THE POLITICAL ECONOMY OF CAPITAL FLIGHT: GOVERNANCE QUALITY AND CAPITAL FLIGHT IN THE EAST AFRICA COMMUNITY

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ABSTRACT

This paper examines the impacts of political economy factors on an illicit capital outflow in the East African Community using robust panel data models. The main findings of the study are as follows: An increase in Gross Domestic Product is a statistically significant variable and reduces an illicit flow of illegal capital outflow from the Community. However, foreign direct investment, total grant, and exchange rate statistically significant and aggravate the outflow of capital. This is due to poor governance and economic policies that governments favor foreign investors over local investors. An aggregate index of poor regulatory quality and government ineffectiveness, state fragile index, and the political instability index are statistically significant and positively influence an illicit capital flight from the Community. However, the existed perceived corruption level does not positively contribute to capital flight, but an intensive corruption level positively influences capital flight over time, bringing a mixed sign of negative and positive depending on the level of corruption that affects capital flight overtime in the Community. The study, therefore recommends that member countries in the Community need to undertake effective governance and regulatory qualities, political stability, and controlling power of corruption to control capital flight.

Key Words: Capital flight, governance quality, political stability index, regulatory quality index, Government Effectiveness, Control of Corruption, World Bank Residual Methods

INTRODUCTION

The East African Community that comprises the Burundi, Kenya, Rwanda, Tanzania, and Uganda was formerly found in 1967 and latterly revived in 2000 with the

objective of the Political Federation. The Community has already experienced a common market for capital, labor, goods, and service since 2010 as stated under Article 5 (2) of the Treaty. As a result of such integration, the trade performance in the community grew by 40% in 2005-2009. The Ugandan and Tanzanian exports to Kenya increased tenfold and triple in 2009, respectively. The 2010 treaty among partners highly enhanced the intra-trade in the community. The remarkable performance of the trade is also complemented by cross-border investment in the service sector. In a nutshell, the economic performance in the community attracts the attention of development partners as the aggregate GDP increased to USD 75 billion in 2009 from USD 30 Billion in 2002. Nonetheless, the intra-GDP growth rate remains uneven (EAC, 2011). As a result of sustained economic growth, members of the community progress their achievements in terms of reducing poverty, child mortality, and enhancing universal primary education (Catherine *et al*., 2012). The existence of a developed capital market by mobilizing saving and investment is a compulsory requirement to lift and sustain the ongoing remarkable performance of the Community. The Community in this regard made interesting progress through eliminating constraints on capital transactions across the Community. However, resource mobilization and capital formation face a daunting challenge due to many reasons. One of the main causative factors that weaken capital formation and resource mobilization is an illegal capital flight from the Community. Though adequate attention paid to capital flight, it remains a critical problem and adversely affects the economic performance of the Community (Boyrie, 2010).

The Africa Progress Panel Report 2013 shows that the capital flight in Africa exceeds investment in 2008-2010. The East African Community (EAC) has lost USD 1.2 billion in 2000-2008 in aggregate, showing that capital flight is a chronic problem. It weakens not only capital formation,

but also it causes economic slowdown, leading to a sluggish rate of regional integration and production capacity of member countries. The existence of sizable illicit capital flight puts on adverse effects on the performance of the economy. It makes the financial sector to lose potential resource and negatively affect the balance of payment as well as develop rent-seeking behaviors. These place persistent adverse effects on the development program of the Community as an illegal capital flight weakens the domestic asset of the African countries (Abdilahi and Bernard, 2011).

EAC Next to Nigeria, the EAC is one of the fastest-growing regions in the world in terms of economic growth rate and MDG targets. The Community is expected to be the second-largest market in Africa in the recent future so that investors are attracted to the regions to access the envisaged benefit. In addition to the existing liberal African economies, it is also characterized by economic and political stability that lays a fertile ground for capital investment, claiming prudent capital market and sound regulatory system for managing capital formation. Most research papers have highly paid attention to economic factors that cause capital flight as they consider capital flight as a portfolio choice. This is in the response of discouraging investment climate that bears uncertainty and risks associated with the investment rate of return (Collier et al., 2001 and Sheets, 1995). However, institutional factors like constraints on power exercising, poor governance and lack of political confidence receive special attention in search of sustainable growth nowadays as economic and political elites distort the system of economy in general and capital market in particular (Acemoglu et al., 2003 and Dornbusch, 1990). If this problem is not solved shortly, the consequences will not able to be confined within the capital market only. It rather negatively affects and spreads to the regional integration and development program of the Community. Therefore, the overriding objective of the study will be to specify, estimate,

and analyze the political, economic, and institutional factors that are responsible for capital flight in the East African Community. The study has the following specific objectives to examine the political economy and institutional factors that explain capital flight in East African Community member countries and to devise strategies for curbing capital flight based on the key determinants of capital flight using a robust panel data model. The outcomes of the study will also be relevant for policy prescriptions on which the concerned bodies can design tackling strategies to address an illegal capital flight from the Community.

GOVERNANCE AND CAPITAL FLIGHT IN EAST AFRICA COMMUNITY

In the Sub-Saharan Africa region, the amount of the outflow of capital was projected around USD 24.7 billion, which accounts for 7.5 percent of their aggregate GDP, in 1990-2005. The EAC also has a significant share in this regard. For instance, according to the data estimated by the Global Financial Security for the period 2000-2008, the EAC has lost USD 1.2 billion, on average, in the form of capital flight, of which Uganda accounts for USD 429 million, Kenya USD 205 million, Tanzania USD 367 million, Burundi USD 49 million, and Rwanda USD 95 million on average. In terms of cumulative capital flight, the African LDCs account for 69 percent of total capital outflow from the world LDCs, followed by Asia (29 percent) and Latin America (2 percent). This approximate to US$197 billion flowed out of the 48 poorest developing countries. Out of which, the total capital outflow from Uganda is USD 8.8 billion that makes the country categorized within the top ten LDC countries that illegally export capital in 1990-2008. Tanzania also lost USD 2.3 billion, Rwanda USD 1.6 billion, and Burundi USD 969 million in the same reference period.

