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Finance, Growth, Inequality and Hunger in Asia: Evidence from Country Panel Data in 1960-2006[1]

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Abstract

Building on the recent literature on finance, growth and hunger, we have empirically examined the experience of 9 Asian countries over the period 1960-2006 using static and dynamic panel data models. Although the results are mixed depending on the specification and variables used, there is some evidence favouring a positive role of finance on GDP and agricultural productivity growth.. But there is also evidence of a reverse causality between growth and financial development. In fact, there are a few cases in which the causality runs both ways as evidenced by Granger causality tests. In light of this complexity, and questions about appropriate measurement and instrumentation of some key variables, the negative effects of finance on inequality and hunger require cautious interpretation. Financial development reduces the Gini coefficient of income distribution. However, when this measure of inequality is replaced with the share of the poorest quintile in GDP, financial development ceases to have any effect, pointing presumably to the exclusion of the poorest in the sample of Asian countries considered. Undernourishment is reduced directly by financial growth (in terms of private credit in GDP), or indirectly through agricultural productivity growth.

Key Words: Finance, Economic Development, Agriculture, Inequality, Poverty, Asia
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I. Introduction

There has been a surge of studies focusing on the recent financial crisis that erupted in USA and has rapidly spread to the rest of the world (e.g., IMF, 2008, World Bank, 2008, ADB, 2008, Arrow, 2008, Krugman, 2008, Phelps, 2008, Blanchard, 2008). Indeed, this crisis has turned into a crisis of confidence. Despite extensive interventions by governments and monetary authorities, the supply of credit has shrunk, stock markets have recorded dramatic losses, and a major downturn in the global economy is likely. Commodity prices have eased from recent peaks and large exchange rate realignments have occurred (ADB, 2008, IMF, 2008). Some recent evidence suggests that Asian countries have been affected by the recent crisis (e.g. ADB, 2008, Kang and Miniane, 2008). While the effects of financial crisis on Asian economies in terms of its growth and poverty would require a detailed scrutiny of new data, it is high time to revisit the linkages between financial development, economic growth (agricultural growth, in particular), inequality and poverty using the historical data. This is the main objective of the present study.[2]

There is a vast literature on this theme with valuable insights from cross-country data. We will mainly concentrate on Beck et al. (2007) and Claessens and Feijen, (2006) with brief comments on a few other important contributions. Beck et al. (2007) examine the effects of financial development on poverty through two channels: aggregate growth, and changes in the distribution of income. Theory provides conflicting predictions. One proposition is that financial development enhances growth and reduces inequality. On the other hand, financial imperfections, such as

[2] This is a revised and extended version of the econometric sections in our longer working paper (Imai , Gaiha, and Thapa, 2008) which discusses in detail the effects of recent financial crisis and the relevant evidence on micro finance in selected Asian countries.

information and transaction costs, may affect the poor more as they lack collateral and credit histories. So relaxation of credit constraints would benefit the poor more. Moreover, credit constraints hamper efficiency of capital allocation and aggravate income inequality by restricting the flow of capital to the poor with high expected returns. A contrary proposition is that financial development mainly benefits the rich. As the poor rely on informal and family networks for capital, improvements in the formal financial sector are of little consequence to them. A special case is the model developed by Greenwood and Jovanovic (1990). It predicts a non-linear relationship between financial development, inequality and economic development. At all stages of economic development, financial development improves capital allocation, boosts aggregate growth and in turn benefits the poor. However, the distributional effect of financial development, and thus the net impact on the poor, depends on the level of economic development. At early stages of development, only the rich enjoy access to and benefit directly from better financial markets. At later stages, as access becomes more extensive, a higher section of society benefits directly from financial development. Instead of examining the finance-growth link, Beck et al. (2007) offer an assessment of the impact of financial development on changes in the distribution of income and changes in both relative and absolute poverty.

The focus of Claessens and Feijen (2006) is on specific channels through which financial development impacts on undernourishment[3]. The analysis covers the period 1980-2003. In theory, some specific channels can be identified through which financial sector development impacts undernourishment. First, savings and credit help consumption smoothing when there are income or other shocks. Second, access to

[3] Undernourishment is defined as 'the condition of people whose dietary energy consumption is continuously below a minimum dietary energy requirement for maintaining a healthy life and carrying out a light physical activity' in Claessens and Feijen (2006) who follow FAO-STAT's (2006) definition.

financial services eases the financing of productive investment in, say, agricultural equipment, thereby raising yields and incomes of smallholders, and reducing undernourishment. Third, there may be an additional benefit to low income households, without access to financial services, as higher yields translate into higher food output and lower prices. They have shown that private credit has a large negative effect on undernourishment through higher agricultural productivity in general and higher livestock, crop and cereal yields in particular.

Here the objective is to analyse the relationships between finance, growth and hunger in selected Asian countries. The analysis is based on a panel of 9 countries over the period 1960 to 2006 using a dynamic panel estimation strategy, building upon the recent literature reviewed above.

The rest of the paper is organised as follows. In the next section, a description of the data used in the present study is given. This is followed by an exposition of the model estimated in Section III. In Section IV, the results are discussed in detail. The final section offers some concluding observations from a broad policy perspective.

II. Data

All the models are estimated with the finance, poverty and inequality data at the country level. The data sets created are based on World Bank Development Indicators (WDI) 2008 (World Bank, 2008b), FAO-STAT (FAO, 2008), World Bank's Finance Data (based on Beck et al. (2000)), The UNU-WIDER World Income Inequality Database (WIID) (UNU-WIDER, 2008), and Barro-Lee's (2000) data on education.

One of the data constraints in addressing our research questions is that while annual data on most of the key economic and financial variables are available in 1960-2006 for 9 countries (except Vietnam for which most of the variables start from

1985-1990), the data on inequality and poverty are available only for a few years i.e. the years when a national income or expenditure survey or a census were carried out. Therefore, we use the annual panel data for 8 or 9 countries to examine the links between financial growth and economic or agricultural growth in the period 1960-2006, with a few missing observations. We have constructed a dynamic panel data model, drawing upon Blundell and Bond (1998) which is an extension of Arellano and Bond (1991). To investigate the relationship between finance and inequality or poverty, we use the panel data aggregated at 5 years' intervals from 1960 to 2004 (e.g., Barro and Lee (2000) or the empirical macroeconomics literature to test growth theories). For all countries except Vietnam, inequality data from UNU-WIDER's WIID and undernutrition data from WDI (Classens and Feijen, 2006) are available roughly once or sometimes twice in 5 year periods. If there is more than one estimate is available in one period, the average is used.[4] These poverty and inequality data are matched with 5 year averages of finance and economic variables. One of the advantages of applying two different time schedules is that we can use the predicted values of finance data based on annual panel data for the 5 year-panel, whereby inequality or undernourishment is estimated by the aggregated finance data based on predictions on an annual basis. This approach would at least partially address the issue of endogeneity of finance in the inequality or undernourishment equation.

Appendix 1 summarises the definitions of variables, descriptive statistics and data sources. We take three different measures of finance-(i) logarithm of the share of private credit as a share of GDP; (ii) log of the share of private credit through (formal) money deposit banks as a share of GDP (the narrow definition of private credit), and

[4] There are a few cases where there are no inequality or undernutrition data in a 5 year interval. Because the missing observations would seriously limit the dynamic panel estimation where the lagged dependent variable is used as one of the explanatory variables, we fill these by taking the weighted average of the observations in the pre and post periods. We did not have any cases where missing observations repeat for 2 periods.

(iii) log of Financial System Deposits in GDP. For inequality, we use two measures, the income Gini coefficient and the share of the income of the bottom 20% of the population. Poverty is treated as synonymous with the prevalence of undernourishment, as in Classens and Feijen (2006). Other variables used in the analysis are defined in Appendix 1.[5]

III. Econometric Models

(1) Dynamic and Static Panel Models

We estimate the following five sets of dynamic models in which the dependent variables, (a) GDP per capita or agricultural value added per capita, (b) agricultural productivity and productivity-enhancing inputs (namely tractor use per agricultural worker), (c) finance, (d) inequality and (e) undernourishment, are separately estimated. A variable on finance is used as one of the explanatory variables in all cases except in Case (c).

(a) Model for Economic Growth

Following Guariglia and Poncet (2008), we specify the following relation:

$$\Delta Y_{it} = \alpha + \beta Finance_{it} + \gamma\, Control_{it} + \eta_i + \lambda_t + \varepsilon_{it} \qquad (1)$$

where i and t denote country and year, respectively. η_i is an unobservable individual country effect (fixed effect or random effect), λ_t is the time effect, and ε_{it} is an error term, which is *i.i.d.* ΔY_{it} is GDP per capita growth and Finance $_{it}$ is a proxy variable for finance, Control $_{it}$ is a vector of control variables, η_i is the country specific unobservable effect (e.g. social and cultural factors), and λ_t is the time effect. The log

[5] Graphical illustrations of the data are given in Appendices 5 and 6.

of lagged per capita GDP is included in Control $_{it}$ to control for convergence. Other controls include log of share of population with more than primary education, log of government expenditure over GDP (to measure size of government), log of CPI (consumer Price Index), log of trade as a share of GDP (measure of trade openness) and FDI as a share of GDP (measure of degree of financial openness).

A version of equation (1) can be written as

$$Y_{it} - Y_{it-1} = (\alpha' - 1)Y_{it-1} + \beta' X_{it} + \eta_i + \lambda_t + \varepsilon_{it} \quad (1)$$

by having the log of lagged per capita GDP in the right hand side and the rest of the explanatory variables are written as a vector, X_{it}. Estimating (1) (with log of lagged per capita GDP) is thus equivalent to estimating the following standard dynamic panel data model:

$$Y_{it} = \alpha' Y_{it-1} + \beta' X_{it} + \eta_i + \lambda_t + \varepsilon_{it} \quad (2)$$

The generalized method-of-moments (GMM) panel estimator relies on first-differencing the estimating equation (and thus country fixed effects will be eliminated) and appropriate lags of the right side variables as instruments.

$$Y_{it} - Y_{it-1} = \alpha''(Y_{it-1} - Y_{it-2}) + \beta''(X_{it} - X_{it-1}) + (\lambda_t - \lambda_{t-1}) + (\varepsilon_{it} - \varepsilon_{it-1}) \quad (3)$$

Two issues have to be resolved: one is endogeneity of some of the regressors and the second is the correlation between $(Y_{it-1} - Y_{it-2})$ and $(\varepsilon_{it} - \varepsilon_{it-1})$ (e.g. see Baltagi, 2005, Chapter 8). Assuming that ε_{it} is not serially correlated and that the regressors in X_{it} are weakly exogenous, the GMM first difference estimator (e.g. Arellano and Bond, 1991) can be used. Alternatively, we could use the lagged differences of all explanatory variables as instruments for the level equation and could combine difference equation (3) and the level equation (2) in a system whereby the panel estimators use instrument variables based on previous realisations of the explanatory variables as the internal instruments using the Blundell-Bond (1998)

system GMM estimator based on additional moment conditions.[6] Such a system gives consistent results under the assumptions that there is no second order serial correlation and the instruments are uncorrelated with the error terms. Validity of instruments is tested by Sargan's J test and a test of the second order serial correlation of the residuals. The Blundell-Bond (1998) system GMM estimator is used in the present study. We use the heteroscedasticity-robust variance-covariance estimator for all cases.

The Blundell-Bond (1998) system GMM estimator is useful to address the problem of potentially endogenous regressors (e.g. Finance in equation (1)). In the system equation, endogenous variables can be treated similarly to lagged dependent variables. The second lagged levels of endogenous variables could be specified as instruments for difference equation. The first lagged differences of those variables could also be used as instruments for the level equation in the system.

We try the cases (i) where the endogeneity is not taken into account and (ii) where some endogenous variables are included. In particular, finance and trade share are treated as endogenous variables.

The coefficient estimate of β'' in equation (3) shows the elasticity of *the first difference* of GDP per capita with respect to the first difference of explanatory variable (e.g. finance), that is, the percentage change of per capita GDP *change* corresponding to 1 percent change of the change of any explanatory variable (finance), because all the variables are in logs. As a comparison, we estimate the static panel data model by either fixed effects model or random effects model. That is, we estimate equation (1) where the first difference of per capita GDP is replaced by the level of per capita GDP.

[6] See the application by Guariglia and Poncet (2008) to examine the relation of finance and economic growth in China.

$$Y_{it} = a + b\,Finance_{it} + c\,Control_{it} + \tau_i + \varsigma_t + v_{it} \qquad (1)'$$

where a is a constant term, τ_i is an unobservable individual country effect, ς_t is the time effect, and v_{it} is an error term, *i.i.d.*

(b) Model for Agricultural Productivity and Productivity-Enhancing Inputs

We apply the same specifications as in equations (1)-(3) for economic growth to estimate the growth of agricultural productivity and use of productivity-enhancing inputs. This is in line with Classens and Feijen (2006) who estimated (i) agricultural productivity (agricultural value added per capita) by the initial productivity and finance (or private credit to GDP) plus controls, and (ii) the productivity-enhancing inputs (namely, tractor use per worker and fertilizer use per hectare) by the initial inputs and finance, and controls using cross-country data pooled over 1980-2003 as well as the static panel data for the 5 periods (1979-81, 1990-92, 1993-95, 1995-97, and 2001-03). They also examined the effects of finance and agricultural productivity on undernourishment. A departure of this study is to estimate the equation for agricultural productivity (or agricultural productivity-enhancing inputs) using the longer annual country panel data (1960-2006) for 9 Asian countries, based on a dynamic panel specification which takes into account the effects of lagged agricultural productivity (or inputs) on the current value. Also, agricultural productivity-enhancing inputs are treated as endogenous in the model for agricultural productivity. The effects of predicted agricultural productivity (aggregated over the five- year intervals) on undernourishment will be estimated by using the 5 year country panel from 1960 to 2004 in case (e).

First, we estimate the agricultural input (tractor use per worker) by the finance and the control variables used for the growth equation using annual panel data.

$$\Delta I_{it} = \alpha' + \beta' \, Finance_{it} + \gamma' \, Control'_{it} + \eta'_i + \lambda'_t + \varepsilon'_{it} \qquad (4)$$

where I_{it} denotes the agricultural input. We use the same control variables as in case (a). Equation (4) can be estimated by the dynamic specification in equations (2) and (3). This will give us a predicted value of I_{it}, denoted as $\hat{I}_{it}$. This is aimed at testing the effect of finance (e.g. private credit in GDP) on the growth of agricultural enhancing input.

$$\Delta P_{it} = \alpha'' + \beta''_1 \, Finance_{it} + \beta''_2 \, \hat{I}_{it} + \gamma'' Control''_{it} + \eta''_i + \lambda''_t + \varepsilon''_{it} \qquad (5)$$

Then we estimate agricultural productivity, P_{it}, which is measured as agricultural value added per capita by equation (5), where we apply the same specification except that $\hat{I}_{it}$ is used as one of the arguments. This equation examines the effect of finance and/ or the effect of inputs where it is estimated by finance, that is, finance's direct and indirect effect through inputs on agricultural productivity. Equation (5) is also estimated by the dynamic specification in equations (2) and (3).

The static versions of equations (4) and (5) can be written as:

$$I_{it} = \alpha' + \beta' \, Finance_{it} + \gamma' \, Control'_{it} + \eta'_i + \lambda'_t + \varepsilon'_{it} \qquad (4)'$$

$$P_{it} = \alpha'' + \beta''_1 \, Finance_{it} + \beta''_2 \, \hat{I}_{it} + \gamma'' Control''_{it} + \eta''_i + \lambda''_t + \varepsilon''_{it} \qquad (5)'$$

(c) Model for Financial Development

While there is a huge empirical literature to estimate the determinants of finance, we use a simple specification, following Baltagi et al.'s (2008) where finance is estimated by a dynamic panel model in which trade openness and financial openness are used as explanatory variables.

$$Finance_{it} = \gamma \, Finance_{it-1} + \delta \, Openness_{it} + \varpi_i + \tau_t + \upsilon_{it} \qquad (6)$$

This is estimated by the Blundell-Bond system GMM estimator. Openness proxied by the share of export and import in GDP is treated as endogenous in the model.

$$Finance_{it} = a' + b' Openness_{it} + \varpi'_i + \tau'_t + \upsilon'_{it} \qquad (6)'$$

(d) Model for Inequality

Likewise, inequality is estimated by a dynamic panel model using the Blundell-Bond system GMM estimator applied to five year panel data.

$$Inequality_{it} = \theta\ Inequality_{it-1} + \vartheta' Finance_{it} + \mu W_{it} + \varpi'_i + \tau'_t + \upsilon'_{it} \qquad (7)$$

The dependent variable is the Gini index of consumption or income or the share of the bottom 20 per cent of the population. $Finance_{it}$ is log of private credit (value of credit by financial intermediaries to the private sector) divided by GDP, or log of Financial System Deposits in GDP. W_{it}, a vector of control variables, includes log of initial years of schooling, log of the growth rate of the GDP deflator, and log of trade share. Finance and trade share are treated as endogenous variables in some specifications. The static version of equation (7) is estimated by either random or fixed effects methods.

