
30	Gabon	74	Syrian Arab Republic	Dominican Republic	30
31	Gambia	75	Thailand	Ghana	31
32	Grenada	76	Togo	Jordan	32
33	Guatemala	77	Trinidad and Tobago	Turkey	33
34	Guinea-Bissau	78	Tunisia	Dominica	34
35	Haiti	79	Ukraine	Honduras	35
36	Hungary	80	Uruguay	Nicaragua	36
37	Iceland	81	Uzbekistan	Tajikistan	37
38	India	82	Venezuela, República Bolivariana de	Lao	38
39	Indonesia	83	Vietnam	Macedonia	39
40	Iraq	84	Yemen, Republic of	Panama	40
41	Israel	85	Zimbabwe	Mongolia	41
42	Jamaica			Serbia	42
43	Kazakhstan			Algeria	43
44	Kenya			Russian Fed.	44