Moreover, most influential investors and politicians are suspected to siphon off domestic money into an offshore tax haven and developed countries out of the poorer countries. For instance, the EAC countries have lost USD 1.3 billion in terms of tax havens in Swiss banks, of which Kenya accounts for USD 857 million. Next to Kenya, Tanzania accounts for USD 178 million, followed by Uganda USD 159 and Rwanda 29.7 million. Burundi, however, accounts for USD 16.7 million capital flight from EAC and deposited in the Swiss banks (http://www.theeastafrican.co.ke).

On top of this bad performance of capital formation, the worldwide governance indicators indicate the existence of poor governance as measured with six dimensions of governance. All indicators reflect how people perceive each dimension. Note that the estimate of governance ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance.

Table 1: The Worldwide Governance Indicators in 2012

Member Countries	The Worldwide Governance Indicators in 2012					
	Voice and Accountability	Political Stability and Absence of Violence/ Terrorism	Government Effectiveness	Regulatory Quality	Rule of Law	Control of Corruption
Burundi	-0.93	-1.68	-1.33	-0.96	-1.09	-1.46
Kenya	-0.30	-1.29	-0.55	-0.31	-0.87	-1.10
Rwanda	-1.24	-0.21	-0.06	-0.10	-0.26	0.66
Tanzania	-0.22	0.03	-0.69	-0.40	-0.58	-0.85
Uganda	-0.49	-0.89	-0.57	-0.24	-0.36	-0.95

Source: - World Bank, www.govindicators.org

The community's economic performance is challenged by capital flight and poor governance. These slow down the partner countries' efforts to reach their expected outcomes of regional integration and intensify economic stagnation in the long run in terms of a balance of

payment disequilibria, poverty, deteriorating government finances, increasing macroeconomic and political instability (collier, 2006). Moreover, a significant outflow of capital from the community also forces the governments to borrow continuously, leading to a high debt burden, shortage of foreign currency reserve and exchange rate fluctuation. It also adversely affects the investment climate and infrastructural development that contribute much towards Community integration. The structural and institutional developments are also affected by the illegal capital outflow as the economic and political elites take their advantage at the cost of the country, which negatively impacts on wealth distribution (Epstein 2005). On the other side, by the time economic and political elites lose their confidence over capital they hold, the ensuing capital flight causes higher interest rates and exchange rate depreciation as there is a shortage of loanable funds and foreign currency reserve, respectively. If the problem is not treated wisely, it could bring currency crash, skyrocket interest rates, bad foreign debt, and macroeconomic disruption. These all consequences could slow investment and thereby capital formation, putting a negative repercussion on the rate of economic growth.

THEORETICAL FRAMEWORK

Capital flight is an illegal outflow of capital from a given country in terms of trade mispricing (under-invoicing export bill and over-invoicing import bill), smuggling goods, antiques, precious metal, cash movements, bribery in the form of corruption in various deals and swap arrangements, bank transfers and the like (Bhagwati, 1964; Cerven, 2006 and Schneider, 2001). Understanding the broad definition of capital flight, there are two basic theoretical frameworks of conceptualizing capital flight: - economic framework and institutional framework.

In the economic framework, many scholars consider four dimensions and hypotheses to conceptualize the causative factors of capital flight. The first one is a portfolio choice framework that pays more attention to the incentives of relative risk diversification and returns differential as triggering factors for an illegal outflow of capital (Ajayi, 1992). However, the second framework, which is called an investment diversion thesis, focuses on diversion of investment towards a more stable economic and political condition in developed countries. This is due to the existence of political and macroeconomic risks in a given country that has the worst investment opportunities (Forgham, 2008). Moreover, the third framework in light of debt-driven flight thesis or debt overhang thesis proposes that capital flight is highly intensified with the existence of a heavy external debt. The intuition behind heavy debt is that the ensuing problems of devaluation, fiscal crisis, crowding out and expropriation of assets to pay for the foreign debt fuel up a capital flight. It entails further borrowing and foreign dependency. The last framework is a Tax-Depressing Thesis. It postulates that an illegal outflow of capital leads to loss of tax revenue, which in turn reduces debt service and further accumulates debt burden (Ajayi, 1992). In a nutshell, external borrowing and debt (Ndikumana and Boyce, 2003), evolution of capital flight (Cerra et al., 2008 and Nyoni, 2000), inflation (Dooley, 1988), economic growth (Morgan Guaranty, 1988), financial development (Ndikumana and Boyce, 2003 and Collier et al., 2001), black market premium (Collier, Hoeffler, and Pattillo, 2004) are likely the determinants of capital flight.

In the institutional framework, more weight is given to institutional factors that triggering capital flight such as constraints on the power of the enforcement and political confidence of elites (Acemoglu et al., 2003 and Dornbusch, 1990). The lack of a strong institutional system and good governance exposes elites to corrupt the capital market at the cost of the national interest (Ndikumana and Boyce, 2003).

As a result, poor institutional quality including weak democracy and political freedom aggravates an illegal outflow of capital from poor countries, diverting scarce resources from injecting the development pipeline (Lensink et al., 2000). Political instability and conflict also attribute a negative repercussion to the capital market and induce residents to move their assets out of the country as they fear the volatile political situation that increases the risk of losing the rate of return on domestic assets (Ndiaye, 2009). Moreover, by the time they do not have trust in the certainty of government policy overtime; residents choose to decide to move their assets out country as they experienced variability in interest rate, tax rate, and fiscal deficit (Hermes and Lensik, 2001).

MODEL SPECIFICATION FOR CAPITAL FLIGHT AND ESTIMATION TECHNIQUE

Model specification for capital flight considers assumptions, style of estimation techniques, and level of development of a given country. Both theoretical and empirical literature suggests the potential factors that are responsible for an illegal outflow of capital are economic factors and governance quality factors. The study considers inflation, GDP, FDI, total grants, fiscal deficit, and foreign exchange rate as the major economic determinants of capital flight in EAC. On top of these economic factors, it also incorporates corruption indices, regulator quality, government effectiveness, political instability, and state fragmentation index as the major factors that explain governance quality. This specification of the capital flight model is supported by the research papers conducted by Dooley (1988), Ndikumana and Boyce (2003), Cerra et al. (2008), Nyoni (2000), Collier, Hoeffler, and Pattillo (2004), Seung, (2010) and Thomas (2010).