(e) Model for Undernourishment

$$Hunger_{it} = \theta' Hunger_{it-1} + \vartheta' Finance_{it} + \mu' W'_{it} + \varpi''_i + \tau''_t + \upsilon''_{it} \qquad (8)$$

In the basic specification for the prevalence of undernourishment ($Hunger_{it}$), we use the same specification for the inequality equation except that we include log of population growth and log of dependency burden (the ratio of people younger than 15 or older than 64 to the working-age population aged 15-64) in W'_{it}.

Equation (9) below is an extension which tests the effect of agricultural productivity - estimated by finance and agricultural input in equation (2)- denoted as $\hat{P}_{it}$ on hunger.

$$Hunger_{it} = \theta'' Hunger_{it-1} + \vartheta'' Finance_{it} + \mu'' W'_{it} + \pi \hat{P}_{it} + \varpi''_i + \tau''_t + \upsilon''_{it} \quad (9)$$

We present a set of results with agricultural productivity and without. The static versions of equations (8) and (9) are estimated by either random or fixed effects procedure.

(2) Granger Causality Tests for Finance and GDP or Agricultural Value Added

As an extension, we carry out the Granger Causality test based on the VAR (Vector Autoregressive) model for finance and GDP per capita or agricultural value added per capita using annual time series data for each country.

$$Y_t = a_o + a_1 Y_{t-1} + a_2 Y_{t-1} + \cdots + a_k Y_{t-k} + \cdots + b_1 Finance_{t-1} + b_2 Finance_{t-1} + \cdots + b_k Finance_{t-k} + u_t \quad (10)$$

and

$$Finance_t = c_o + c_1 Finance_{t-1} + c_2 Finance_{t-1} + \cdots + c_k Finance_{t-k} + d_1 Y_{t-1} + d_2 Y_{t-1} + \cdots + d_k Y_{t-k} + e_t \quad (11)$$

where the number of lags, *k*, is determined by Toda and Yamamoto`s (1995) procedure. They show that, even if the processes are integrated or cointegrated of an arbitrary order, a lag-selection procedure by estimating (k`+ d_{max}) th-order VAR where k` is determined as a lag length determined by Akaike Information Criteria (AIC) or Schwarz Information Criteria (SIC), for example, is feasible, and d_{max} is the maximal order of integration. Then the Granger Causality Test from *Finance* to *Y* , for example, can be conducted by the joint significance test for the coefficient estimates

of b_1 to b_k. Likewise, the Granger Causality Test from *Y* to *Finance* involves the joint significance test for d_1 to d_k.

IV. Results

The results of the models specified above are discussed here. Table 1 reports 3 cases based on the static panel specification (for the broad and narrow definitions of private credit, and financial system deposit) and 6 cases based on the the Blundell-Bond GMM dynamic panel estimation; Cases 4 and 5 rely on the broad definition of private credit, Cases 6 and 7 on the narrow definition of private credit through banks, and Cases 8 and 9 on financial system deposits. Cases 5, 7, and 9 are those in which finance and trade openness are treated as endogenous in the system. These nine cases are tried for other models as well.

(Table 1 to be inserted)

The first three columns show the results where the fixed effects model is applied. The choice of fixed effects model and random effects model is based on Hausman Test, the results of which are shown at the bottom of the table. In Cases 1 and 2, the coefficient estimate of finance (log of the share of private credit in GDP) is positive and significant, implying a positive effect on GDP growth. But it is negative and significant in Case 3 when finance is measured as financial system deposit. The reason for the latter is not clear. The effect of the share of population with primary education or above is positive, but not significant. A proxy for government size, log of the share of government expenditure in GDP, has a positive and highly significant

effect, with a (relatively) high elasticity (0.52 to 0.60). CPI is negative with the coefficient estimate significant at 1 % level in Case 1. Trade share also has a positive and significant effect.

The next six columns, Cases 4 to 9, contain the results of dynamic specifications. The first lag is highly significant and positive, while the second lag is significant and negative, reflecting the persistence and adjustment process of the path of economic growth in Asian countries. Somewhat surprisingly, the coefficient estimate of finance in the economic growth equation is *negative* and significant in Case 4. That is, an increase (or decrease) of the growth rate of private credit in GDP tends to be associated with a decrease (or an increase) of GDP per capita, contrary to the hypothesised positive role of financial development on economic growth, e.g., through financial intermediation or facilitation of industrial or agricultural investment. However, it ceases to be significant once it is endogensised in the system. Finance, defined as financial system deposit, is positive and significant in Cases 8 and 9.

Education, measured as share of the population with primary education or above, is positively associated with GDP per capita growth in Cases 6, 7, 8, and 9. Size of the government, as measured by the share of government spending in GDP, is associated with a higher level of GDP per capita in several cases (Cases 4, 5, 6, and 8). The coefficient estimate of CPI is positive in all cases of dynamic specification except Case 4. Trade share has a positive and significant effect regardless of whether it is endogenised or not in the system. Tests for the second order serial correlation of the residuals (m2) show that there is no second order serial correlation except in Cases 4 and 5. The Sargan test validates our specification as overidentifying restrictions are valid for all the cases.

As a sensitivity test, we have run the regression with the same specification by dropping Malaysia, as shown by the last panel of Table 1.[7] The sign and significance as well as the size of the coefficient estimate of finance are not much different in Cases 1 to 3 where static specifications are applied. In one of the cases where a dynamic specification is applied i.e., Case 5 where finance is treated as an endogenous variable, it has a significant *positive* coefficient (at the 10% level), while the coefficient estimate in Case 4 ceases to be significant. The coefficient estimates are not significant in Case 6 or Case 7. However, they are highly significant in Cases 8 - 9, as also in the corresponding case with Malaysia. Incidentally, in Case 9, finance has a significant positive coefficient with a much higher z value. The rest of the coefficient estimates are more or less the same in the cases without Malaysia and are therefore not shown here.

In Table 2, we have applied the same specification for agricultural productivity enhancing inputs, namely tractor use per agricultural worker.[8] In Cases 1 to 3 where a static panel specification is applied, we find that finance has a positive and significant effect in Cases 1-2 but a negative and significant effect in Case 3. While size of government and trade share have positive and significant effects in Cases 1, 2 and 3, CPI has a negative and significant effect in Cases 1 and 3.

(Table 2 to be inserted)

[7] We do so because Malaysia is a special case not simply because of its size but also because of its structural characteristics.

[8] The reason for using the virtually same specification as for GDP per capita or agricultural productivity equation is that the predicted value of productivity enhancing inputs (or tractor use) is used as one of the arguments to estimate agricultural productivity. The lagged value of productivity enhancing inputs serves to identify the tractor equation.

When the dynamic panel specification is applied, we observe a similar pattern of the effect of finance on productivity enhancing inputs- positive and significant in Cases 4 and 5, positive but non-significant in Cases 6 and 7, and negative in Cases 8 and 9. Other variables with significant positive effects include government size and trade share.

In Table 3, we analyse the determinants of agricultural value added per capita, our proxy for agricultural productivity, using the same specification except that the predicted value of log of tractor use is included as one of the explanatory variables. In Cases 1 to 3 where a fixed effects version is applied, finance has a positive but non-significant effect in Cases 1 and 3, and a positive and significant effect in Case 2. This pattern remains unchanged if we drop Malaysia. The predicted log tractor use, which has been estimated by finance, among others, has a positive and significant effect at the 1% level. Education and government size also have positive and significant effects. Trade share, however, has a negative and significant effect that changes in dynamic versions.

(Table 3 to be inserted)

When the dynamic specification is used, private credit has a *negative* and significant effect at the 5% level in Case 4, and a negative but non-significant effect in Cases 5, 6 and 7. However, the coefficient estimate of financial system deposit is positive and highly significant in Cases 8 and 9.

The evidence on the role of finance in agricultural growth is thus mixed. Other variables show more or less similar results to those in Table 1. However, it is noted

that trade openness has a positive and significant effect in Cases 4 and 5 only. The Sargan test and that for serial correlations validate our specification.

Whether measures of finance used here are endogenous is examined in Table 4. The static panel results indicate close links between GDP per capita and finance in Cases 1, 2 and 3. Trade share also has a positive and significant effect in these cases. When the dynamic specification is applied, we find that higher GDP per capita growth is significantly associated with financial growth (at the 10% level) in all cases except Case 5. This is consistent with Baltagi et al. (2008). However, trade openness is not significant in any of the six cases. The Sargan test and that for serial correlations validate our specification only in Cases 4, 5, and 7. Hence a cautious interpretation of the results is necessary.

(Table 4 to be inserted)

Table 5 and Table 6 focus on the determinants of inequality (the Gini coefficient of income distribution) and prevalence of undernourishment, respectively.[9] Based on the regression results in Cases 5, 7 and 9 in Table 4, predicted values of three finance indicators are obtained for the entire period on an annual basis. These values are then aggregated at 5- year intervals and used as alternatives to the actual values. The merit of this approach is that it addresses partially the endogeneity problem of finance. It also increases the number of observations by making out-of-sample forecast if there are some missing observations. The first panels of Table 5 and Table 6 show the results based on the static panel specification, while the second panels report those based on the dynamic specification. Cases 1 to 4, Cases 5 to 8 and Cases 9 to 12 are

[9] Appendix 2 shows the results where the dependent variable is the share of income of the bottom 20% of the population.

for three different measures of finance-specifically, broad and narrow definitions of private credit, and financial system deposit (each of which is relative to GDP) for both static and dynamic cases. Cases 3 and 4, Cases 7 and 8 and Cases 11 and 12 are based on predicted finance measures. For the static versions, the results based on both fixed and random effects are presented. For the static cases, Cases 1, 3, ..., 11 (odd numbers) are those where endogeneity is not taken into account, while Cases 2, 4, ..., 12 (even numbers) are those where the endogeneity of potentially endogenous variables (e.g. trade openness) is considered. Only a selection of results is given below.

(Tables 5 and 6 to be inserted)

In Table 5, when the static specification is applied, finance has a negative and significant effect in all cases except Case 3 where it is negative but non-significant in the fixed effects version (preferred by the Hausman test at the 10% significance level). Finance has a negative and significant effect even in the random effects version (Case 4).[10] The initial schooling years also has a positive and significant effect in this version. Whether trade openness has a positive and significant effect or not depends on the specification.

A main finding from the dynamic results in the second part of Table 5 is that financial development measured by higher levels of deposits is significantly associated with lower inequality, implied by highly significant (at the 1% level) and negative coefficient estimates of finance in Cases 9 to 12. It is noted that the

[10] It is noted that schooling years in the initial years, which is constant for over the years, is dropped in fixed effects models which involves first-differencing. Hausman tests are carried out for the variables common in both fixed and random effects versions.

coefficient estimate is lower in absolute terms when the endogeneity of finance is taken into consideration. Finance is negative and significant at the 10% level in Cases 1 and 7, and negative but non-significant when measured as private credit in GDP, broadly or narrowly defined. The coefficient estimates for schooling years in the initial year have a negative and significant effect. Neither trade openness nor GDP deflator has a significant effect. The Sargan and serial correlation tests validate our specification in all cases.

However, if we replace the Gini coefficient by an alternative measure of inequality in Appendix 2, the income share of the bottom 20% in the population, finance does not have a significant effect in any of the 12 cases regardless of whether a static or dynamic specificationl is used. That is, the income share of the poorest quintile is not affected by financial development. However, higher levels of education are associated with lower shares of the poorest 20 per cent. Again, neither trade openness nor GDP deflator have significant effects. The Sargan and serial correlations tests validate our specifications except in Cases 1, 3, 7 and 9.

Table 6 focuses on the determinants of undernourishment. A few additional explanatory variables are included for these cases. When we use static panel specification in the first panel of Table 6, finance is not significant in any of the cases. Nor is agricultural productivity predicted by finance and tractor use. However, the results based on the dynamic specification show that private credit broadly defined has a significant negative effect on undernourishment (at the 1% level) in Cases 1 to 4, i.e., depending on whether the endogeneity of finance is taken into account, or whether the predicted or the actual values of private credit is used. This suggests that private credit which is broadly defined to cover formal and informal banking sectors plays an important role in reducing hunger. But finance is not significant in other

cases. Agricultural productivity predicted by finance (broadly defined private credit) is not significant in Cases 1-4. Or, the direct effect of finance dominates over the indirect effect. However, in Cases 5 to 12, finance (assumed exogenous) has a negative and significant coefficient. That is, only the indirect effect is confirmed.

In sum, the results are mixed, with limited validation of direct or indirect effects of finance (through agricultural productivity) on hunger/undernourishment.[11]

Turning to the control variables, trade openness does not have a significant coefficient (except Case 1 and Case 3 where it is positive and significant at the 10% level), while population growth has a positive and significant effect on the prevalence of undernourishment (Cases 5 to 8 and 10). Age dependence ratio has a significant positive effect in static and a significant negative effect in the dynamic cases. The former seems more plausible. The Sargan and test for serial correlations validate our specification.

Table 7 summarises the results of Granger causality tests to examine the links between finance and economic or agricultural growth, based on country-level time series data.[12] It is not easy to offer a single conclusion as the results vary with the country.

(Table 7 to be inserted)

First, the causality from economic growth to financial development is generally stronger than that from finance to growth (typically in India or the Philippines). That

[11] Appendix 3 presents the cases without predicted agricultural productivity. Financial system deposit is negative and significant in Case 11 when static model is applied. In dynamic cases, the broadly defined private credit is negative and significant in all the cases, while the narrowly defined private credit becomes negative and significant when it is treated as exogenous in Cases 5 and 7.

[12] The detailed results of VAR models are presented in Appendix 4.

is, in these countries economic growth occurs first and then influences the financial development, and not the other way around. Second, if we look at the causality between finance and agricultural growth, we observe a few cases (e.g., the Philippines, Malaysia and Indonesia) where finance appears to cause agricultural growth. Agricultural growth Granger causes financial development in India or Thailand. Both directions of causality are highly significant in Bangladesh or Vietnam, while the causality from agriculture to finance is strong in China.[13]

V. Conclusion

Building on the recent literature on finance, growth and hunger, we have examined the experience of 9 Asian countries over the period 1960-2006, using both static and dynamic panel specifications. A main contribution of the present study is a comprehensive and rigorous analysis of the linkages between finance, growth and hunger. Account is also taken of the endogeneity of trade and financial development. Although the results are mixed depending on the specification and variables used, there is some evidence favouring a positive role of financial development on GDP and agricultural value added growth. Another important finding is that finance contributes to agricultural productivity either directly or indirectly through greater use of productivity-enhancing inputs, namely, tractors.

There is, however, also evidence of a reverse causality between GDP and agricultural growth on financial development. In fact, there are a few cases in which the causality runs both ways. In light of this complexity, the results of finance on inequality and hunger require cautious interpretation.

[13] Graphical illustrations are given in Annexes 3 and 4.

It is generally found that financial development reduces the Gini coefficient of income distribution. However, when this measure of inequality is replaced with the share of the poorest quintile in GDP, financial development ceases to have any effect, pointing presumably to the exclusion of the poorest in the sample of Asian countries considered. Although there is support for the view that financial development reduces hunger, the results are again mixed. Finance is not significant in static specifications. However, private credit broadly defined has a negative and significant effect on hunger in a few dynamic cases-either directly or indirectly through higher agricultural.

In conclusion, questions remain about appropriate measurement and instrumentation of some key variables, and, above all, reliability of data. Subject to these caveats, it follows from our analysis that finance matters for both overall and agricultural growth, and reduction of inequality and hunger. A more definitive conclusion must await a deeper understanding of the complex linkages between finance, growth and hunger.