The final model of capital flight, therefore, is presented below:

$$KF_{it} = \beta_0 + \beta_1 INF_{ti} + \beta_2 GDP_{it} + \beta_3 FDI_{it} + \beta_4 TG_{it} + \beta_5 FX_{it} + \beta_6 CPC_{it} + \beta_7 (CPC)^2_{it} + \beta_8 GOVREGIND_{it} + \beta_9 FISDEF_{it} + \beta_{10} POLITY2_{it} + \beta_{10} SFI_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (.1)$$

Where KF=Capital Flight, GDP= Gross Domestic Product, FDI= Foreign Direct Investment, TG=Total Grant including technical support, FX= Official Exchange Rate, CPC=Corruption Index, CPC^2=Intensity of Corruption Index, GOVREGIND=Aggregated Index of Government Effectiveness and Regulatory Quality, FISDEF= Fiscal Deficit, POLITY2= Political Instability Index, SFI= State Fragility Index, and ε= the error term.

Based on the theoretical and empirical evidence, foreign resources (foreign grant and FDI) positively influence capital flight as the government provides favorable policy to foreign investors over local investors, forcing the domestic investors to move out their money. Otherwise, the inflow of foreign resources has a negative relationship with capital flight if there is an attractive investment climate. On the same note, if the government utilizes aid effectively, it reduces capital outflow. If not, capital flight increases over time. Regarding GDP, when the economy grows higher, it is an incentive for domestic investors so that they prefer to invest home, reducing capital flight. This indicates there is a negative relationship between GDP and capital flight. The higher official exchange rate positively affects capital flight as a domestic currency is devalued and the relationship between fiscal deficit and capital flight is also positive as deficit leads to a higher tax. Regarding governance quality indicators, all of them (poor government and regulatory index, higher corruption index, state fragile index, and political instability aggravate an illegal outflow of capital

from the domestic economy. In a nutshell, it is the only foreign resource that has a mixed impact on capital flight, depending on the utilization capacity of the economy and discriminatory policies. Note that all data are available from WB, IMF, UNCATAD, Global Report 2011, and Plity- 4 Project (Annex 1).

As the study considers the five members of the EAC, panel data modeling is appropriate to capture the heterogeneity and country-specific nature of the determinants of capital flight. The panel model controls the effects of unobserved variables of the complexity of each country, namely– business practices, policies, regulations, social and the like country heterogeneity. However, it is not possible to use a dynamic panel data model as the number of cross-section does not exceed the number of years, N<T. The paper, therefore, employs a static panel data model of fixed effects and random effect.

The Fixed Effect model can be estimated by the Within-group method, First Difference Method, and Least Square Dummy Variable (LSDV) method. The first two methods eliminate time-invariant characteristics and heterogeneity character of cross-sections so that they enable us to examine the net effect of explanatory variables that vary over time. However, the LSDV method introduces dummy variables for each cross-section to capture the heterogeneity of each country. In summary, the Fixed Effect model assumes that all time-invariant characteristics of one country must not be correlated with characteristics of other countries, error terms and individual characteristics are not correlated across countries. The specification of the Fixed Effect model is presented as follows. The general form of the panel data model is defined in equation 2

$$Y_{it} = \beta_0 + \beta_1 x_{it} + \alpha_i + \varepsilon_{it} \quad \text{..... (2)}$$

Where Y is the dependent variable, X is explanatory variables, α is country-specific explanatory variables or unobserved variable /heterogeneity, i is a unit of observation,

t is time, and ε the error term. Equation 2 is called a pooled or reference regression model. It is also possible to reformulate equation 2 in terms of the mean value of each variable within the group for each country to catch up the long run time effect in the model, it is said to be Between or Time Effect model.

$$\overline{Y_i} = \beta_0 + \beta_1 \overline{x_i} + \alpha_i + \varepsilon_i \quad \text{..... (3)}$$

Note that α_i is unaffected as it has unique characteristics to each country over time remain the same over time. The coefficient in the equation indicates the long-run impact of explanatory variables on the outcome variable. Subtracting equation 2 from equation 1 gives the Fixed Effect within Group Model that captures individual effect as follows.

$$Y_{it} - \overline{y_i} = \beta_1 (x_{it} - \overline{x_i}) + (\varepsilon_{it} - \overline{\varepsilon_i}) \quad \text{..... (4)}$$

The coefficients in this regard measure the impact of variation in the explanatory variable on the variation of the outcome variable, indicating the short-run impact. The other method, on the other hand, proposes the first difference method by taking one lag period of equation 2 and gives the following equation.

$$Y_{it-1} = \beta_0 + \beta_1 x_{it-1} + \alpha_i + \varepsilon_{it-1} \quad \text{..... (5)}$$

$$(Y_{it} - Y_{it-1}) = \beta_0 + \beta_1 (x_{it} - x_{it-1}) + (\varepsilon_{it} - \varepsilon_{it-1})$$

Note that the lag value of **Error! Bookmark not defined.**is the same as the level value as it is a time-invariant variable. Subtracting equation 5 from equation 2 gives us the First Difference Method of Fixed Effect Mode.

…….…….…… (6)

In equation 6, the trend component is removed and there may have an autocorrelation problem as the error terms are correlated with each other in terms of the MA or AR process. Both equations 4 and 6 exclude the unobserved and heterogeneity variables out of the specification of the panel model. The third Fixed Effect method of LSDV, however,

addresses this flaw and introduces dummy variables for each country to capture country-specific characteristics. Equation 2 in this regard can be rewritten in the following way.

$$Y_{it} = \beta_0 + \beta_1 x_{it} + \alpha_i D_i + \varepsilon_{it} \quad \text{..... (7)}$$

Where $\alpha_i D_i$ is the dummy variable for each country, $\alpha_i D_i$ =1 if an individual country has particular characteristics, and $\alpha_i D_i$ =0, otherwise. The unobserved effect is now being treated as the coefficient of the individual-specific dummy variable. Note that if we include a dummy variable for every individual in the sample, we will fall into the dummy variable trap. To avoid this, we could define one individual to be the reference category, so that ß$_0$ is its intercept, and then treat the D_i as the shifts in the intercept for the other individuals. However, the choice of the reference category is often arbitrary. Alternatively, we can drop the ß$_0$ intercept and define dummy variables for all of the individuals. In the entire Fixed Effect model, the error terms are not correlated by assumption. However, if they are correlated, the Fixed Effect model is not useful, leading to incorrect inference. Therefore, the Random Effect model can be used for treating the situation where error terms are correlated. Contrary to Fixed Effect models, variations across countries are also considered as random and uncorrelated with explanatory variables so that such variation across countries (time-invariant variables) is included in the model as a part of the error terms as shown in equation 8.

$$Y_{it} = \beta_0 + \beta_1 x_{it} + \upsilon_{it} \quad \text{..... (8)}$$

Where $\upsilon_{it} = \alpha_i + \varepsilon_{it}$, α_i is time-invariant or heterogeneity variable, and ε_{it} is the error term. Assuming the expected value is zero for each component, the variance of $\text{var}(\upsilon_{it}) = \text{var}(\alpha_i) + \text{var}(\varepsilon_{it})$, but $\text{cov}(\alpha_i, \varepsilon_{it})$ is zero. If $\text{var}(\alpha_i) > \text{var}(\varepsilon_{it})$ the Random Effect model is recommended

whereas if $\text{var}(\alpha_i) < \text{var}(\varepsilon_{it})$, Fixed Effect Model is recommended. The Fixed Effect model makes two important assumptions about time-invariant/heterogeneity/unobserved individual characteristics. The first one is time-invariant variables may have an impact on explanatory and dependent variables. Therefore, the Fixed Effect model examines the relationship between dependent and explanatory variables within a country by removing and controlling time-invariant individual characteristics to capture the net effect of explanatory variables. The second assumption is that time-invariant variables are not correlated across countries and unique to each country so that error terms are also uncorrelated across countries. If these two assumptions are failed, the Random Effect model is preferable. The Hausman test is an important test to choose whether fixed or random model.

ECONOMETRICS RESULT AND ANALYSIS

Based on the static panel data model with different estimation methods, this section of the study presents the three major parts of econometric results such as descriptive analysis, econometric analysis, and post estimation diagnostic test. Let us see turn by turn.

Descriptive Statistics and Analysis

Table 2 gives a summary of descriptive statistics of central tendency and measure of variability. The mean value indicates the average value of each variable in the overall model. The distribution of data around the average value can also be captured by the standard deviation that shows the closeness of data to mean value over the reference period of 1996- 2010 On top of this, the range also gives some clue about the spread of data by measuring the difference between the maximum and minimum values in each different model.

Table 2: Descriptive statistics

```
. xtsum  kf inf  gdp fdi tg fx cpc sqcc govregind fisdef polity2 sfi

Variable                |      Mean   Std. Dev.       Min        Max |   Observations
-----------------------------------------------------------------------------------------
kf              overall |   90.83867    867.801      -2490       4120 |        N =       75
                between |             237.8491  -211.8867   347.7867 |        n =        5
                within  |             840.9573  -2746.948   3863.052 |        T =       15
                        |
inf             overall |   8.576427    6.09996      -2.42       31.1 |        N =       75
                between |             2.353146   6.172133     12.468 |        n =        5
                within  |             5.720123  -2.691573   27.20843 |        T =       15
                        |
gdp             overall |   7.78e+09   6.03e+09   6.90e+08   2.00e+10 |        N =       75
                between |             6.21e+09   7.88e+08   1.46e+10 |        n =        5
                within  |             2.25e+09   3.25e+09   1.46e+10 |        T =       15
                        |
fdi             overall |   2.15e+08   3.03e+08       10.7   1.38e+09 |        N =       75
                between |             2.43e+08    1338219   5.63e+08 |        n =        5
                within  |             2.09e+08  -1.98e+08   1.03e+09 |        T =       15
                        |
tg              overall |   8.64e+08   9.08e+08   6.43e+07   5.78e+09 |        N =       75
                between |             4.96e+08   3.37e+08   1.57e+09 |        n =        5
                within  |             7.91e+08  -5.86e+07   5.07e+09 |        T =       15
                        |
fx              overall |   814.7547   584.5303       57.1       1960 |        N =       75
                between |             595.9323   72.70667       1658 |        n =        5
                within  |             231.7933   206.7547   1164.155 |        T =       15
                        |
cpc             overall |   .8149333   .3174577       -.14       1.39 |        N =       75
                between |             .2417237   .4413333   1.075333 |        n =        5
                within  |             .2310918      .2336     1.3036 |        T =       15
                        |
sqcc            overall |    .763552   .4094472       .0004     1.9321 |        N =       75
                between |             .3159911   .3284133   1.171033 |        n =        5
                within  |              .294427   .1258187   1.639919 |        T =       15
                        |
govreg~d        overall |   1.238533   .8373828         .16       3.02 |        N =       75
                between |             .8447324   .4793333      2.612 |        n =        5
                within  |             .3501963   .0138667   2.303867 |        T =       15
                        |
fisdef          overall |  -1.81e+10   2.83e+10  -1.39e+11   1.76e+10 |        N =       75
                between |             1.53e+10  -3.31e+10  -1.98e+09 |        n =        5
                within  |             2.48e+10  -1.24e+11   3.19e+10 |        T =       15
                        |
polity2         overall |  -.4133333    4.20133         -6          8 |        N =       75
                between |             3.252828  -4.066667        3.6 |        n =        5
                within  |             3.011988  -9.013333   3.986667 |        T =       15
                        |
sfi             overall |   17.33333   3.688306         11         24 |        N =       75
                between |             3.456716   13.46667   20.86667 |        n =        5
                within  |             1.978716   13.93333   20.46667 |        T =       15
                        |
.
```

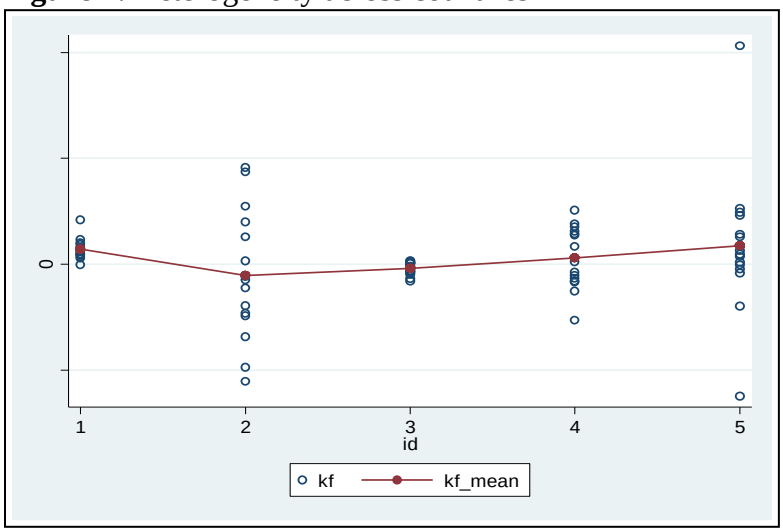
Source: - Author computations using SATAT

N.B: - Kf is capital flight, Inf is the inflation rate, GDP is Gross Domestic Product, fx is the foreign exchange rate, CPC is corruption index, sqcc is the square of corruption index, govregrd is an aggregate index of government and regulatory quality, fisdef is fiscal deficit, polity2 is an index of political instability, and sfi is an index of state fragility.