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Table 1 Results for the Growth Equation (GDP per capita)

		Static Panel Model Fixed Effects estimation			Dynamic Panel Model Blundell and Bond (1998) GMM estimation					
		Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9
		Fixed-effects Model	Fixed-effects Model	Fixed-Effects Model	Without endogenous regressors	With Endogenous Regressors	Without endogenous regressors	With endogenous regressors	Without Endogenous Regressors	With Endogenous Regressors
Dep. Variable	Whether Endogenous or Exogenous In Cases 5, 7 and 9.	log(GDP pc)	log(GDP pc)	log(GDP pc)	log(GDP pc)	log(GDP pc)	log(GDP pc)	log(GDP pc)	log(GDP pc)	log(GDP pc)
Explanatory Variables										
L.		-	-	-	1.238	1.287	1.289	1.308	1.254	1.275
					(23.55)**	(18.48)**	(19.01)**	(18.19)**	(17.75)**	(15.75)**
L2.		-	-	-	-0.266	-0.311	-0.312	-0.327	-0.279	-0.294
					(4.59)**	(4.32)**	(4.46)**	(4.45)**	(3.81)**	(3.66)**
log(private credit/GDP)	Endogenous	**0.046**	**-**	**-**	**-0.005**	**-0.003**	**-**	**-**	**-**	**-**
		(1.81)			**(2.32)***	**(1.20)**				
log(private credit by banks/GDP)	Endogenous	**-**	**0.082**	**-**	**-**	**-**	**-0.006**	**-0.002**	**-**	**-**
			(3.46)**				**(1.35)**	**(0.29)**		
log(financial system deposit/GDP)	Endogenous	**-**	**-**	**-0.033**	**-**	**-**	**-**	**-**	**0.003**	**0.002**
				(4.43)**					**(5.18)****	**(2.81)****
log(share of population with primary ed. or above	Exogenous	0.01	-0.016	-0.019	0.018	0.008	0.026	0.014	0.022	0.01
		(0.23)	(0.44)	(0.53)	(1.30)	(1.12)	(2.07)*	(2.92)**	(1.85)	(1.96)
log(government expenditure/GDP)	Exogenous	0.598	0.522	0.597	0.019	0.011	0.012	0.003	0.007	0.002
		(17.21)**	(22.74)**	(35.80)**	(4.18)**	(4.36)**	(2.28)*	(1.34)	(2.50)*	(1.32)
log(CPI)	Exogenous	-0.081	-0.006	-0.012	-0.005	-0.001	0.001	0.004	0.002	0.004
		(4.57)**	(0.92)	(1.90)	(1.56)	(0.43)	(0.58)	(3.46)**	(1.06)	(2.20)*
log(Export+Import /GDP)	Endogenous	0.12	0.121	0.164	0.029	0.024	0.019	0.014	0.015	0.013
		(4.17)**	(4.30)**	(5.90)**	(4.24)**	(3.27)**	(3.36)**	(3.03)**	(3.43)**	(2.38)*
Constant		-6.901	-4.913	-6.772	-0.23	-0.066	-0.202	0.017	-0.052	0.064
		(11.14)	(9.28)	(18.41)	(3.02)**	(1.49)	(1.34)	(0.28)	(0.67)	(3.75)**
Observations		304	266	278	294	294	258	258	270	270
Number of Countries		9	9	9	8	8	7	7	7	7
R square		0.92	0.94	0.92						
Hausman Test for fixed and		$Chi^2(5)$=	$Chi^2(5)$=	$Chi^2(5)$=						

random effects model		486.26**	49.86**	40.02**							
Arellano-Bond Test for Serial Correlation (Z value) *m 2*		-	-	-	(-2.10)*	(-2.01)*	(-1.39)	(-1.35)	(-1.44)	(-1.39)
Sargan Test of overidentifying restrictions		-	-	-	chi^2(323)=	chi^2(459)=	chi^2(288)=	chi^2(423)=	chi^2(300)=	chi^2(435)=
Ho: overidentifying restrictions are valid					345.15	496.1	313.18	429.93	323.97	444.1
Prob>Chi2					0.19	0.11	0.14	0.4	0.16	0.37
Without Malaysia										
log(private credit/GDP)	Endogenous	**0.072**			**-0.004**	**0.003**				
		(2.21)*			**(0.93)**	**(1.79)**				
log(private credit by banks/GDP)	Endogenous		**0.117**				**-0.001**	**0.003**		
			(4.04)**				**(0.23)**	**(0.59)**		
log(financial system deposit/GDP)	Endogenous			**-0.035**					**0.003**	**0.003**
				(4.17)**					**(4.65)****	**(5.01)****

Notes 1. Absolute value of z statistics in parentheses

2. * significant at 5%; ** significant at 1% (based on robust estimators)

3. Blundell and Bond (1998) GMM one-step estimator is applied for all the cases.

Table 2 Results for Agricultural Input (Tractor Use Per Agricultural Worker) Equation

		Static Panel Model Fixed (or Random)effects estimation			Dynamic Panel Model Blundell and Bond (1998) GMM estimation					
		Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9
	Whether Endogenous or exogenous in Cases 2, 4 & 6.	Fixed Effects Model	Fixed Effects Model	Random Effects Model	Without Endogenous Regressors	With Endogenous Regressors	Without Endogenous Regressors	With Endogenous Regressors	Without Endogenous Regressors	With Endogenous Regressors
Dep. Variable		log(Tractor Use)	log(Tractor Use)	log(Tractor Use)	log(Tractor Use)	log(Tractor Use)	log(Tractor Use)	log(Tractor Use)	log(Tractor Use)	log(Tractor Use)
Explanatory Variables										
L.		-	-	-	1.277	1.276	1.339	1.349	1.349	1.358
					(12.50)**	(11.83)**	(14.17)**	(15.54)**	(12.98)**	(13.57)**
L2.		-	-	-	-0.303	-0.295	-0.367	-0.368	-0.375	-0.37
					(3.01)**	(2.78)**	(3.84)**	(4.19)**	(3.69)**	(3.77)**
log(private credit/GDP)	Endogenous	**0.046**	**-**	**-**	**0.045**	**0.044**	**-**	**-**	**-**	**-**
		(1.81)			**(1.68)**	**(1.76)**				
log(private credit by	Endogenous	**-**	**0.082**	**-**	**-**	**-**	**0.03**	**0.028**	**-**	**-**
Banks /GDP)			**(3.46)****				**(1.32)**	**(1.26)**		
log(financial system	Endogenous	**-**	**-**	**-0.033**	**-**	**-**	**-**	**-**	**-0.004**	**-0.004**
deposit/GDP)				**(4.43)****					**(0.98)**	**(1.50)**
log(share of population	Exogenous	0.01	-0.016	-0.019	-0.019	-0.014	-0.029	-0.021	-0.017	-0.01
with primary ed. or above		(0.23)	(0.44)	(0.53)	(2.03)*	(1.45)	(1.27)	(1.33)	(0.86)	(0.47)
log(government	Exogenous	0.598	0.522	0.597	-0.007	-0.006	0.009	0	0.022	0.012
expenditure/GDP)		(17.21)**	(22.74)**	(35.80)**	(0.50)	(0.55)	(0.50)	(0.03)	(1.22)	(0.90)
log(CPI)	Exogenous	-0.081	-0.006	-0.012	-0.005	-0.01	0	0	0.001	0
		(4.57)**	(0.92)	(1.90)	(0.63)	(1.44)	(0.04)	(0.01)	(0.10)	(0.09)
log[(Export+Import)/GDP]	Endogenous	0.12	0.121	0.164	0.00	-0.016	0.005	-0.008	0.027	0.007
		(4.17)**	(4.30)**	(5.90)**	(0.02)	(1.26)	(0.21)	(0.50)	(1.02)	(0.42)

Constant	-6.901	-4.913	-6.772	0.212	0.159	0.071	0.198	-0.307	-0.146
	(11.14)	(9.28)	(18.41)	(0.77)	(0.67)	(0.22)	(0.83)	(0.83)	(0.53)
Observations	3049	2668	2788	265	265	233	233	245	245
Number of Countries				8	8	7	7	7	7
R square	0.92	0.94	0.93	-	-	-	-	-	-
Hausman Test for fixed and random effects model	Chi^2 (5) =25.41**	Chi^2 (5) =110.79**	Chi^2 (5) =2.32						
Arellano-Bond Tes for Serial Correlation (Z value)									
m 2	-	-	-	(2.34)*	(2.35)*	(1.70)	(1.68)	(1.71)	(1.70)
Sargan Test of overidentifying restrictions									
Ho: overidentifying restrictions are valid									
	-	-	-	$chi^2(290)$=	$chi^2(414)$=	$chi^2(259)$=	$chi^2(382)$=	$chi^2(271)$=	$chi^2(394)$=
				319.19	429.81	268.22	366.61	273.99	380.7
Prob>Chi2				0.2	0.29	0.33	0.71	0.44	0.68

1. Absolute value of z statistics in parentheses

2. * significant at 5%; ** significant at 1% (based on robust estimators)

3. Blundell and Bond (1998) GMM one-step estimator is applied for all the cases.

Table 3 Results for Agricultural Productivity Equation (Agricultural Value Added Per Capita)

		Static Panel Model Fixed Effects estimation			Dynamic Panel Model Blundell and Bond (1998) GMM estimation					
		Case 1 Fixed-effects Model	Case 2 Fixed-Effects Model	Case 3 Fixed-Effects Model	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9
Dep. Variable	Whether Endogenous or exogenous in Cases 5, 7 & 9.	log(Agri VA pc)	log(Agri VA pc)	log(Agri VA pc)	Without Endogenous Regressors log(Agri VA pc)	With Endogenous Regressors log(Agri VA pc)	Without endogenous regressors log(Agri VA pc)	With endogenous regressors log(Agri VA pc)	Without endogenous regressors log(Agri VA pc)	With endogenous regressors log(Agri VA pc)
Explanatory Variables										
L.		-	-	-	0.702	0.723	0.718	0.739	0.656	0.69
					(7.64)**	(8.39)**	(9.68)**	(10.41)**	(7.45)**	(7.81)**
L2.		-	-	-	0.247	0.255	0.246	0.232	0.284	0.284
					(3.74)**	(3.30)**	(3.92)**	(3.32)**	(3.59)**	(3.08)**
log(private credit/GDP)	Endogenous	**0.027**	**-**	**-**	**-0.019**	**-0.011**	**-**	**-**	**-**	**-**
		(1.45)			**(2.21)***	**(1.52)**				
log(private credit by	Endogenous	**-**	**0.035**	**-**	**-**	**-**	**-0.016**	**-0.011**	**-**	**-**
Banks /GDP)			**(1.91)**				**(1.57)**	**(1.47)**		
log(financial system	Endogenous	**-**	**-**	**0.002**	**-**	**-**	**-**	**-**	**0.006**	**0.004**
deposit/GDP)				**(0.47)**					**(4.61)****	**(2.09)***
log(Tractor Use)	Endogenous	0.094	0.102	0.096	**0.009**	**0.003**	**0.007**	**0.007**	**0.006**	**0.003**
[Predicted Value]		(3.35)**	(3.74)**	(3.60)**	**(1.58)**	**(0.71)**	**(8.36)****	**(1.92)**	**(3.15)****	**(0.92)**
log(share of population	Exogenous	0.157	0.018	0.058	0.004	0.005	0.009	0.016	0.016	0.013
with primary ed. or above		(5.65)**	(0.61)	(2.19)*	(0.38)	(0.60)	(0.94)	(2.27)*	(1.70)	(2.17)*
log(government	Exogenous	0.027	0.084	0.079	-0.001	0.002	-0.003	-0.008	-0.013	-0.009
expenditure/GDP)		(2.60)**	(7.16)**	(6.75)**	(0.09)	(0.39)	(0.51)	(2.11)*	(2.10)*	(1.82)
log(CPI)	Exogenous	-0.026	-0.004	-0.015	-0.003	-0.001	-0.002	0	0.001	-0.001
		(2.08)*	(0.34)	(1.40)	(1.02)	(0.21)	(2.42)*	(0.22)	(0.35)	(0.32)
log[(Export+Import)/GDP]	Endogenous	-0.073	-0.051	-0.046	0.024	0.013	0.004	0.007	-0.008	-0.003

		(3.47)**	(2.38)*	(2.25)*	(2.97)**	(2.32)*	(0.38)	(0.73)	(0.67)	(0.27)
Constant		0.855	3.944	3.07	0.331	0.102	0.196	0.248	0.543	0.29
		(1.65)	(6.32)**	(5.81)	(1.20)	(0.85)	(1.43)	(3.41)**	(14.16)**	(3.28)**
Observations		266	216	228	264	264	214	214	226	226
Number of Countries		8	7	7	8	8	7	7	7	7
R square		0.63	0.64	0.63	-	-	-	-	-	-
Hausman Test for fixed and random effects model		Chi^2 (6) =37.70**	Chi^2 (6) =36.54**	Chi^2 (6) =97.62**						
Arellano-Bond Tes for Serial Correlation (Z value) *m 2*		-	-	-	(-1.61)	(-1.57)	(-1.15)	(-1.04)	(-1.61)	(-1.51)
Sargan Test of overidentifying restrictions Ho: overidentifying restrictions are valid		-	-	-	chi^2(290)= 284.75	chi^2(449)= 425.31	chi^2(240)= 229.09	chi^2(379)= 358.93	chi^2(252)= 240.75	chi^2(402)= 380.31
Prob>Chi2					0.58	0.78	0.68	0.76	0.68	0.78
Without Malaysia										
log(private credit/GDP)	Endogenous	**0.0256**			**-0.004**	**-0.005**				
		(1.54)			**(1.00)**	**(1.35)**				
log(private credit by banks/GDP)	Endogenous		**0.0147**				**0.001**	**-0.004**		
			(0.95)				**(0.24)**	**(1.26)**		
log(financial system deposit/GDP)	Endogenous			**-0.0108**					**0.004**	**0.004**
				(2.68)**					**(2.46)***	**(2.48)***

1. Absolute value of z statistics in parentheses

2. * significant at 5%; ** significant at 1% (based on robust estimators)

3. Blundell and Bond (1998) GMM one-step estimator is applied for all the cases.

Table 4 Results on Endogeneity of Finance

		Static Panel Model Fixed Effects estimation			Dynamic Panel Model Blundell and Bond (1998) GMM estimation					
		Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9
Dep. Variable	Whether endogenous or exogenous in Cases 2, 4 & 6.	log(private credit/GDP)	log(private credit by banks/GDP)	log(financial system deposit/GDP)	Without Endogenous Regressors log(private credit/GDP)	With endogenous regressors log(private credit/GDP)	Without endogenous regressors log(private credit by banks/GDP)	With Endogenous Regressors log(private credit by Banks/GDP)	Without Endogenous Regressors log(financial system deposit/GDP)	With endogenous regressors log(financial system deposit/GDP)
Explanatory Variables										
L.		-	-	-	1.096	1.114	1.502	1.498	1.017	0.999
					(14.33)**	(14.04)**	(24.03)**	(24.56)**	(44.82)**	(34.64)**
L2.		-	-	-	-0.189	-0.184	-0.571	-0.559	-0.092	-0.077
					(2.51)*	(2.56)*	(8.11)**	(8.11)**	(3.87)**	(2.50)*
log(GDP per capita)	**Endogenous**	**0.872**	**0.954**	**0.914**	**0.039**	**0.009**	**0.064**	**0.041**	**0.071**	**0.04**
		(14.12)**	**(18.33)****	**(5.60)****	**(2.63)****	**(0.65)**	**(2.99)****	**(2.80)****	**(1.80)**	**(2.37)***
log[(Export+Import)/GDP]	**Endogenous**	0.588	0.166	1.519	0.025	0.028	-0.008	0.001	0.009	-0.011
		(7.26)**	(2.30)*	(6.59)**	(0.86)	(1.37)	(0.29)	(0.07)	(0.18)	(0.28)
Constant		-1.715	-7.278	-6.495	0.123	0.238	-0.489	-0.324	-0.505	-0.316
		(3.95)	(20.04)	(5.74)	(0.88)	(2.08)*	(3.09)**	(2.91)**	(1.88)	(2.64)**
Observations		338	276	288	319	319	259	259	271	271
Number of Countries		9	8	8	9	9	8	8	8	8
R square		0.47	0.61	0.41						
Hausman Test for fixed and random effects model		Chi^2 (6) =37.70**	Chi^2 (6) =36.54**	Chi^2 (6) =97.62**	-	-	-	-	-	-
Arellano-Bond Test for Serial Correlation (Z, Prob>z)*m 2*		-	-	-	(-0.53)	(-0.58)	(-2.04)*	(-2.04)*	(-0.95)	(-1.12)
Sargan Test of overidentifying restrictions					$chi^2(347)$=	$chi^2(441)$=	$chi^2(291)$=	$chi^2(382)$=	$chi^2(303)$=	$chi^2(394)$=
Ho: overidentifying restrictions are valid		-	-	-	383.16	470.4	333.31*	419.25	356.62*	456.33*

Prob>Chi2			0.09	0.16	0.04	0.09	0.02	0.02				

1. Absolute value of z statistics in parentheses

2. * significant at 5%; ** significant at 1% (based on robust estimators)

3. Blundell and Bond (1998) GMM one-step estimator is applied for all the cases.

Table 5 Results for the Inequality Equation

(1) Fixed or Random Effects Model (Dependent Variable: Gini coefficient)