Specifically, the heterogeneity of capital flight across EAC countries varies with countries. Kenya in this regard has the highest variation against the mean value of capital flight while Tanzania has the lowest variation of capital flight that moves around the mean (Figure 1). Note that 1

denotes Burundi, 2 for Kenya, 3 for Tanzania, 4 for Rwanda, and 5 for Uganda.

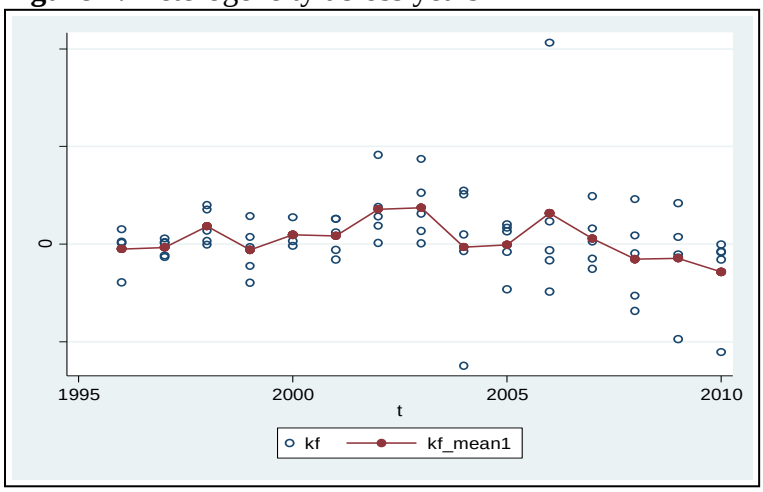
Figure 1: Heterogeneity across countries



Source: - Source: - Author computations using SATAT

In the same manner, the heterogeneity of capital flight across the years also provides the entire distribution of capital flight data around the mean over time. It indicates that capital flight in EAC has been spread with an increasing variation since 2000, where EAC was reformed in the recent context.

Figure 2: Heterogeneity across years



Source: - Source: - Author computations using SATA

Panel Model Econometrics Results

The macro-econometric panel model here gives a result of both fixed effect and random effect models. The between the method for the fixed effect model is not included here since it is highly affected by multicollinearity problems and the system failed to work. On top of this, the study finds that heteroskedasticity and autocorrelation are a severe problem associated with each panel model. Therefore, the study uses and presents a robust model after controlling both heteroskedasticity and autocorrelation.

Fixed Effect Model of Capital Flight: Table 3 gives us a fixed effect (within) regression result. From the result, we can understand that the R^2 for within, between, and overall effect model is 36 percent, 33 percent, and 5percent, respectively. As R^2 for the within effect is the highest among them, it tells that individual and short-run effect is more important than time and long-run effect in EAC capital flight. The corr ($u_{-1,}$ xb) = -0.9886 shows that the negative correlation between error terms and explanatory variable and

this ensures the assumption of the fixed effects model in this regard. All explanatory variables are jointly statistically significant at 5 percent level of significance and adequate to explain the change in capital flight.

Table 3:- Regression Result of Within Effect Method

```
. xtreg  kf inf gdp fdi tg fx  cpc sqcc govregind fisdef polity2 sfi, fe cluster()

Fixed-effects (within) regression               Number of obs      =         75
Group variable: id                              Number of groups   =          5

R-sq:  within  = 0.3675                         Obs per group: min =         15
       between = 0.3318                                        avg =       15.0
       overall = 0.0502                                        max =         15

                                                F(11,59)           =       3.12
corr(u_i, Xb)  = -0.9886                        Prob > F           =     0.0023

------------------------------------------------------------------------------
          kf |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         inf |   9.664607    18.3268     0.53   0.600    -27.00724    46.33646
         gdp |  -4.36e-07   1.34e-07    -3.27   0.002    -7.04e-07   -1.69e-07
         fdi |   2.01e-06   7.94e-07     2.53   0.014     4.18e-07    3.60e-06
          tg |   3.90e-07   1.44e-07     2.71   0.009     1.02e-07    6.78e-07
          fx |   1.565629   .7081663     2.21   0.031     .1485914    2.982666
         cpc |  -3420.611   1807.198    -1.89   0.063    -7036.805    195.5838
        sqcc |   1593.994   1150.112     1.39   0.171     -707.374    3895.362
  govregind |   1261.735   541.9275     2.33   0.023     177.3408    2346.129
     fisdef |  -2.04e-09   6.90e-09    -0.30   0.769    -1.58e-08    1.18e-08
    polity2 |   122.6579   44.27134     2.77   0.007     34.07114    211.2446
        sfi |    176.78   99.01015     1.79   0.079    -21.33884    374.8989
      _cons |  -1687.258   2289.831    -0.74   0.464    -6269.198    2894.683
-------------+----------------------------------------------------------------
    sigma_u |  3813.4328
    sigma_e |  749.01082
        rho |  .96285463   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(4, 59) =     3.95                 Prob > F = 0.0066
```

Source: - Regression result based on within effect method

Except for the inflation rate, fiscal deficit, and the square value corruption index, all explanatory variables are statistically significant at 1 percent and 5 percent level of significance and capable of explaining the change in capital flight in EAC member countries. We also learn that an increase in the size of the economy in terms of GDP puts on a negative implication for an illegal flow of capital from the EAC countries, attributing to the fact that capital holders prefer to invest a home to reap remarkable profits following sustainable economic growth. Both the inflow of FDI and total grant positively contribute to capital flight from the Community member countries, reflecting foreign resources

are highly associated with capital flight and widening the bribery circumstances that push scarce capital to go out from countries. On top of foreign resources, an exchange rate also one the influencing factor that the capital owners taking into account where they allocate their capital at hand. The fixed model indicates that an increase in foreign exchange rate leads to reducing the value of the domestic currency and encouraging holding capital in terms of foreign currency. In the presence of scarce foreign currency, capital owners then move their capital out of the country at the situation of currency devaluation. This enables us to conclude that capital flight and foreign exchange rates have a positive relationship.