Dep. Variable	Case 1 Gini	Case 2 Gini	Case 3 Gini	Case 4 Gini	Case 5 Gini	Case 6 Gini	Case 7 Gini	Case 8 Gini	Case 9 Gini	Case 10 Gini	Case 11 Gini	Case12 Gini
	Fixed	Random	Fixed	Random	Fixed	Random	Fixed	Random	Fixed	Random	Fixed	Random
Explanatory Variables												
log(schooling years in the initial years)	-	**0.126 (4.44)****	-	0.126 (4.88)**	-	0.167 (8.17)**	-	0.169 (7.94)**	-	0.159 (5.82)**	-	0.161 (5.52)**
log(GDP deflator)	0.006 (0.35)	**-0.004 (0.20)**	**0.01 (0.50)**	-0.006 (0.29)	**-0.002 (0.11)**	-0.048 (3.10)**	**-0.003 (0.17)**	-0.046 (2.88)**	**-0.007 (0.42)**	-0.028 (1.69)	**-0.008 (0.45)**	-0.026 (1.52)
log(private credit/GDP)	-0.016 (0.70)	**-0.062 (2.67)****	-	-	-	-	-	-	-	-	-	-
predicted log(private credit/GDP)	-	-	**-0.028 (0.91)**	-0.085 (3.15)**	-	-	-	-	-	-	-	-
log(private credit by banks/GDP)	-	-	-	-	**-0.049 (1.98)***	-0.043 (1.75)	-	-	-	-	-	-
predicted log(private credit by banks/GDP)	-	-	-	-	-	-	**-0.055 (2.13)***	-0.047 (1.84)	-	-	-	-
log(financial system deposit/GDP)	-	-	-	-	-	-	-	-	**-0.015 (1.78)**	-0.009 (0.96)	-	-
predicted log(financial system deposit/GDP)	-	-	-	-	-	-	-	-	-	-	**-0.019 (1.62)**	-0.01 (0.83)
log[(Export+Import)/GDP]	-0.006 (0.12)	**0.126 (4.24)****	**0.014 (0.22)**	0.145 (4.97)**	**0.042 (0.85)**	0.098 (3.64)**	**0.04 (0.79)**	0.102 (3.65)**	**0.003 (0.08)**	0.084 (2.69)**	**-0.001 (0.03)**	0.085 (2.51)*
Constant	3.695 (33.96)	**3.886 (37.89)**	**3.748 (27.11)**	3.984 (35.11)	**3.649 (93.85)**	3.666 (90.32)	**3.646 (93.07)**	3.656 (86.86)	**3.666 (96.59)**	3.664 (85.22)	**3.669 (96.04)**	3.658 (81.11)
Observations	62	**62**	**61**	61	**50**	50	**49**	49	**53**	53	**51**	51
Number of Countries	8	8	**8**	8	**7**	7	**7**	7	**7**	7	**7**	7
R square	0.02	0.6	0.03	0.61	0.1	0.79	0.12	0.79	0.09	0.78	0.08	0.77
Hausman Test for fixed and random effects model	$chi^2(3)$= 5.00	In favour of Random	$chi^2(3)$= 8.41*	In favour of Fixed	$chi^2(3)$= 45.99**	In favour of Fixed	$chi^2(3)$= 50.87**	In favour of Fixed	$chi^2(3)$= 41.83**	In favour of Fixed	$chi^2(3)$= 55.28**	In favour of Fixed

	Effects	Effects	Effects	Effects	Effects	Effects

Absolute value of t statistics in parentheses
*** significant at 5%; ** significant at 1%**
The results for the models which are selected by Hausman test are shown bold.

(2) Blundell and Bond (1998) GMM estimation (Dependent Variable: Gini coefficient)

	Whether Endogenous or exogenous in Cases 2, 4, 6, 8, 10 and 12	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Case 11	Case 12
		Without Endogenous Regressors	Without Endogenous Regressors	Without endogenous	With Endogenous	Without endogenous	With endogenous	Without Endogenous	With Endogenous	Without endogenous	With endogenous	Without endogenous	With endogenous
Dep. Variable		Gini	Gini	regressors Gini	Regressors Gini	regressors Gini	regressors Gini	Regressors Gini	Regressors Gini	regressors Gini	regressors Gini	regressors Gini	regressors Gini
Explanatory Variables													
L.		0.451	0.557	0.404	0.571	0.255	0.375	0.244	0.357	0.197	0.316	0.155	0.324
		(2.60)**	(4.14)**	(1.68)	(3.87)**	(1.91)	(2.46)*	(2.12)*	(2.38)*	(1.58)	(2.71)**	(1.13)	(2.19)*
log(schooling years in the initial years)	Exogenous	0.089	0.066	0.101	0.066	0.132	0.117	0.14	0.119	0.128	0.137	0.148	0.133
		(1.97)*	(2.58)**	(2.03)*	(2.62)**	(4.14)**	(5.17)**	(4.76)**	(4.80)**	(3.56)**	(5.11)**	(3.89)**	(4.39)**
log(GDP deflator)	Exogenous	0.018	0.018	0.021	0.015	-0.006	0.001	-0.006	0	-0.008	-0.011	-0.009	-0.006
		(0.74)	(0.94)	(0.85)	(0.84)	(0.37)	(0.05)	(0.40)	(0.03)	(0.64)	(1.09)	(0.63)	(0.51)
log(private credit/GDP)	**Endogenous**	**-0.033**	**-0.023**	-	-	-	-	-	-	-	-	-	-
		(1.91)	**(1.25)**	-	-	-	-	-	-	-	-	-	-
predicted log(private credit/GDP)	**Endogenous**	-	-	**-0.046**	**-0.015**	-	-	-	-	-	-	-	-
		-	-	**(1.07)**	**(0.63)**	-	-	-	-	-	-	-	-
log(private credit by banks/GDP)	**Endogenous**	-	-	-	-	**-0.034**	**-0.015**	-	-	-	-	-	-
		-	-	-	-	**(1.33)**	**(0.83)**	-	-	-	-	-	-
predicted log(private credit by banks/GDP)	**Endogenous**	-	-	-	-	-	-	**-0.044**	**-0.02**	-	-	-	-
		-	-	-	-	-	-	**(1.74)**	**(0.98)**	-	-	-	-
log(financial system deposit/GDP)	**Endogenous**	-	-	-	-	-	-	-	-	**-0.029**	**-0.016**	-	-
		-	-	-	-	-	-	-	-	**(3.42)****	**(5.17)****	-	-
predicted log(financial system deposit/GDP)	**Endogenous**	-	-	-	-	-	-	-	-	-	-	**-0.03**	**-0.02**
		-	-	-	-	-	-	-	-	-	-	**(2.58)****	**(3.64)****
log[(Export+Import)/GDP]	**Endogenous**	0.07	0.051	0.088	0.04	0.082	0.05	0.092	0.056	0.086	0.043	0.091	0.054
		(1.53)	(1.59)	(1.18)	(0.99)	(0.99)	(1.06)	(1.06)	(1.12)	(1.01)	(0.99)	(0.95)	(1.16)
Constant		2.082	1.658	2.295	1.573	2.67	2.229	2.699	2.292	2.891	2.447	3.046	2.417
		(2.98)	(2.95)	(2.19)*	(2.47)*	(5.18)	(3.90)	(6.01)	(4.11)	(5.77)	(5.58)	(5.63)	(4.36)
Observations		57	57	56	56	45	45	44	44	48	48	46	46
Number of Countries		8	8	8	8	7	7	7	7	7	7	7	7
Arellano-Bond Tes for Serial Correlation (Z, Prob>z)													
m 2		(1.43)	(1.45)	(1.43)	(1.44)	(0.12)	(0.04)	(-0.32)	(-0.42)	(0.46)	(0.47)	(0.04)	(-0.09)
Sargan Test of overidentifying restrictions													
Ho: overidentifying restrictions are valid													

	$chi^2(37)$=	$chi^2(66)$=	$chi^2(37)$=	$chi^2(65)$=	$chi^2(36)$=	$chi^2(56)$=	$chi^2(35)$=	$chi^2(55)$=	$chi^2(36)$=	$chi^2(58)$=	$chi^2(35)$=	$chi^2(57)$=
	37.61	59.88	41.83	58.07	45.04	59.35	46.9	62.75	40.53	56.31	46.28	62.25
Prob>Chi2	0.35	0.69	0.27	0.72	0.14	0.35	0.09	0.22	0.28	0.54	0.096	0.29

1. Absolute value of z statistics in parentheses. 2. * significant at 5%; ** significant at 1% (based on robust estimators) 3. Blundell and Bond (1998) GMM one-step estimator is applied for all the cases.

Table 6 Results for the Undernourishment Equation (Dependent Variable: share of the undernourished population in the total)- *With Agricultural Productivity*

(1) Fixed or Random Effects Model (Dependent Variable: Undernourishment) (with agricultural productivity)

Dep. Variable	Case 1 Under-Nourishment	Case 2 Under-nourishment	Case 3 Under-nourishment	Case 4 Under-Nourishment	Case 5 Under-nourishment	Case 6 Under-nourishment	Case 7 Under-nourishment	Case 8 Under-nourishment	Case 9 Under-nourishment	Case 10 Under-nourishment	Case 11 Under-nourishment	Case12 Under-Nourishment
	Fixed	Random	Fixed	Random	Fixed	Random	Fixed	Random	Fixed	Random	Fixed	Random
Explanatory Variables												
log(schooling years in the initial years)	-	0.553 (4.38)**	-	0.553 (4.41)**	-	0.576 (4.16)**	-	0.581 (4.14)**	-	0.635 (4.50)**	-	0.643 (4.43)**
log(GDP deflator)	**-0.911**	-2.057	**-0.896**	-2.063	**-0.9**	-2.111	**-0.924**	-2.111	**-0.641**	-1.939	**-0.611**	-1.932
	(1.41)	(6.39)**	**(1.41)**	(6.49)**	**(1.27)**	(6.71)**	**(1.29)**	(6.60)**	**(0.98)**	(6.34)**	**(0.91)**	(6.20)**
Predicted log agricultural	**-0.02**	-0.183	**-0.018**	-0.184	**-0.02**	-0.128	**-0.023**	-0.113	**-0.023**	-0.175	**-0.027**	-0.167
Productivity	**(0.20)**	(1.43)	**(0.19)**	(1.45)	**(0.18)**	(0.95)	**(0.20)**	(0.80)	**(0.22)**	(1.28)	**(0.25)**	(1.17)
log(private credit/GDP)	**-0.044**	0.087	-	-	-	-	-	-	-	-	-	-
	(0.27)	(0.40)										
predicted log(private credit/GDP)	-	-	**-0.064**	0.106	-	-	-	-	-	-	-	-
			(0.39)	(0.48)								
log(private credit by banks/GDP)	-	-	-	-	**0.122**	0.437	-	-	-	-	-	-
					(0.72)	(1.97)*						
predicted log(private credit by banks/GDP)	-	-	-	-	-	-	**0.13**	0.472	-	-	-	-
							(0.73)	(2.00)*				
log(financial system deposit/GDP)	-	-	-	-	-	-	-	-	**-0.05**	0.019	-	-
									(1.24)	(0.31)		
predicted log(financial system deposit/GDP)	-	-	-	-	-	-	-	-	-	-	**-0.059**	0.026
											(1.28)	(0.38)
log[(Export+Import)/GDP]	**-0.199**	0.187	**-0.189**	0.182	**-0.19**	0.032	**-0.218**	0.029	**-0.044**	0.059	**-0.034**	0.044
	(0.87)	(1.13)	**(0.82)**	(1.10)	**(0.67)**	(0.16)	**(0.74)**	(0.14)	**(0.16)**	(0.28)	**(0.12)**	(0.20)
log(Population Growth)	**-0.05**	-0.312	**-0.034**	-0.324	**-0.402**	-0.737	**-0.395**	-0.754	**-0.283**	-0.318	**-0.293**	-0.299
	(0.11)	(0.58)	**(0.08)**	(0.60)	**(0.74)**	(1.08)	**(0.72)**	(1.09)	**(0.58)**	(0.48)	**(0.59)**	(0.44)
log (Dependency Burden)	**0.385**	2.252	**0.338**	2.296	**1.152**	2.913	**1.126**	2.955	**0.944**	1.718	**0.974**	1.681
	(0.53)	(2.09)*	**(0.47)**	(2.16)*	**(1.32)**	(2.38)*	**(1.26)**	(2.38)*	**(1.25)**	(1.63)	**(1.26)**	(1.57)
Constant	**7.362**	12.346	**7.409**	12.277	**6.196**	11.793	**6.334**	11.737	**5.206**	11.771	**5.025**	11.777

Observations	**(3.04)**	(4.55)	**(3.05)**	(4.51)	**(2.00)**	(3.89)	**(2.00)**	(3.81)	**(1.77)**	(3.77)	**(1.65)**	(3.70)
	48	48	**48**	48	**41**	41	**40**	40	**43**	43	**42**	42
Number of Countries	**8**	8	**8**	8	**7**	7	**7**	7	**7**	7	**7**	7
R square	0.38		0.38		0.34		0.35		0.39		0.4	
Hausman Test for fixed and random effects model	$chi^2(6)=$		$chi^2(6)=$		$chi^2(6)=$		$chi^2(6)=$		$chi^2(6)=$		$chi^2(6)=$	
	19.49**	In favour of Fixed Effects	22.92**	In favour of Fixed Effects	27.04**	In favour of Fixed Effects	26.99**	In favour of Fixed Effects	13.59**	In favour of Fixed Effects	12.89**	In favour of Fixed Effects

Absolute value of t statistics in parentheses
*** significant at 5%; ** significant at 1%**
The results for the models which are selected by Hausman test are shown bold.

(2) Blundell and Bond (1998) GMM estimation (Dependent Variable: Undernourishment) (with agricultural productivity)

	Whether Endogenous or exogenous in Cases 2, 4, 6, 8, 10 & 12.	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Case 11	Case 12
Dep. Variable		Without Endogenous Regressors Undernourishment	With Endogenous Regressors Undernourishment	Without Endogenous Regressors Undernourishment	With Endogenous Regressors Undernourishment	Without endogenous regressors Undernourishment	With endogenous regressors Undernourishment	Without endogenous regressors Undernourishment	With endogenous regressors Undernourishment	Without endogenous regressors Undernourishment	With endogenous regressors Undernourishment	Without endogenous regressors Undernourishment	With endogenous Regressors Undernourishment
Explanatory Variables													
L.		0.76	0.94	0.757	0.942	0.961	0.913	0.907	0.912	0.888	0.94	0.847	0.922
		(5.97)**	(18.30)**	(6.08)**	(17.57)**	(6.40)**	(20.15)**	(7.41)**	(21.24)**	(4.52)**	(19.31)**	(4.89)**	(17.90)**
log(schooling years in the initial years)	Exogenous	-0.503	0.028	-0.498	0.017	0.669	0.054	0.68	0.047	0.881	0.054	0.904	0.061
		(0.86)	(0.41)	(0.82)	(0.26)	(1.49)	(0.71)	(1.56)	(0.56)	(1.57)	(0.69)	(1.62)	(0.66)
log(GDP deflator)	Exogenous	-0.124	-0.09	-0.116	-0.082	-0.094	-0.061	-0.101	-0.061	-0.095	-0.061	-0.099	-0.061
		(2.38)*	(2.41)*	(2.61)**	(2.24)*	(2.83)**	(2.25)*	(2.95)**	(2.18)*	(2.39)*	(2.00)*	(2.40)*	(2.05)*
Predicted log agricultural productivity		**0.361**	**-0.012**	**0.323**	**-0.016**	**-0.576**	**-0.146**	**-0.645**	**-0.14**	**-0.809**	**-0.138**	**-0.84**	**-0.16**
		(0.48)	**(0.06)**	**(0.43)**	**(0.08)**	**(1.83)**	**(1.16)**	**(2.03)***	**(1.08)**	**(2.61)****	**(0.93)**	**(2.49)***	**(1.03)**
log(private credit/GDP)	Endogenous	**-0.362**	**-0.211**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		(5.17)**	**(4.57)****	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
predicted log(private credit/GDP)	Endogenous	**-**	**-**	**-0.385**	**-0.219**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	**-**	**(5.94)****	**(3.31)****	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
log(private credit by banks/GDP)	Endogenous	**-**	**-**	**-**	**-**	**-0.112**	**-0.051**	**-**	**-**	**-**	**-**	**-**	**-**
		-	**-**	**-**	**-**	**(1.04)**	**(0.56)**	**-**	**-**	**-**	**-**	**-**	**-**

predicted log(private credit by banks/GDP)	Endogenous	-	-	-	-	-	-	**-0.111**	**-0.05**	-	-	-	-
		-	-	-	-	-	-	**(1.05)**	**(0.56)**	-	-	-	-
log(financial system deposit/GDP)	Endogenous	-	-	-	-	-	-	-	-	**-0.019**	**-0.01**	-	-
		-	-	-	-	-	-	-	-	**(0.99)**	**(0.79)**	-	-
predicted log(financial system deposit/GDP)	Endogenous	-	-	-	-	-	-	-	-	-	-	**-0.02**	**-0.01**
		-	-	-	-	-	-	-	-	-	-	**(1.39)**	**(0.51)**
log[(Export+Import) /GDP]	Endogenous	0.183	-0.011	0.212	0.002	-0.232	-0.07	-0.191	-0.072	-0.359	-0.046	-0.348	-0.043
		(1.70)	(0.11)	(1.73)	(0.02)	(1.10)	(0.69)	(1.03)	(0.69)	(1.32)	(0.44)	(1.26)	(0.37)
log(Population Growth)	Exogenous	0.719	0.305	0.677	0.29	0.458	0.489	0.487	0.496	0.172	0.422	0.179	0.403
		(1.22)	(0.98)	(1.20)	(0.91)	(4.34)**	(3.07)**	(3.86)**	(2.85)**	(1.22)	(1.75)	(1.22)	(1.64)
log (Dependency Burden)	Exogenous	-1.197	-0.798	-1.167	-0.781	-1.679	-0.89	-1.546	-0.901	-1.336	-0.682	-1.256	-0.64
		(2.60)**	(1.41)	(2.75)**	(1.34)	(2.82)**	(4.08)**	(3.16)**	(3.79)**	(1.45)	(1.85)	(1.45)	(1.74)
Constant		3.254	1.932	3.382	1.926	3.519	2.431	4.201	2.421	3.758	2.184	4.053	2.303
		(1.58)	(1.40)	(1.56)	(1.32)	(2.55)*	(3.71)	(3.21)	(3.43)	(3.38)	(4.08)	(3.54)	(3.94)
Observations		43	43	43	43	37	37	36	36	38	38	37	37
Number of Countries		8	8	8	8	7	7	7	7	7	7	7	7
Arellano-Bond Tes for Serial Correlation (Z, Probb>z)													
m 2		(0.62)	(-0.36)	(0.81)	(-0.45)	(-1.02)	(-1.17)	(-0.96)	(-1.16)	(-0.96)	(-1.29)	(-0.92)	(-1.30)
Sargan Test of overidentifying restrictions Ho: overidentifying restrictions are valid													
		chi2(18)=	chi2(56)=	chi2(18)=	chi2(56)=	chi2(18)=	chi2(51)=	chi2(18)=	chi2(50)=	chi2(18)=	chi2(52)=	chi2(18)=	chi2(51)=
		34.88**	71.88	34.90**	72.48	24.29	47.74	26.31	47.64	22.45	50.48	23.26	51.96
Prob>Chi2		0.0098	0.075	0.0097	0.068	0.1458	0.6039	0.0928	0.5687	0.2125	0.5198	0.1619	0.4364

1. Absolute value of z statistics in parentheses. 2. * significant at 5%; ** significant at 1% (based on robust estimators)3. Blundell and Bond (1998) GMM one-step estimator is applied for all the cases.

Table 7 Summary of Granger Causality Tests for Finance and Economic or Agricultural Income at Country Level

		Finance Granger causes GDP per capita	GDP per capita Granger causes Finance	No. Of Obs.	Finance Granger causes Agricultural Value Added pc	Agricultural VA per capita Granger causes Finance	No. Of Obs.
Bangladesh	log(private credit/GDP)	**	**	30	**	**	30
	log(private credit by banks/GDP)	**	**	8	**	**	8
	log(financial system deposit/GDP)	**	+	8	**	**	8
China	log(private credit/GDP)			27		**	27
	log(private credit by banks/GDP)	NA	NA	-	NA	NA	-
	log(financial system	NA	NA	-	NA	NA	-
India	log(private credit/GDP)		+	44		*	44
	log(private credit by banks/GDP)			23			23
	log(financial system deposit/GDP)		**	35	+	**	35
Indonesia	log(private credit/GDP)		**	24		**	24
	log(private credit by banks/GDP)	*		44	*		44
	log(financial system deposit/GDP)	**		44	**		44
Malaysia	log(private credit/GDP)			44	**	**	34
	log(private credit by banks/GDP)		**	44	*		34
	log(financial system			44			34
Pakistan	log(private credit/GDP)	+		44			44
	log(private credit by banks/GDP)		+	44			44
	log(financial system						

	deposit/GDP)			44		+	44
	deposit/GDP)						
The Philippines							
	log(private credit/GDP)		**	44			44
	log(private credit by		**	44	**		44
	banks/GDP)						
	log(financial system	*		44	+		44
	deposit/GDP)						
Thailand							
	log(private credit/GDP)		**	44		**	44
	log(private credit by		**	38			38
	banks/GDP)						
	log(financial system	**	*	38			38
Vietnam	log(private credit/GDP)	**	**	9	**	**	9
	log(private credit by banks/GDP)	**	**	8	**	+	8
	log(financial system deposit/GDP)	**	**	8	*	**	8
	deposit/GDP)						

** significant at 1%; ** significant at 1%; + significant at 10%; no mark not significant.
The results of VAR models based on which we carried the Granger causality tests are shown in the Appendix 4.

Appendix 1. Definitions and Descriptive Statistics of the Variables

Annual Panel Data (1960-2006) for 9 countries

Variable	Definition	Source	Obs	Mean	Std. Dev.	Min	Max
log(GDP pc)	log of GDP per capita	WDI	399	6.219	0.850	4.281	8.420
log(Agri VA pc)	log of Agricultureal Value Added per capita	FAO-STAT.	388	4.772	0.478	3.779	6.044
log (Tractor Use)	log of number of tractors per agricultural worker	WDI	387	3.039	1.375	-0.461	5.570
log(private credit/GDP)	log of share of domestic credit provided by banking sector in GDP*1.	WDI	339	3.446	0.839	0.651	5.349
log(private credit by banks/GDP)	log of private credit by Deposit Money Banks and Other Financial Institutions in GDP*2.	Beck et al. (2000).	283	-1.225	0.693	-2.645	0.507
log(financial system deposit/GDP)	log of Financial System Deposits in GDP.	Beck et al. (2000).	295	-1.382	1.479	-9.596	0.235
log(share of population with primary ed. or above	log of share of the population with education level of primary or above.	Barro-Lee (2000).	359	3.475	0.529	2.230	4.251
log(government expenditure/GDP)	log of share of government espenditure in GDP.	WDI	384	22.479	1.362	19.196	26.497
Population below minimum level of diet	log of Consumer Price Index.	WDI	336	3.334	1.694	-7.370	5.173
log(Ecport+Import/GDP)	log of the share of Export and Import in GDP.			-0.708	0.729	-2.540	0.894

*1 Domestic credit provided by the banking sector includes all credit to various sectors on a gross basis, with the exception of credit to the central government, which is net. The banking sector includes monetary authorities and deposit money banks, as well as other banking institutions where data are available (including institutions that do not accept transferable deposits but do incur such liabilities as time and savings deposits). Examples of other banking institutions are savings and mortgage loan institutions and building and loan associations.

*2 This is similar to the first definition, but the first definition covers a broader category of banking sector, including monetary authorities, formal and informal banking institutions, while the second mainly covers private credit through deposit money banks.

Appendix 1. Definitions and Descriptive Statistics of the Variables (Cont.)

5 Year Panel Data (1960-2004) for 9 countries

Variable	Definition	Source	Obs	Mean	Std. Dev.	Min	Max
GINI	log of GINI coefficient of income or consumption at naional level.	UNU-WIDER.	74	3.650	0.181	3.316	4.036
the bottom 20%	Percentage share of income or consumption is the share that accrues to the bottom 20% of the population.	WDI	50	1.677	0.320	1.099	2.322
Undernourishment	consumption (also referred to as prevalence of undernourishment) which	WDI	63	3.015	0.778	0.916	3.932
log(private credit/GDP)	log of share of domestic credit provided by banking sector in GDP.	Beck et al. (2000).	75	3.451	0.872	0.960	5.257
predicted log(private credit/GDP)	log of share of domestic credit provided by banking sector in GDP, predicted by annual panel.	Beck et al. (2000).	74	3.499	0.785	1.390	5.186
log(private credit by banks/GDP)	log of private credit by Deposit Money Banks and Other Financial Institutions in GDP.	Beck et al. (2000).	62	-1.213	0.685	-2.437	0.374
predicted log(private credit by banks/GDP)	log of private credit by Deposit Money Banks and Other Financial Institutions in GDP, predicted by annual panel.	Beck et al. (2000).	61	-1.194	0.666	-2.347	0.345
log(financial system deposit/GDP)	log of Financial System Deposits in GDP.	Beck et al. (2000).	65	-1.443	1.695	-9.596	0.186
predicetd log(financial system deposit/GDP)	log of Financial System Deposits in GDP, predicted by annual panel.	Beck et al. (2000).	63	-1.308	1.302	-7.809	0.175
predicted agricultural productivity	log of aricultural value added per capita, predicted by annual panel.	WDI	56	4.891	0.474	4.315	6.004
log(schooling years in the initial year)	log of average schooling years of people above 15 years old in the initial year.	Barro-Lee (2000).	77	0.671	0.743	-0.491	1.478
log(GDP deflator)	Inflation as measured by the annual growth rate of the GDP implicit deflator.	WDI	82	1.936	1.053	-0.697	5.847
log(Ecport+Import/GDP)	log of the share of Export and Import in GDP.	WDI	82	-0.671	0.730	-2.385	0.885
log(Population Growth)	log of annual popuoation growth		90	-3.920	0.358	-5.117	-3.461
log (Dependency Burden)	the ratio of dependents--people younger than 15 or older than 64--to the working-age population--those ages 15-64.	WDI	90	-0.319	0.219	-0.892	-0.035

Appendix 2 Results for the Inequality Equation (Dependent Variable: share of the bottom 20% of the population)

(1) Fixed or Random Effects Model (Dependent Variable: share of the bottom 20% of the population)

Dep. Variable	Case 1 **share of the bottom 20%**	Case 2 **share of the bottom 20%**	Case 3 **share of the bottom 20%**	Case 4 **share of the bottom 20%**	Case 5 **share of the bottom 20%**	Case 6 **share of the bottom 20%**	Case 7 **share of the bottom 20%**	Case 8 **share of the bottom 20%**	Case 9 **share of the bottom 20%**	Case 10 **share of the bottom 20%**	Case 11 **share of the bottom 20%**	Case12 **share of the bottom 20%**
	Fixed	Random	Fixed	Random	Fixed	Random	Fixed	Random	Fixed	Random	Fixed	Random
Explanatory Variables												
log(schooling years in the initial years)	-	-0.293 (3.34)**	-	-0.296 (3.35)**	-	**-0.253** **(2.81)****	-	**-0.217** **(2.90)****	-	-0.214 (2.87)**	-	-0.216 (2.95)**
log(GDP deflator)	**-0.028** **(0.47)**	0.009 (0.16)	**-0.004** **(0.06)**	0.017 (0.31)	-0.004 (0.05)	**0.013** **(0.23)**	-0.001 (0.01)	**0.035** **(0.63)**	**-0.032** **(0.45)**	0.032 (0.59)	**-0.01** **(0.14)**	0.037 (0.68)
log(private credit/GDP)	**0.017** **(0.26)**	0.027 (0.45)	-	-	-	-	-	-	-	-	-	-
predicted log(private credit/GDP)	-	-	**-0.027** **(0.30)**	0.014 (0.20)	-	-	-	-	-	-	-	-
log(private credit by banks/GDP)	-	-	-	-	**-0.048** **(0.44)**	**-0.004** **(0.04)**	-	-	-	-	-	-
predicted log(private credit by banks/GDP)	-	-	-	-	-	-	-0.05 (0.44)	**0.009** **(0.10)**	-	-	-	-
log(financial system deposit/GDP)	-	-	-	-	-	-	-	-	**0.094** **(0.90)**	0.084 (2.05)*	-	-
predicted log(financial system deposit/GDP)	-	-	-	-	-	-	-	-	-	-	**-0.008** **(0.06)**	0.023 (0.40)
log[(Export+Import)/GDP]	**0.134** **(0.88)**	0.091 (1.02)	**0.217** **(1.16)**	0.105 (1.08)	0.146 (0.72)	**-0.052** **(0.36)**	0.165 (0.79)	**-0.081** **(0.57)**	**-0.002** **(0.01)**	-0.17 (1.24)	**0.111** **(0.54)**	-0.088 (0.60)
Constant	**1.734** **(5.83)**	1.832 (6.82)	**1.895** **(4.90)**	1.877 (6.03)	1.672 (9.80)	**1.815** **(10.92)**	1.652 (9.49)	**1.739** **(11.46)**	**1.842** **(10.26)**	1.793 (14.17)	**1.703** **(9.11)**	1.745 (13.56)
Observations	**44**	44	**43**	43	36	**36**	35	**35**	**38**	38	**36**	36
Number of Countries	**8**	8	**8**	8	6	**6**	6	**6**	**7**	7	**7**	7
R square	0.06	0.37	0.04	0.37	0.21	0.43	0.16	0.39	0.007	0.45	0.19	0.39
Hausman Test for fixed and random effects model	$chi^2(3)$= 9.42*	In favour of Fixed Effects	$chi^2(3)$= 11.67**	In favour of Fixed Effects	$chi^2(3)$= 3.60	In favour of Random Effects	$chi^2(3)$= 4.84	In favour of Random Effects	$chi^2(3)$= 7.28	In favour of Fixed Effects	$chi^2(3)$= 6.26	In favour of Fixed Effects

Absolute value of t statistics in parentheses
*** significant at 5%; ** significant at 1%**
The results for the models which are selected by Hausman test are shown bold.

(2) Blundell and Bond (1998) GMM estimation (Dependent Variable: share of the bottom 20% of the population)

Dep. Variable	Whether Endogenous or exogenous in Cases 2, 4, 6, 8,10 and 12	Case 1 Without Endogenous Regressors **share of the bottom 20%**	Case 2 With endogenous Regressors **share of the bottom 20%**	Case 3 Without endogenous regressors **share of the bottom 20%**	Case 4 With Endogenous Regressors **share of the bottom 20%**	Case 5 Without endogenous regressors **share of the bottom 20%**	Case 6 With endogenous Regressors **share of the bottom 20%**	Case 7 Without Endogenous Regressors **share of the bottom 20%**	Case 8 With endogenous regressors **share of the bottom 20%**	Case 9 Without Endogenous Regressors **share of the bottom 20%**	Case 10 With endogenous regressors **share of the bottom 20%**	Case 11 Without endogenous Regressors **share of the bottom 20%**	Case 12 With Endogenous Regressors **share of the bottom 20%**
Explanatory Variables													

L.		0.403	0.438	0.458	0.429	0.561	0.493	0.463	0.458	0.53	0.496	0.408	0.445
		(4.58)**	(3.82)**	(5.45)**	(3.95)**	(12.27)**	(6.58)**	(4.56)**	(4.86)**	(9.50)**	(8.26)**	(3.84)**	(4.34)**
log(schooling years in	Exogenous	-0.159	-0.127	-0.142	-0.105	-0.13	-0.137	-0.182	-0.15	-0.184	-0.133	-0.249	-0.16
the initial years)		(2.15)*	(1.63)	(2.29)*	(1.31)	(2.82)**	(2.63)**	(2.13)*	(2.52)*	(5.93)**	(2.56)*	(3.50)**	(2.61)**
log(GDP deflator)	Exogenous	-0.001	-0.014	0.001	-0.013	-0.013	-0.028	0.028	-0.01	-0.002	-0.018	0.041	-0.004
		(0.03)	(0.26)	(0.03)	(0.26)	(0.27)	(0.58)	(0.53)	(0.24)	(0.04)	(0.40)	(0.75)	(0.10)
log(private credit/GDP)	**Endogenous**	**0.019**	**0.084**	-	-	-	-	-	-	-	-	-	-
		(0.23)	**(0.87)**	-	-	-	-	-	-	-	-	-	-
predicted log(private credit/GDP)	**Endogenous**	-	-	**0.059**	**0.109**	-	-	-	-	-	-	-	-
		-	-	**(0.86)**	**(1.05)**	-	-	-	-	-	-	-	-
log(private credit by	**Endogenous**	-	-	-	-	**0.084**	**0.001**	-	-	-	-	-	-
banks/GDP)		-	-	-	-	**(1.40)**	**(0.01)**	-	-	-	-	-	-
predicted log(private credit by	**Endogenous**	-	-	-	-	-	-	**0.051**	**-0.01**	-	-	-	-
Banks/GDP)		-	-	-	-	-	-	**(0.74)**	**(0.08)**	-	-	-	-
log(financial system	**Endogenous**	-	-	-	-	-	-	-	-	**-0.019**	**-0.029**	-	-
deposit/GDP)		-	-	-	-	-	-	-	-	**(0.14)**	**(0.35)**	-	-
predicted log(financial system	**Endogenous**	-	-	-	-	-	-	-	-	-	-	**-0.08**	**-0.09**
deposit/GDP)		-	-	-	-	-	-	-	-	-	-	**(0.57)**	**(0.79)**
log[(Export+Import)/GDP]	**Endogenous**	0.035	-0.151	-0.018	-0.201	-0.022	0.002	0.123	0.058	0.092	0.027	0.282	0.128
		(0.16)	(0.87)	(0.10)	(1.23)	(0.15)	(0.01)	(0.59)	(0.35)	(0.69)	(0.21)	(1.39)	(0.80)
Constant		1.067	0.681	0.796	0.564	0.94	1.005	1.085	1.046	0.938	0.937	1.13	1.014
		(2.11)*	(1.11)	(1.69)	(0.91)	(4.90)	(5.18)	(3.81)	(4.76)	(4.01)	(5.77)	(4.29)	(4.69)
Observations		33	33	32	32	29	29	28	28	30	30	28	28
Number of Countries		8	8	8	8	6	6	6	6	7	7	6	6
Arellano-Bond Tes for Serial Correlation (Z, Probb>z)													
m 2		(-1.00)	(-0.92)	(-1.00)	(-0.88)	(-1.00)	(-0.92)	(-1.38)	(-1.03)	(-1.08)	(-0.95)	(-1.41)	(-1.07)
Sargan Test of overidentifying restrictions													
Ho: overidentifying restrictions are valid													
		chi2(24)=	chi2(38)=	chi2(24)=	chi2(38)=	chi2(23)=	chi2(36)=	chi2(22)=	chi2(35)=	chi2(23)=	chi2(36)=	chi2(22)=	chi2(35)=
		40.83*	49.69	41.02*	50.28	35	45.73	35.57*	45.16	36.42*	43.65	36.35*	45.26
Prob>Chi2		0.02	0.1	0.02	0.09	0.052	0.13	0.03	0.12	0.041	0.18	0.03	0.11

1. Absolute value of z statistics in parentheses. 2. * significant at 5%; ** significant at 1% (based on robust estimators)3. Blundell and Bond (1998) GMM one-step estimator is applied for all the cases.