The various dimensions of governance quality also reveal that capital flight is also explained by poor regulatory and government performance as well as the existence of recurrent political instability. Indicators of an aggregate index of regulatory quality and government effectiveness and an index of political instability positively influence an illicit capital flight. This is right in the case of poor countries as they have poor governance qualities that widely pave a way to an illegal outflow of capital. Regarding the corruption index, the existed perceived corruption does not positively contribute to capital flight, but intensive corruption positively influences capital flight over time, bringing a mixed sign of negative and positive depending on the level of corruption that affects capital flight overtime in the EAC member countries. The rho[1] that measures the intraclass correlation shows that 96.2% of the variance is due to differences across panels, heterogeneity effect. This

[1] Note that $rho = \frac{(sigma\_u)^2}{(sigma\_u)^2 + (sigma\_e)^2}$, Sigma_u = Standard deviation of residuals within group and Sigma_e=Standard deviation of residuals of overall model.

indicates that each member of the EAC country has no similar time-invariant characteristics so that they are well-considered for policy prescriptions.

To capture the effect of the individual country on capital flight, it is more suitable to employ the LSDV method. The model introduces constant terms and creates dummy variables for all countries except Burundi. Cross-section 1 for Burundi, 2 stands for Kenya, 3 for Rwanda, 4 for Tanzania, and 5 for Uganda. Table 4 gives details results in this regard by keeping the coefficients and level of statistical significance the same for all explanatory variables as the within method gives earlier. Country-specific characteristics are statistically significant and have positive impacts on capital flight, reflecting they are strong enough to explain the change in capital flight.

Table 4: Regression Result of Lease Square Dummy Variable Method

```
. xi: regress  kf inf gdp fdi tg fx  cpc sqcc govregind fisdef polity2 sfi  i.id, cluster()
i.id              _Iid_1-5              (naturally coded; _Iid_1 omitted)

      Source |       SS       df       MS              Number of obs =      75
-------------+------------------------------           F( 15,    59) =    2.69
       Model |  22627800.6    15  1508520.04           Prob > F      =  0.0035
    Residual |  33100015.2    59  561017.207           R-squared     =  0.4060
-------------+------------------------------           Adj R-squared =  0.2550
       Total |  55727815.8    74  753078.592           Root MSE      =  749.01

------------------------------------------------------------------------------
          kf |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         inf |    9.664607    18.3268     0.53   0.600    -27.00724    46.33646
         gdp |   -4.36e-07   1.34e-07    -3.27   0.002    -7.04e-07   -1.69e-07
         fdi |    2.01e-06   7.94e-07     2.53   0.014     4.18e-07    3.60e-06
          tg |    3.90e-07   1.44e-07     2.71   0.009     1.02e-07    6.78e-07
          fx |    1.565629   .7081663     2.21   0.031     .1485914    2.982666
         cpc |   -3420.611   1807.198    -1.89   0.063    -7036.805    195.5838
        sqcc |    1593.994   1150.112     1.39   0.171     -707.374    3895.362
   govregind |    1261.735   541.9275     2.33   0.023     177.3408    2346.129
      fisdef |   -2.04e-09   6.90e-09    -0.30   0.769    -1.58e-08    1.18e-08
     polity2 |    122.6579   44.27134     2.77   0.007     34.07114    211.2446
         sfi |      176.78   99.01015     1.79   0.079    -21.33884    374.8989
      _Iid_2 |    9683.399   2494.971     3.88   0.000     4690.973    14675.82
      _Iid_3 |    2326.431   867.8135     2.68   0.010     589.9397    4062.921
      _Iid_4 |    7072.845   1900.039     3.72   0.000     3270.876    10874.81
      _Iid_5 |    4744.071    1676.59     2.83   0.006     1389.222    8098.919
       _cons |   -6452.607   2574.858    -2.51   0.015    -11604.89   -1300.328
------------------------------------------------------------------------------
```

Source: - Regression result based on within effect method

Random Effect Model of Capital Flight: It captures information over time and across countries so that the coefficients are used to predict changes over time and

explain countries' differences, including both within individual effects and between-individual effects. This implies that the data represent the average effects of independent variables over capital flight. In this regard, the average effects of total grants and fiscal deficit are statistically significant and positively contribute to an illegal flow of capital flow from the ECA. The residual variance is assumed to be uncorrelated with explanatory variables, indicating difference across units is uncorrelated with explanatory variables. The Wald chi2 =20.66 with a probability of zero shows to test whether all the coefficients in the model are different from zero. Accordingly, it is greater than the tabulated F-test value; we reject the null hypothesis that states the entire coefficients together equal to zero. Said differently, as the probability of getting the chi2 test of 20.66 is zero, this is less than 0.05, we reject the null hypothesis. All the coefficients are different from zero. The Wald test also confirms that all explanatory variables can jointly and statistically explain the change in capital flight (Table 5).

Table 5: Regression Result of Random Effect Method

```
. xtreg  kf inf gdp fdi tg fx  cpc sqcc govregind fisdef polity2 sfi, re cluster()

Random-effects GLS regression                   Number of obs      =        75
Group variable: id                              Number of groups   =         5

R-sq:  within  = 0.2011                         Obs per group: min =        15
       between = 0.9654                                        avg =      15.0
       overall = 0.2470                                        max =        15

Random effects u_i ~ Gaussian                   Wald chi2(11)      =     20.66
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0370

------------------------------------------------------------------------------
          kf |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         inf |  -2.809356   19.31408    -0.15   0.884    -40.66426    35.04555
         gdp |  -1.11e-08   7.78e-08    -0.14   0.886    -1.64e-07    1.41e-07
         fdi |   5.22e-07   6.74e-07     0.77   0.439    -8.00e-07    1.84e-06
          tg |   3.88e-07   1.52e-07     2.55   0.011     9.00e-08    6.85e-07
          fx |   .0440774    .319685     0.14   0.890    -.5824937    .6706486
         cpc |   1344.216   1201.272     1.12   0.263    -1010.233    3698.666
        sqcc |  -718.6162   887.3171    -0.81   0.418    -2457.726    1020.493
  govregind |   -84.8855   238.9836    -0.36   0.722    -553.2847    383.5137
     fisdef |   1.31e-08   6.05e-09     2.16   0.031     1.22e-09    2.49e-08
    polity2 |   38.49598   32.38651     1.19   0.235    -24.98042    101.9724
        sfi |   61.91679   82.73575     0.75   0.454    -100.2423    224.0759
      _cons |  -1543.544   1836.097    -0.84   0.401    -5142.229     2055.14
-------------+----------------------------------------------------------------
    sigma_u |          0
    sigma_e |  749.01082
        rho |          0   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Source: - Regression result based on within effect method

We can also understand that the R^2 for within, between, and overall effect model is 20 percent, 96 percent, and 24 percent, respectively. As R^2 for the between effect is highest, it tells that the time effect is more important than the individual effect, we can say that the long-run effect is more important than the short-run effect. Controlling the effect of heterogeneity and autocorrelation, the rho shows that zero percent of the variance is due to differences across panels, heterogeneity effect. Note that 'rho' is known as the intraclass correlation.

Which One Do We Choose? Fixed or Random: To decide between fixed or random effects, we can run a Hausman test where the null hypothesis is that the preferred model is Random Effect vs. the alternative the Fixed Effects. It is tested whether the unique errors are correlated with the regressors; the null hypothesis is they are not. As mentioned above, random effects coefficients have a dual nature: They simultaneously explain change over time and the cross-sectional differences among units. The implicit assumption is that both types of effects are the same. We test this assumption using the Hausman test. The Hausman test checks a more efficient model against a less efficient one. If the prob. >chi^2 is less than 0.05, it is statistically significant so that we need to use the Fixed Model. Thus, we reject the null hypothesis states that fixed effects and random effects coefficients are significantly the same, we prefer to pick the fixed-effect model.

Comparing these coefficients to the fixed effects coefficients in the Hausman output, we can identify variables responsible for some major differences. We could also estimate the two types of effects (over time and across units) separately in a single random-effects model using the same kind of person-specific mean variables and mean-differenced variables that we created when examining fixed-effects models (this is only done for time-varying variables).

Examining the coefficients, we might suspect that variables that have a positive difference are responsible for the difference (b-B).

Table 6: Hausman Test

```
. hausman fixed random, sigmamore

Note: the rank of the differenced variance matrix (4) does not equal the number
        of coefficients being tested (11); be sure this is what you expect, or
        there may be problems computing the test.  Examine the output of your
        estimators for anything unexpected and possibly consider scaling your
        variables so that the coefficients are on a similar scale.

                 ---- Coefficients ----
                    (b)          (B)          (b-B)     sqrt(diag(V_b-V_B))
                  fixed       random       Difference          S.E.
-------------+----------------------------------------------------------------
         inf |   9.664607   -2.809356       12.47396        5.07368
         gdp |  -4.36e-07   -1.11e-08      -4.25e-07       1.23e-07
         fdi |   2.01e-06    5.22e-07       1.48e-06       5.42e-07
          tg |   3.90e-07    3.88e-07       2.35e-09       4.02e-08
          fx |   1.565629     .0440774      1.521551       .7022998
         cpc |  -3420.611    1344.216      -4764.827       1560.314
        sqcc |   1593.994   -718.6162        2312.61       884.9628
  govregind |   1261.735    -84.8855       1346.621       539.9773
     fisdef |  -2.04e-09    1.31e-08      -1.51e-08       4.47e-09
     polity2 |   122.6579    38.49598       84.1619       35.75105
         sfi |    176.78    61.91679       114.8632       69.23711
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =          13.31
                Prob>chi2 =         0.0099
                (V_b-V_B is not positive definite)