Appendix 3 Results for the Undernourishment Equation- *Without Agricultural Productivity*

(1) Fixed or Random Effects Model (Dependent Variable: Undernourishment) (without agricultural productivity)

Dep. Variable	Case 1 Under-Nourishment	Case 2 Under-nourishment	Case 3 Under-nourishment	Case 4 Under-nourishment	Case 5 Under-nourishment	Case 6 Under-nourishment	Case 7 Under-nourishment	Case 8 Under-nourishment	Case 9 Under-nourishment	Case 10 Under-nourishment	Case 11 Under-nourishment	Case12 Under-Nourishment
	Fixed	Random	Fixed	Random	Fixed	Random	Fixed	Random	Fixed	Random	Fixed	Random
Explanatory Variables												
log(schooling years in the initial years)	-	0.002 (0.01)	-	0.002 (0.01)	-	0.231 (1.14)	-	0.247 (1.20)	-	0.15 (0.82)	-	0.172 (0.91)
log(GDP deflator)	-0.097 (1.24)	-0.111 (1.38)	-0.08 (1.00)	-0.103 (1.24)	0.062 (0.48)	0.201 (1.01)	0.062 (0.47)	0.219 (1.05)	0.044 (0.37)	0.228 (1.24)	0.04 (0.33)	0.251 (1.32)
log(private credit/GDP)	**-0.007 (0.06)**	**-0.043 (0.34)**	-	-	-	-	-	-	-	-	-	-
predicted log(private credit/GDP)	-	-	**-0.062 (0.45)**	**-0.077 (0.52)**	-	-	-	-	-	-	-	-
log(private credit by banks/GDP)	-	-	-	-	**-0.016 (0.08)**	**-0.169 (0.53)**	-	-	-	-	-	-
predicted log(private credit by banks/GDP)	-	-	-	-	-	-	**-0.018 (0.09)**	**-0.175 (0.52)**	-	-	-	-
log(financial system deposit/GDP)	-	-	-	-	-	-	-	-	**-0.09 (1.99)**	**-0.005 (0.06)**	-	-
predicted log(financial system deposit/GDP)	-	-	-	-	-	-	-	-	-	-	**-0.108 (2.15)***	**-0.009 (0.10)**
log[(Export+Import)/GDP]	-0.077 (0.43)	-0.231 (1.39)	0.02 (0.10)	-0.205 (1.08)	0.457 (1.70)	-0.652 (2.93)**	0.456 (1.64)	-0.639 (2.83)**	0.538 (2.11)*	-0.599 (2.60)**	0.573 (2.17)*	-0.584 (2.42)*
log(Population Growth)	0.276 (0.78)	0.166 (0.46)	0.296 (0.84)	0.149 (0.40)	0.116 (0.20)	-1.457 (1.39)	0.118 (0.20)	-1.442 (1.36)	0.022 (0.04)	-1.849 (1.99)*	-0.033 (0.06)	-1.825 (1.94)
log (Dependency Burden)	0.924 (1.44)	0.763 (1.16)	0.905 (1.43)	0.743 (1.12)	1.796 (1.74)	1.901 (1.01)	1.788 (1.69)	1.864 (0.98)	1.845 (2.21)*	2.693 (1.74)	1.909 (2.26)*	2.638 (1.69)
Constant	4.49 (3.00)	4.033 (2.61)	4.792 (3.14)	4.085 (2.56)*	4.016 (2.04)*	-3.255 (1.01)	3.993 (2.00)	-3.264 (1.00)	3.714 (1.99)	-4.31 (1.46)	3.506 (1.86)	-4.303 (1.44)
Observations	53	53	52	52	43	43	42	42	45	45	44	44
Number of Countries	8	8	8	8	7	7	7	7	7	7	7	7
R square	0.07	0.25	0.03	0.26	0.03	0.5	0.04	0.51	0.04	0.51	0.04	0.51
Hausman Test for fixed and random effects model	$chi^2(5)$= 5.22	In favour of Random Effects	$chi^2(5)$= 6.69	In favour of Random Effects	$chi^2(5)$= 20.78	In favour of Fixed Effects	$chi^2(5)$= 11.04	In favour of Random Effects	$chi^2(5)$= 31.03	In favour of Fixed Effects	$chi^2(5)$= 28.06	In favour of Fixed Effects

Absolute value of t statistics in parentheses
*** significant at 5%; ** significant at 1%**

(2) Blundell and Bond (1998) GMM estimation (Dependent Variable: Undernourishment) (without agricultural productivity)

Dep. Variable	Whether Endogenous or exogenous in Cases 2, 4, 6, 8, 10 & 12.	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Case 11	Case 12
		Without Endogenous Regressors Undernourishment	With Endogenous Regressors Undernourishment	Without Endogenous Regressors Undernourishment	With Endogenous Regressors Undernourishment	Without endogenous regressors Undernourishment	With endogenous regressors Undernourishment	Without endogenous regressors Undernourishment	With endogenous Regressors Undernourishment	Without endogenous regressors Undernourishment	With endogenous regressors Undernourishment	Without endogenous regressors Undernourishment	With endogenous Regressors Undernourishment

Explanatory Variables													
L.		0.661	0.93	0.672	0.935	1.016	0.976	1.006	0.969	0.93	0.996	0.925	0.992
		(5.43)**	(22.02)**	(5.27)**	(22.99)**	(7.57)**	(40.15)**	(7.29)**	(40.66)**	(6.48)**	(32.06)**	(6.16)**	(29.70)**
log(schooling years in the initial years)	Exogenous	-0.475	0.027	-0.463	0.015	0.248	0.022	0.256	0.013	0.218	0.02	0.23	0.017
		(0.88)	(0.35)	(0.83)	(0.19)	(1.11)	(0.34)	(1.08)	(0.18)	(1.04)	(0.31)	(1.09)	(0.24)
log(GDP deflator)	Exogenous	-0.094	-0.104	-0.086	-0.099	-0.075	-0.05	-0.076	-0.053	-0.072	-0.048	-0.073	-0.044
		(1.84)	(2.83)**	(2.12)*	(2.91)**	(3.54)**	(1.77)	(3.13)**	(1.67)	(2.30)*	(1.81)	(2.53)*	(1.48)
log(private credit/GDP)	Endogenous	**-0.397**	**-0.276**	-	-	-	-	-	-	-	-	-	-
		(4.88)**	**(8.79)****	-	-	-	-	-	-	-	-	-	-
predicted log(private credit/GDP)	Endogenous	-	-	**-0.415**	**-0.287**	-	-	-	-	-	-	-	-
		-	-	**(5.05)****	**(6.48)****	-	-	-	-	-	-	-	-
log(private credit by banks/GDP)	Endogenous	-	-	-	-	**-0.186**	**-0.078**	-	-	-	-	-	-
		-	-	-	-	**(2.44)***	**(1.01)**	-	-	-	-	-	-
predicted log(private credit by banks/GDP)	Endogenous	-	-	-	-	-	-	**-0.193**	**-0.08**	-	-	-	-
		-	-	-	-	-	-	**(2.57)***	**(1.03)**	-	-	-	-
log(financial system deposit/GDP)	Endogenous	-	-	-	-	-	-	-	-	**-0.034**	**-0.012**	-	-
		-	-	-	-	-	-	-	-	**(1.02)**	**(1.08)**	-	-
predicted log(financial system deposit/GDP)	Endogenous	-	-	-	-	-	-	-	-	-	-	**-0.05**	**-0.01**
		-	-	-	-	-	-	-	-	-	-	**(1.25)**	**(0.37)**
log[(Export+Import)/GDP]	Endogenous	0.471	-0.009	0.479	0.008	-0.106	-0.074	-0.105	-0.077	-0.179	-0.063	-0.171	-0.055
		(1.19)	(0.13)	(1.18)	(0.11)	(1.37)	(1.19)	(1.35)	(1.20)	(1.92)	(1.04)	(1.61)	(0.79)
log(Population Growth)	Exogenous	0.702	0.325	0.631	0.302	0.778	0.552	0.746	0.551	0.591	0.446	0.54	0.424
		(0.96)	(1.14)	(0.91)	(1.07)	(4.11)**	(3.10)**	(3.98)**	(2.86)**	(2.07)*	(1.74)	(2.03)*	(1.56)
log (Dependency Burden)	Exogenous	-0.623	-0.937	-0.593	-0.917	-1.935	-1.065	-1.887	-1.061	-1.417	-0.789	-1.372	-0.737
		(1.40)	(1.89)	(1.31)	(1.82)	(3.71)**	(4.68)**	(3.57)**	(4.28)**	(2.34)*	(2.31)*	(2.20)*	(2.07)*
Constant		5.748	2.198	5.489	2.151	1.9	1.678	1.804	1.706	1.738	1.377	1.544	1.323
		(1.49)	(2.34)*	(1.48)	(2.31)*	(2.06)*	(2.68)	(2.07)*	(2.51)*	(1.35)	(1.63)	(1.26)	(1.47)
Observations		47	47	47	47	38	38	37	37	39	39	38	38
Number of Countries		8	8	8	8	7	7	7	7	7	7	7	7
Arellano-Bond Tes for Serial Correlation (Z, Prob>z)*m 2*		(0.37)	(-0.16)	(0.55)	(0.07)	(-1.11)	(-1.23)	(-1.12)	(-1.21)	(-0.99)	(-1.39)	(-1.00)	(-1.44)
Sargan Test of overidentifying restrictions		chi2(18)=	chi2(61)=	chi2(18)=	chi2(61)=	chi2(18)=	chi2(53)=	chi2(18)=	chi2(52)=	chi2(18)=	chi2(54)=	chi2(18)=	chi2(53)=
Ho: overidentifying restrictions are valid		39.10**	83.6*	37.83**	82.65*	25.29	52.02	25.87	52.31	25.06	53.47	25.36	53.98
Prob>Chi2		0.003	0.03	0.004	0.03	0.12	0.51	0.103	0.46	0.12	0.49	0.12	0.44

1. Absolute value of z statistics in parentheses. 2. * significant at 5%; ** significant at 1% (based on robust estimators)3. Blundell and Bond (1998) GMM one-step estimator is applied for all the cases.

Appendix 4 Results of VAR Models for GDP per capita (or Agricultural Value Added per capita) and Finance

Bangladesh

	GDP per capita	Coef.	z			Agricultural VA per capita	Coef.	z	
Model1	log(private credit/GDP)				Model1	log(private credit/GDP)			
	log(private credit/GDP)					log(private credit/GDP)			
	L1.	0.748	(5.20)	**		L1.	0.992	(7.36)	**
	L2.	-0.091	(-0.59)			L2.	-0.358	(-2.59)	*
	L3.	0.157	(1.56)			L3.	0.281	(3.14)	**
	log(GDP pc)					log(Agricultural Value Added pc)			
	L1.	-0.600	(-0.50)			L1.	0.695	(1.35)	
	L2.	-1.710	(-1.28)			L2.	-1.645	(-2.84)	**
	L3.	2.926	(3.16)	**		L3.	1.648	(3.28)	**
	constant	-2.789	(-2.50)	*		constant	-2.701	(-1.95)	
	log(GDP pc)					log(Agricultural Value Added pc)			
	log(private credit/GDP)					log(private credit/GDP)			
	L1.	0.017	(0.98)			L1.	0.069	(1.70)	
	L2.	0.032	(1.69)			L2.	0.023	(0.54)	
	L3.	-0.049	(-4.00)	**		L3.	-0.066	(-2.44)	*
	log(GDP pc)					log(Agricultural Value Added pc)			
	L1.	0.901	(6.06)	**		L1.	0.811	(5.20)	**
	L2.	0.031	(0.19)			L2.	0.139	(0.79)	
	L3.	0.156	(1.37)			L3.	-0.058	(-0.38)	
	constant	-0.465	(-3.40)	**		constant	0.397	(0.95)	
Model2	logprivate credit by deposite money/GDP)				Model2	logprivate credit by deposite money/GDP)			
	logprivate credit by deposite money/GDP)					logprivate credit by deposite money/GDP)			
	L1.	0.887	(2.63)	*		L1.	0.961	(2.63)	
	L2.	-0.685	(-2.73)	**		L2.	-0.248	(-0.83)	*
	log(GDP pc)					log(Agricultural Value Added pc)			
	L1.	0.767	(0.53)			L1.	1.155	(3.38)	
	L2.	0.610	(0.37)			L2.	0.076	(0.13)	**
	constant	-9.114	(-2.83)	**		constant	-5.779	(-2.86)	**
	log(GDP pc)					log(Agricultural Value Added pc)			
	logprivate credit by deposite money/GDP)					logprivate credit by deposite money/GDP)			
	L1.	-0.160	(-5.41)	**		L1.	-0.655	(-3.99)	
	L2.	0.186	(8.44)	**		L2.	0.672	(4.99)	**
	log(GDP pc)					log(Agricultural Value Added pc)			**
	L1.	0.733	(5.73)	**		L1.	0.514	(3.34)	
	L2.	0.331	(2.28)	*		L2.	0.486	(1.89)	**
	constant	-0.283	(-1.00)			constant	0.077	(0.08)	
Model3	log(financial system deposit/GDP)				Model3	log(financial system deposit/GDP)			
	log(financial system deposit/GDP)					log(financial system deposit/GDP)			
	L1.	1.374	(4.84)	**		L1.	1.247	(4.04)	
	L2.	-0.863	(-4.12)	**		L2.	-0.533	(-2.74)	**
	log(GDP pc)					log(Agricultural Value Added pc)			**
	L1.	4.133	(1.20)			L1.	2.672	(4.58)	
	L2.	-3.068	(-0.75)			L2.	-1.112	(-0.95)	**
	constant	-6.855	(-1.13)			constant	-7.158	(-1.60)	
	log(GDP pc)					log(Agricultural Value Added pc)			
	log(financial system deposit/GDP)					log(financial system deposit/GDP)			
	L1.	-0.078	(-4.90)	**		L1.	-0.267	(-2.29)	

L2.	0.062	(5.34)	**	L2.	0.228	(3.11)	*
log(GDP pc)				log(Agricultural Value Added pc)			**
L1.	0.616	(3.21)	**	L1.	0.669	(3.03)	
L2.	0.524	(2.31)	*	L2.	0.471	(1.06)	**
constant	-0.778	(-2.29)	*	constant	-0.611	(-0.36)	