.
```

Source: - Hausman Test result

Other Diagnostics Tests: No research can conclude the results of regression analysis without considering a range of diagnostic tests for heteroskedasticity, autocorrelation, normality, goodness-to-fit, and the like. The diagnostic tests assist to detect the inadequacy of the model and identify the strengths and weaknesses of the model. They also reduce the probability of wrongly rejecting or accepting the null hypothesis. One of the interesting points of the diagnostic test is to check whether time fixed effects are required or not. The null hypothesis testing in this regard states that time fixed effects are not needed if the dummies for all years are jointly equal to zero. Accordingly, we accept the null hypothesis as the probability of the F-test is 0.4898 when we use the command testparm (Annex 2). On the other hand, the Breusch-Pagan Lagrange multiplier also indicates that

we accept the null hypothesis and suggest that the random effect model is not suitable for our cases, reflecting the inexistence of significant differences across countries (Annex 3). The Breusch-Pagan Lagrange multiplier test is also important to run testing for cross-sectional dependence or contemporaneous correlation. Most of the macro panel data faces such cross-sectional dependence, leading to bias in test results. Accordingly, we accept the null hypothesis that states residuals across countries are not correlated so that there no cross-sectional dependence (Annex 4). The Pasaran test also confirms the same conclusion about the inexistence of cross-sectional dependence (Annex 5).

CONCLUSION AND POLICY IMPLICATIONS

The East African Community is one of the emerging and encouraging economic integrations with the objective of political federation. However, it is highly challenged by the existing capital flight in weakening capital formation and intensifies capital scarcity. This puts negative pressure on economic growth and the economic transformation process. The community has lost a huge amount of foreign capital in the last decades. Uganda, for instance, has lost USD 8.8 billion and became one of the top ten LDC countries that illegally export capital in 1990-2008. Taking only Swiss Banks, the EAC countries have lost USD 1.3 billion in terms of a tax haven. On top of this, the community has been poor in all dimensions of governance indicators- severe corruption, poor governance, weak regulatory performance, political instability, and the like.

To address the critical causes of such an illegal form of capital flight, the study uses a robust panel model based on data for the period 1996- 2010. After controlling the effect of heteroskedasticity, autocorrelation, and cross-sectional dependence, the robust panel model, generate very conclusive results in figuring out the statistically significant

political-economic and institutional factors. Accordingly, all explanatory variables - GDP, foreign direct investment and grant, exchange rate, an aggregate index of regulator quality and governance effectiveness, political instability, state fragile index, and corruption index are statistically significant at 1 percent and 5 percent level of significance and capable of explaining the change in capital flight in EAC member countries. However, the inflation rate, fiscal deficit, and the corruption intensity index are not statistically significant to explain capital flight in the EAC.

It also indicates that a remarkable economic growth, as measured by GDP, plays a pivotal role in curbing an illegal flow of capital from the EAC countries. Otherwise, domestic investors opt to put and invest their capital in the place where there is stable economic growth. On the same note, the inflow of FDI and total grant aggravate the outflow of capital illegally on account of discriminatory policies and due to lack of enabling investment climate for local investors. The exchange rate also one the influencing factor as investors illegally move their capital out of the country at the situation of currency devaluation. On top of economic factors, both institutional and political factors are important in explaining capital flight and should not be ignored at all. The absence of effective governance, regulatory quality, political stability, and state solidarity are statistically significant and aggravate an illicit outflow of capital from the Community. However, the impacts of corruption depending on the intensity of corruption level, implying the existed perceived corruption does not positively contribute to capital flight, but an intensive corruption index, as measured by square of corruption index, positively influences capital flight overtime.

The findings of the study provide a conclusive policy implication for the Community to build up capital formation. The first implication is subject to economic factors. The member governments of the Community need to devise a

mechanism of enhancing the effectiveness and efficiency of foreign resources of grant and direct investment. Otherwise, it illegally aggravates capital outflow at the cost of the domestic economy. The macroeconomic policy towards the foreign exchange rate has also a negative repercussion on capital flight in the situation of devaluing the exchange rate. Therefore, governments also should reorient devaluation policies with rescuing countries from capital flight. Besides, the negative relationship between GDP and capital flight implies that both stable economic growth rate and remarkable GDP performance allow generating an attractive investment environment and enabling to reduce capital outflow. The second policy implication is linked with political and institutional factors in the context of good governance. The respective government in the Community puts their unreserved endeavors to build political stability, state solidarity, and good governance.

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Annex I: Explanation of Variables and Sources

Variables	Explanation	Sources
kf	Capital flight calculated based on the Residual Method. It is also expressed in terms of constant 2010 USD dollars	James K. Boyce and Leonce Ndikumana, Updated estimates, 1970-2010, Political Economy Research Institute, PERI, University of Massachusetts, 2012.
gdp	Gross Domestic Product expressed in terms of constant 2010 USD dollar.	WB (2011), World Development Indicator online data base.
fdi	Foreign direct investment, net inflows in reporting economy.	United Nations Conference on Trade and Development, Foreign Direct Investment Online database.
tg	Total Grants, including technical cooperation	United Nations Conference on Trade and Development, Foreign Direct Investment Online database.
fx	Official Exchange Rate	IMF , online data base
cpc	Reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. This index is rescaled to have higher values shows greater corruption so that Corruption index= (Corruption control index *-1)	The Worldwide Governance Indicators, 2013 updates, aggregator indicators of governance 1996-2012
govregind	This is an index of aggregating both governance effectiveness and regulatory quality. An index of governance effectiveness reflects perceptions of the quality of public services, civil service, policy formulation and implementation, credibility of the government and degree of its independence from	The Worldwide Governance Indicators, 2013 updates, aggregator indicators of governance 1996-2012

	political pressures. An index of regulatory quality index on the other hand reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that allow private sector development. This index is rescaled as (effectiveness and regulatory quality indices *-1) to have higher values shows greater corruption.	
fisdef	Fiscal Deficit, the gap between total revenue and total government expenditure	IMF , online data base
polity2	This variable is a modified version of the POLITY variable added in order to facilitate the use of the POLITY regime measure in time-series analyses. It measures the combined index of autocracy and democracy level of a given country.	POLITY™ IV PROJECT, 1800-2012, Dataset Users' Manual, Monty G. Marshall Center for Systemic Peace and Societal-Systems Research Inc, Ted Robert Gurr University of Maryland (emeritus), and Keith Jaggers Colorado State University (2013)
sfi	It measures the fragility of States in the area of economic Effectiveness, economic Legitimacy effectiveness, social Legitimacy, and political Legitimacy.	Global Report 2011, Conflict, Governance, and State Fragility and Monty G. Marshall Benjamin R. Cole

Annex 2

```
. testparm _It*

 ( 1)  _It_1997 = 0
 ( 2)  _It_1998 = 0
 ( 3)  _It_1999 = 0
 ( 4)  _It_2000 = 0
 ( 5)  _It_2001 = 0
 ( 6)  _It_2002 = 0
 ( 7)  _It_2003 = 0
 ( 8)  _It_2004 = 0
 ( 9)  _It_2005 = 0
 (10)  _It_2006 = 0
 (11)  _It_2007 = 0
 (12)  _It_2008 = 0
 (13)  _It_2009 = 0
 (14)  _It_2010 = 0

       F( 14,    49) =    0.98
            Prob > F =    0.4898
```

Annex 3

```
. xttest0

Breusch and Pagan Lagrangian multiplier test for random effects

        kf[id,t] = Xb + u[id] + e[id,t]

        Estimated results:
                         |       Var     sd = sqrt(Var)
                 ---------+-----------------------------
                      kf |   753078.6        867.801
                       e |   561017.2       749.0108
                       u |         0             0

        Test:   Var(u) = 0
                                  chi2(1) =     2.41
                               Prob > chi2 =     0.1204
```

Annex 4

```
. xttest2

Correlation matrix of residuals:

             __e1     __e2     __e3     __e4     __e5
__e1   1.0000
__e2  -0.2985   1.0000
__e3  -0.5875   0.1551   1.0000
__e4  -0.2723   0.3149   0.5477   1.0000
__e5   0.0786  -0.1530  -0.2000  -0.4234   1.0000

Breusch-Pagan LM test of independence: chi2(10) =    17.706, Pr = 0.0601
Based on 15 complete observations over panel units
```

Annex 5

```
. xtcsd, pesaran abs


Pesaran's test of cross sectional independence =    -1.027, Pr = 0.3045

Average absolute value of the off-diagonal elements =     0.303
```