China

GDP per capita				Agricultural VA per capita			
	Coef.	z			Coef.	z	
log(private credit/GDP)				log(private credit/GDP)			
log(private credit/GDP)				log(private credit/GDP)			
L1.	0.933	(4.90)	**	L1.	0.591	(3.10)	**
L2.	-0.431	(-1.64)		L2.	-0.432	(-2.13)	*
L3.	0.171	(0.84)		L3.	0.045	(0.28)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	-0.070	(-0.15)		L1.	-0.280	(-0.92)	
L2.	0.235	(0.29)		L2.	0.590	(1.33)	
L3.	-0.053	(-0.11)		L3.	0.461	(1.20)	
constant	0.790	(2.18)	*	constant	-0.034	(-0.19)	
log(GDP pc)				log(Agricultural Value Added pc)			
log(private credit/GDP)				log(private credit/GDP)			
L1.	0.078	(1.10)		L1.	0.024	(0.20)	
L2.	-0.057	(-0.58)		L2.	0.028	(0.22)	
L3.	0.016	(0.20)		L3.	0.063	(0.62)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	1.795	(10.37)	**	L1.	1.053	(5.48)	**
L2.	-1.259	(-4.21)	**	L2.	-0.046	(-0.16)	
L3.	0.451	(2.61)	*	L3.	-0.148	(-0.61)	
constant	-0.031	(-0.23)		constant	0.176	(1.56)	

India

GDP per capita				Agricultural VA per capita			
	Coef.	z			Coef.	z	
log(private credit/GDP)				log(private credit/GDP)			
log(private credit/GDP)				log(private credit/GDP)			
L1.	1.141	(7.52)	**	L1.	1.173	(7.82)	**
L2.	-0.030	(-0.13)		L2.	0.002	(0.01)	
L3.	-0.172	(-1.15)		L3.	-0.225	(-1.47)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	0.758	(2.26)	*	L1.	0.536	(3.08)	**
L2.	-0.567	(-1.23)		L2.	-0.124	(-0.64)	
L3.	-0.158	(-0.43)		L3.	-0.232	(-1.25)	
constant	0.000	(0.00)		constant	-0.633	(-1.22)	
log(GDP pc)				log(Agricultural Value Added pc)			
log(private credit/GDP)				log(private credit/GDP)			
L1.	-0.047	(-0.71)		L1.	-0.151	(-1.20)	
L2.	0.178	(1.78)		L2.	0.336	(1.72)	
L3.	-0.123	(-1.89)		L3.	-0.148	(-1.15)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	0.857	(5.85)	**	L1.	0.335	(2.29)	*
L2.	0.089	(0.44)		L2.	0.372	(2.29)	*
L3.	0.104	(0.65)		L3.	0.206	(1.31)	
constant	-0.274	(-2.96)	**	constant	0.284	(0.65)	

logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			
logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			
L1.	1.601	(8.86)	**	L1.	1.584	(8.63)	**
L2.	-1.040	(-3.45)	**	L2.	-1.030	(-3.40)	**
L3.	0.316	(1.74)		L3.	0.342	(1.86)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	-0.166	(-0.12)		L1.	-0.252	(-0.37)	
L2.	2.023	(1.02)		L2.	0.032	(0.05)	
L3.	-2.091	(-1.43)		L3.	-0.555	(-0.83)	
constant	1.163	(1.33)		constant	3.366	(1.66)	
log(GDP pc)				log(Agricultural Value Added pc)			
logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			
L1.	0.005	(0.22)		L1.	-0.050	(-0.94)	
L2.	0.022	(0.52)		L2.	0.140	(1.60)	
L3.	-0.034	(-1.33)		L3.	-0.084	(-1.58)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	0.980	(4.95)	**	L1.	0.409	(2.07)	*
L2.	0.058	(0.21)		L2.	0.493	(2.76)	**
L3.	0.027	(0.13)		L3.	0.106	(0.55)	
constant	-0.347	(-2.87)	**	constant	-0.012	(-0.02)	
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
L1.	1.155	(6.73)	**	L1.	1.026	(6.32)	**
L2.	-0.220	(-0.90)		L2.	-0.022	(-0.09)	
L3.	0.045	(0.30)		L3.	-0.010	(-0.06)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	-15.457	(-3.77)	**	L1.	-8.088	(-3.53)	**
L2.	16.587	(2.78)	**	L2.	2.343	(0.98)	
L3.	-0.776	(-0.15)		L3.	4.219	(1.69)	
constant	-1.476	(-0.41)		constant	7.045	(0.85)	
log(GDP pc)				log(Agricultural Value Added pc)			
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
L1.	0.005	(0.74)		L1.	0.011	(0.92)	
L2.	-0.006	(-0.55)		L2.	-0.010	(-0.58)	
L3.	0.003	(0.53)		L3.	0.008	(0.73)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	0.763	(4.44)	**	L1.	0.193	(1.18)	
L2.	0.211	(0.84)		L2.	0.399	(2.33)	*
L3.	0.069	(0.32)		L3.	0.217	(1.22)	
constant	-0.192	(-1.27)		constant	0.894	(1.51)	

Indonesia

GDP per capita				Agricultural VA per capita			
	Coef.	z			Coef.	z	
log(private credit/GDP)				log(private credit/GDP)			
log(private credit/GDP)				log(private credit/GDP)			
L1.	0.787	(3.65)	**	L1.	0.844	(4.25)	**
L2.	0.020	(0.10)		L2.	0.044	(0.17)	
L3.	0.029	(0.34)		L3.	0.010	(0.07)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	4.196	(10.14)	**	L1.	7.276	(4.37)	**

L2.	-4.161	(-3.97)	**	L2.	-4.836	(-1.86)	
L3.	-0.145	(-0.14)		L3.	-3.068	(-1.37)	
constant	1.154	(2.19)	*	constant	3.244	(1.65)	
log(GDP pc)				log(Agricultural Value Added pc)			
log(private credit/GDP)				log(private credit/GDP)			
L1.	-0.042	(-0.41)		L1.	0.021	(1.05)	
L2.	0.044	(0.48)		L2.	-0.030	(-1.17)	
L3.	-0.015	(-0.38)		L3.	-0.001	(-0.09)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	1.240	(6.34)	**	L1.	0.981	(5.80)	**
L2.	-0.218	(-0.44)		L2.	-0.591	(-2.24)	*
L3.	-0.064	(-0.13)		L3.	0.621	(2.73)	**
constant	0.339	(1.36)		constant	0.003	(0.02)	
logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			
logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			
L1.	1.376	(9.38)	**	L1.	1.382	(9.08)	**
L2.	-0.246	(-0.98)		L2.	-0.268	(-1.03)	
L3.	-0.151	(-0.95)		L3.	-0.151	(-0.91)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	0.126	(0.72)		L1.	0.166	(0.60)	
L2.	-0.410	(-1.56)		L2.	-0.179	(-0.58)	
L3.	0.302	(1.89)		L3.	0.091	(0.37)	
constant	-0.129	(-0.49)		constant	-0.407	(-0.77)	
log(GDP pc)				log(Agricultural Value Added pc)			
logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			
L1.	-0.108	(-0.85)		L1.	-0.058	(-0.69)	
L2.	0.241	(1.12)		L2.	0.121	(0.85)	
L3.	-0.042	(-0.30)		L3.	0.019	(0.21)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	1.196	(7.86)	**	L1.	0.626	(4.12)	**
L2.	-0.310	(-1.37)		L2.	0.192	(1.12)	
L3.	0.047	(0.34)		L3.	0.024	(0.18)	
constant	0.595	(2.59)	*	constant	0.889	(3.07)	**
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
L1.	1.377	(9.47)	**	L1.	1.381	(9.30)	**
L2.	-0.277	(-1.13)		L2.	-0.284	(-1.12)	
L3.	-0.188	(-1.24)		L3.	-0.191	(-1.18)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	0.249	(1.60)		L1.	0.165	(0.66)	
L2.	-0.385	(-1.63)		L2.	-0.005	(-0.02)	
L3.	0.211	(1.45)		L3.	0.055	(0.25)	
constant	-0.569	(-1.68)		constant	-1.114	(-1.47)	
log(GDP pc)				log(Agricultural Value Added pc)			
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
L1.	-0.198	(-1.51)		L1.	-0.020	(-0.23)	
L2.	0.574	(2.59)	*	L2.	0.233	(1.55)	
L3.	-0.310	(-2.26)	*	L3.	-0.137	(-1.43)	

log(GDP pc)				log(Agricultural Value Added pc)			
L1.	1.248	(8.86)	**	L1.	0.627	(4.25)	**
L2.	-0.294	(-1.38)		L2.	0.203	(1.20)	
L3.	-0.019	(-0.14)		L3.	-0.019	(-0.15)	
constant	0.511	(1.67)		constant	0.997	(2.22)	*

Malaysia

GDP per capita				Agricultural VA per capita			
	Coef.	z			Coef.	z	
log(private credit/GDP)				log(private credit/GDP)			
log(private credit/GDP)				log(private credit/GDP)			
L1.	0.989	(6.75)	**	L1.	0.867	(5.52)	**
L2.	-0.242	(-1.20)		L2.	-0.288	(-1.36)	
L3.	0.252	(1.67)		L3.	0.241	(1.65)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	0.661	(0.98)		L1.	-1.271	(-1.54)	
L2.	-0.014	(-0.01)		L2.	0.229	(0.23)	
L3.	-0.753	(-1.08)		L3.	1.272	(1.69)	
constant	0.819	(0.78)		constant	-0.487	(-0.24)	
log(GDP pc)				log(Agricultural Value Added pc)			
log(private credit/GDP)				log(private credit/GDP)			
L1.	-0.002	(-0.07)		L1.	-0.031	(-1.02)	
L2.	-0.012	(-0.26)		L2.	-0.054	(-1.32)	
L3.	0.022	(0.65)		L3.	0.053	(1.85)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	1.134	(7.60)	**	L1.	0.662	(4.14)	**
L2.	-0.280	(-1.24)		L2.	-0.002	(-0.01)	
L3.	0.122	(0.79)		L3.	0.161	(1.10)	
constant	0.186	(0.81)		constant	1.215	(3.03)	**
logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			
logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			
L1.	1.283	(8.28)	**	L1.	1.246	(7.59)	**
L2.	-0.378	(-1.58)		L2.	-0.614	(-2.47)	*
L3.	0.066	(0.48)		L3.	0.289	(1.86)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	0.976	(2.74)	**	L1.	0.255	(0.55)	
L2.	-0.298	(-0.51)		L2.	-0.737	(-1.34)	
L3.	-0.667	(-1.67)		L3.	0.734	(1.74)	
constant	-0.123	(-0.16)		constant	-1.474	(-1.32)	
log(GDP pc)				log(Agricultural Value Added pc)			
logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			
L1.	-0.050	(-0.71)		L1.	-0.081	(-1.31)	
L2.	0.057	(0.52)		L2.	0.036	(0.38)	
L3.	0.007	(0.11)		L3.	0.011	(0.19)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	1.079	(6.63)	**	L1.	0.632	(3.63)	**
L2.	-0.172	(-0.64)		L2.	0.015	(0.07)	
L3.	0.059	(0.32)		L3.	0.169	(1.06)	
constant	0.308	(0.87)		constant	1.092	(2.59)	*

log(financial system deposit/GDP)				log(financial system deposit/GDP)			
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
L1.	1.272	(8.34)	**	L1.	1.176	(7.29)	**
L2.	-0.638	(-2.77)	**	L2.	-0.627	(-2.69)	**
L3.	0.262	(1.76)		L3.	0.324	(2.19)	*
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	0.550	(1.03)		L1.	0.320	(0.52)	
L2.	-0.410	(-0.50)		L2.	-0.882	(-1.15)	
L3.	-0.051	(-0.09)		L3.	0.458	(0.81)	
constant	-0.710	(-1.01)		constant	0.627	(0.40)	
log(GDP pc)				log(Agricultural Value Added pc)			
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
L1.	-0.013	(-0.29)		L1.	-0.069	(-1.51)	
L2.	0.025	(0.36)		L2.	0.075	(1.12)	
L3.	0.000	(0.00)		L3.	-0.032	(-0.77)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	1.115	(7.03)	**	L1.	0.782	(4.50)	**
L2.	-0.246	(-1.02)		L2.	0.021	(0.10)	
L3.	0.109	(0.68)		L3.	0.022	(0.14)	
constant	0.212	(1.02)		constant	1.030	(2.30)	*

Pakistan

GDP per capita				Agricultural VA per capita			
	Coef.	z			Coef.	z	
log(private credit/GDP)				log(private credit/GDP)			
log(private credit/GDP)				log(private credit/GDP)			
L1.	0.808	(5.57)	**	L1.	0.864	(5.66)	**
L2.	-0.281	(-1.51)		L2.	-0.241	(-1.25)	
L3.	0.035	(0.28)		L3.	-0.002	(-0.02)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	0.591	(1.26)		L1.	-0.083	(-0.27)	
L2.	0.252	(0.37)		L2.	0.040	(0.11)	
L3.	-0.794	(-1.76)		L3.	0.070	(0.23)	
constant	1.086	(3.91)	**	constant	1.092	(2.53)	*
log(GDP pc)				log(Agricultural Value Added pc)			
log(private credit/GDP)				log(private credit/GDP)			
L1.	0.068	(1.49)		L1.	0.072	(0.94)	
L2.	-0.024	(-0.41)		L2.	-0.013	(-0.14)	
L3.	-0.048	(-1.24)		L3.	-0.015	(-0.24)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	1.038	(6.97)	**	L1.	0.701	(4.64)	**
L2.	0.027	(0.13)		L2.	0.220	(1.21)	
L3.	-0.072	(-0.50)		L3.	0.043	(0.28)	
constant	0.071	(0.81)		constant	0.039	(0.18)	
logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			
logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			
L1.	1.134	(8.02)	**	L1.	1.193	(8.07)	**
L2.	-0.514	(-2.50)	*	L2.	-0.544	(-2.51)	*

L3.	0.111	(0.92)		L3.	0.109	(0.87)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	0.286	(0.81)		L1.	0.133	(0.56)	
L2.	0.487	(0.93)		L2.	-0.034	(-0.12)	
L3.	-0.712	(-2.00)	*	L3.	-0.021	(-0.09)	
constant	-0.789	(-3.00)	**	constant	-0.724	(-1.69)	
log(GDP pc)				log(Agricultural Value Added pc)			
logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			
L1.	0.010	(0.16)		L1.	0.035	(0.37)	
L2.	0.010	(0.12)		L2.	0.046	(0.34)	
L3.	-0.046	(-0.92)		L3.	-0.056	(-0.71)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	1.058	(7.18)	**	L1.	0.716	(4.78)	**
L2.	0.003	(0.01)		L2.	0.209	(1.15)	
L3.	-0.060	(-0.41)		L3.	0.040	(0.27)	
constant	-0.023	(-0.21)		constant	0.215	(0.79)	
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
L1.	1.292	(9.33)	**	L1.	1.261	(9.21)	**
L2.	-0.865	(-4.41)	**	L2.	-0.842	(-4.37)	**
L3.	0.311	(2.43)	*	L3.	0.290	(2.36)	*
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	0.078	(0.21)		L1.	0.314	(1.39)	
L2.	0.438	(0.81)		L2.	0.055	(0.19)	
L3.	-0.423	(-1.14)		L3.	-0.111	(-0.49)	
constant	-0.893	(-2.52)	*	constant	-1.563	(-2.66)	*
log(GDP pc)				log(Agricultural Value Added pc)			
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
L1.	-0.038	(-0.67)		L1.	-0.088	(-0.98)	
L2.	0.052	(0.65)		L2.	0.189	(1.50)	
L3.	-0.060	(-1.15)		L3.	-0.113	(-1.41)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	1.052	(6.92)	**	L1.	0.739	(5.01)	**
L2.	0.004	(0.02)		L2.	0.252	(1.38)	
L3.	-0.050	(-0.33)		L3.	-0.009	(-0.06)	
constant	-0.076	(-0.52)		constant	0.078	(0.20)	

Philippines

GDP per capita				Agricultural VA per capita			
	Coef.	z			Coef.	z	
log(private credit/GDP)				log(private credit/GDP)			
log(private credit/GDP)				log(private credit/GDP)			
L1.	1.114	(7.86)	**	L1.	1.225	(8.71)	**
L2.	0.083	(0.39)		L2.	-0.104	(-0.47)	
L3.	-0.402	(-3.07)	**	L3.	-0.277	(-2.19)	*
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	1.924	(3.49)	**	L1.	1.210	(2.27)	*
L2.	-2.923	(-3.11)	**	L2.	-1.210	(-1.69)	
L3.	1.170	(1.97)	*	L3.	0.032	(0.06)	
constant	-0.461	(-0.63)		constant	0.375	(0.26)	

log(GDP pc)				log(Agricultural Value Added pc)			
log(private credit/GDP)				log(private credit/GDP)			
L1.	0.019	(0.47)		L1.	0.013	(0.32)	
L2.	-0.083	(-1.42)		L2.	-0.061	(-0.97)	
L3.	0.064	(1.79)		L3.	0.042	(1.19)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	1.517	(9.99)	**	L1.	0.877	(5.85)	**
L2.	-0.634	(-2.45)	*	L2.	-0.070	(-0.35)	
L3.	0.076	(0.47)		L3.	0.035	(0.23)	
constant	0.279	(1.38)		constant	0.829	(2.08)	*

logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			
logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			
L1.	1.651	(11.00)	**	L1.	1.821	(12.33)	**
L2.	-0.796	(-3.20)	**	L2.	-1.079	(-4.17)	**
L3.	0.009	(0.07)		L3.	0.173	(1.27)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	1.335	(4.36)	**	L1.	0.774	(2.39)	*
L2.	-1.708	(-3.17)	**	L2.	-0.849	(-1.91)	
L3.	0.522	(1.52)		L3.	0.122	(0.37)	
constant	-1.186	(-2.07)	*	constant	-0.345	(-0.39)	

log(GDP pc)				log(Agricultural Value Added pc)			
logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			
L1.	0.125	(1.79)		L1.	0.111	(1.71)	
L2.	-0.250	(-2.16)	*	L2.	-0.251	(-2.21)	*
L3.	0.142	(2.33)	*	L3.	0.143	(2.39)	*
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	1.505	(10.59)	**	L1.	0.868	(6.09)	**
L2.	-0.804	(-3.22)	**	L2.	-0.153	(-0.78)	
L3.	0.239	(1.50)		L3.	0.117	(0.80)	
constant	0.436	(1.64)		constant	0.867	(2.23)	*

log(financial system deposit/GDP)				log(financial system deposit/GDP)			
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
L1.	1.623	(11.30)	**	L1.	1.682	(11.78)	**
L2.	-0.809	(-3.22)	**	L2.	-0.899	(-3.58)	**
L3.	0.165	(1.15)		L3.	0.215	(1.52)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	0.315	(1.22)		L1.	0.171	(0.71)	
L2.	-0.304	(-0.71)		L2.	-0.425	(-1.33)	
L3.	0.070	(0.27)		L3.	0.289	(1.26)	
constant	-0.561	(-1.13)		constant	-0.169	(-0.25)	

log(GDP pc)				log(Agricultural Value Added pc)			
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
L1.	0.088	(1.12)		L1.	0.099	(1.18)	
L2.	-0.256	(-1.87)		L2.	-0.319	(-2.16)	*
L3.	0.191	(2.45)	*	L3.	0.213	(2.56)	*
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	1.485	(10.60)	**	L1.	0.872	(6.15)	**
L2.	-0.715	(-3.05)	**	L2.	-0.113	(-0.60)	

L3.	0.143	(1.04)		L3.	0.047	(0.35)	
constant	0.631	(2.35)	*	constant	0.993	(2.52)	*
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
L1.	1.623	(11.30)	**	L1.	1.682	11.78	
L2.	-0.809	(-3.22)	**	L2.	-0.899	-3.58	
L3.	0.165	(1.15)		L3.	0.215	1.52	
log(GDP pc)				logagrigdppc			
L1.	0.315	(1.22)		L1.	0.171	0.71	
L2.	-0.304	(-0.71)		L2.	-0.425	-1.33	
L3.	0.070	(0.27)		L3.	0.289	1.26	
constant	-0.561	(-1.13)		_cons	-0.169	-0.25	
log(GDP pc)				logagrigdppc			
log(financial system deposit/GDP)				logfd			
L1.	0.088	(1.12)		L1.	0.099	1.18	
L2.	-0.256	(-1.87)		L2.	-0.319	-2.16	
L3.	0.191	(2.45)	*	L3.	0.213	2.56	
log(GDP pc)				logagrigdppc			
L1.	1.485	(10.60)	**	L1.	0.872	6.15	
L2.	-0.715	(-3.05)	**	L2.	-0.113	-0.6	
L3.	0.143	(1.04)		L3.	0.047	0.35	
constant	0.631	(2.35)	*	_cons	0.993	2.52	

Thaiand

	GDP per capita				Agricultural VA per capita			
	Coef.	z			Coef.	z		
8	log(private credit/GDP)				log(private credit/GDP)			
	log(private credit/GDP)				log(private credit/GDP)			
	L1.	1.318	(8.97)	**	L1.	1.486	(9.64)	**
	L2.	-0.364	(-1.52)		L2.	-0.523	(-2.01)	*
	L3.	0.062	(0.42)		L3.	-0.049	(-0.32)	
	log(GDP pc)				log(Agricultural Value Added pc)			
	L1.	0.487	(1.72)		L1.	0.440	(2.10)	*
	L2.	0.207	(0.43)		L2.	-0.123	(-0.48)	
	L3.	-0.747	(-2.35)	*	L3.	-0.046	(-0.20)	
	constant	0.271	(0.84)		constant	-1.014	(-1.60)	
	log(GDP pc)				log(Agricultural Value Added pc)			
	log(private credit/GDP)				log(private credit/GDP)			
	L1.	-0.045	(-0.57)		L1.	0.024	(0.24)	
	L2.	0.085	(0.66)		L2.	-0.129	(-0.75)	
	L3.	-0.050	(-0.63)		L3.	0.109	(1.10)	
	log(GDP pc)				log(Agricultural Value Added pc)			
	L1.	1.528	(10.01)	**	L1.	0.522	(3.74)	**
	L2.	-0.663	(-2.54)	*	L2.	-0.015	(-0.09)	
	L3.	0.141	(0.83)		L3.	0.423	(2.83)	**
	constant	0.019	(0.11)		constant	0.368	(0.87)	
	logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			
	logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			

L1.	1.892	(11.86)	**	L1.	1.847	(11.52)	**
L2.	-1.235	(-4.59)	**	L2.	-1.165	(-4.09)	**
L3.	0.344	(2.45)	*	L3.	0.258	(1.63)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	0.937	(4.57)	**	L1.	0.293	(1.54)	
L2.	-0.987	(-2.42)	*	L2.	-0.141	(-0.64)	
L3.	0.025	(0.09)		L3.	0.011	(0.06)	
constant	0.150	(0.32)		constant	-0.848	(-1.15)	
log(GDP pc)				log(Agricultural Value Added pc)			
logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			
L1.	0.052	(0.40)		L1.	0.018	(0.14)	
L2.	-0.097	(-0.44)		L2.	-0.186	(-0.84)	
L3.	0.042	(0.37)		L3.	0.182	(1.47)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	1.527	(9.10)	**	L1.	0.541	(3.64)	**
L2.	-0.727	(-2.19)	*	L2.	-0.060	(-0.35)	
L3.	0.196	(0.90)		L3.	0.389	(2.59)	*
constant	0.055	(0.14)		constant	0.699	(1.22)	
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
L1.	1.708	(8.22)	**	L1.	1.559	(9.87)	**
L2.	-1.232	(-3.40)	**	L2.	-0.873	(-3.33)	**
L3.	0.333	(1.66)		L3.	0.242	(1.51)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	0.618	(2.17)	*	L1.	0.312	(1.97)	*
L2.	-0.819	(-1.62)		L2.	-0.082	(-0.45)	
L3.	0.377	(1.32)		L3.	-0.057	(-0.37)	
constant	-1.351	(-2.57)	*	constant	-0.898	(-1.13)	
log(GDP pc)				log(Agricultural Value Added pc)			
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
L1.	0.178	(1.13)		L1.	-0.093	(-0.60)	
L2.	-0.066	(-0.24)		L2.	0.174	(0.67)	
L3.	0.060	(0.40)		L3.	-0.004	(-0.03)	
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	1.403	(6.51)	**	L1.	0.496	(3.16)	**
L2.	-0.511	(-1.34)		L2.	-0.045	(-0.25)	
L3.	-0.066	(-0.31)		L3.	0.263	(1.70)	
constant	1.360	(3.42)	**	constant	1.527	(1.94)	

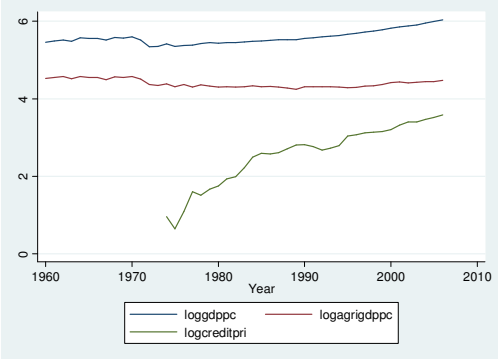
Vietnam

GDP per capita				Agricultural VA per capita			
	Coef.	z			Coef.	z	
L1.	-0.161	(-9.07)	**	L1.	3.242	(6.69)	**
L2.	0.959	(51.00)	**	L2.	1.311	(4.03)	**
L3.	-0.668	(-26.77)	**	L3.	-6.117	(-6.50)	**
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	-34.993	(-68.00)	**	L1.	-200.924	(-6.23)	**
L2.	37.711	(33.90)	**	L2.	111.722	(6.47)	**
L3.	1.621	(2.33)	*	L3.	110.596	(5.95)	**
constant	-20.884	(-50.04)	**	constant	-82.627	(-6.10)	**

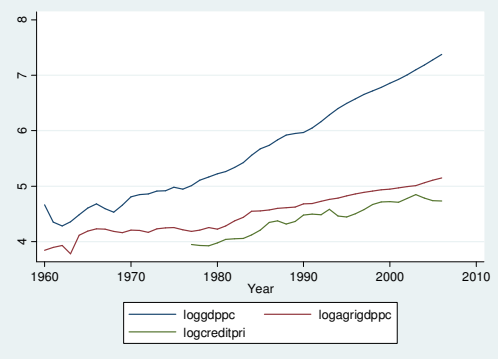
log(GDP pc)				log(Agricultural Value Added pc)			
log(private credit/GDP)				log(private credit/GDP)			
L1.	0.029	(12.62)	**	L1.	0.065	(7.79)	**
L2.	-0.025	(-10.08)	**	L2.	-0.005	(-0.82)	
L3.	0.006	(1.73)		L3.	-0.104	(-6.49)	**
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	1.276	(19.11)	**	L1.	-2.980	(-5.40)	**
L2.	-0.249	(-1.73)		L2.	2.437	(8.25)	**
L3.	-0.012	(-0.14)		L3.	1.918	(6.03)	**
constant	-0.088	(-1.62)		constant	-1.418	(-6.12)	**
logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			
logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			
L1.	0.800	(4.34)	**	L1.	1.000	(2.40)	*
L2.	-0.144	(-0.57)		L2.	-1.041	(-2.23)	*
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	-13.656	(-2.89)	**	L1.	-5.125	(-0.53)	
L2.	15.075	(3.48)	**	L2.	13.991	(1.40)	
constant	-8.022	(-1.12)		constant	-41.755	(-2.08)	*
log(GDP pc)				log(Agricultural Value Added pc)			
logprivate credit by deposite money/GDP)				logprivate credit by deposite money/GDP)			
L1.	0.029	(4.69)	**	L1.	0.025	(2.99)	**
L2.	-0.032	(-3.67)	**	L2.	-0.071	(-7.58)	**
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	1.076	(6.69)	**	L1.	0.128	(0.66)	
L2.	0.016	(0.11)		L2.	1.302	(6.48)	**
constant	-0.507	(-2.08)	*	constant	-1.992	(-4.93)	**
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
L1.	0.871	(4.53)	**	L1.	-0.968	(-1.74)	
L2.	-0.304	(-1.22)		L2.	-2.192	(-4.05)	**
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	-3.263	(-2.09)	*	L1.	14.625	(3.64)	**
L2.	4.868	(3.73)	**	L2.	13.783	(3.66)	**
constant	-10.045	(-1.90)		constant	-137.582	(-4.32)	**
log(GDP pc)				log(Agricultural Value Added pc)			
log(financial system deposit/GDP)				log(financial system deposit/GDP)			
L1.	0.088	(3.61)	**	L1.	-0.013	(-0.13)	
L2.	-0.066	(-2.11)	*	L2.	-0.232	(-2.47)	*
log(GDP pc)				log(Agricultural Value Added pc)			
L1.	0.841	(4.26)	**	L1.	1.031	(1.48)	
L2.	0.148	(0.90)		L2.	1.604	(2.46)	*
constant	0.154	(0.23)		constant	-7.910	(-1.43)	

Appendix 5 Trends of Finance (the share of private credit in GDP) and Economic and Agricultural Growth (GDP per capita and Agricultural Value Added per capita)

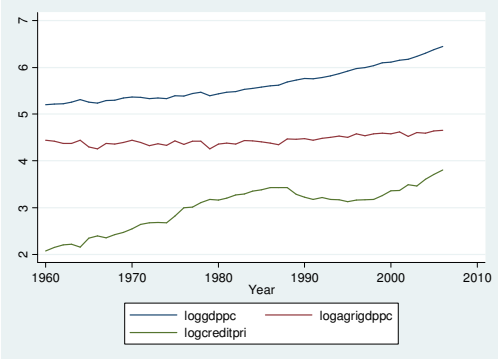
Bangladesh



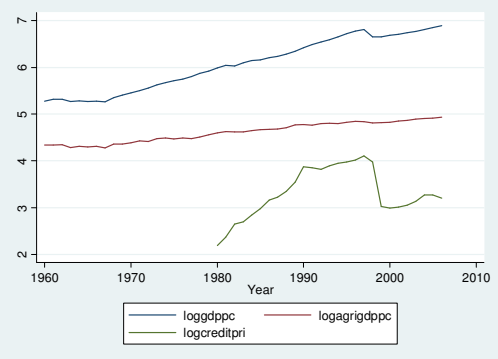
China



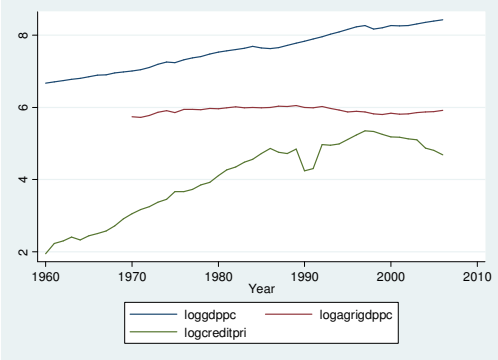
India



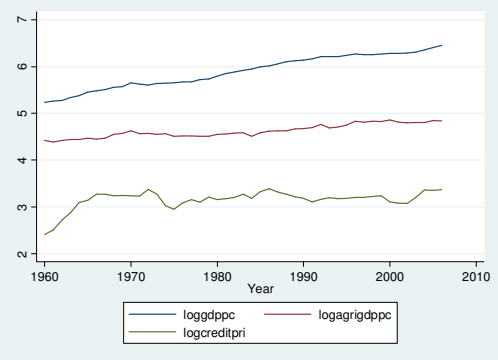
Indonesia



Malaysia



Pakistan



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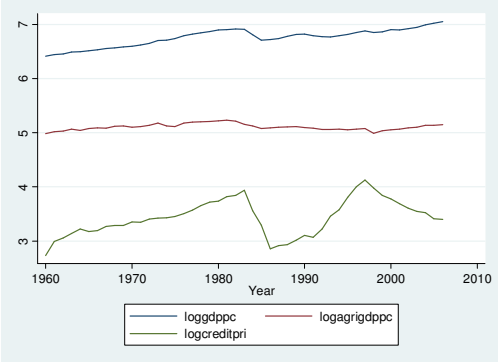
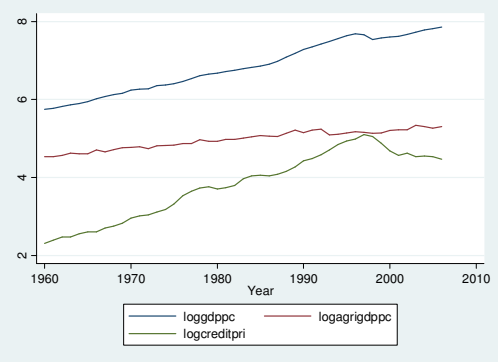
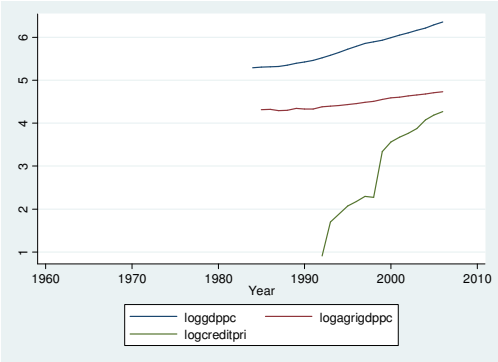


Thailand

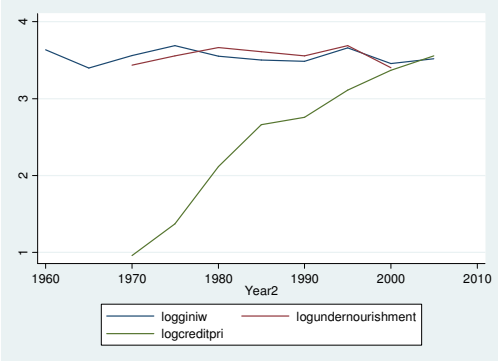


Vietnam

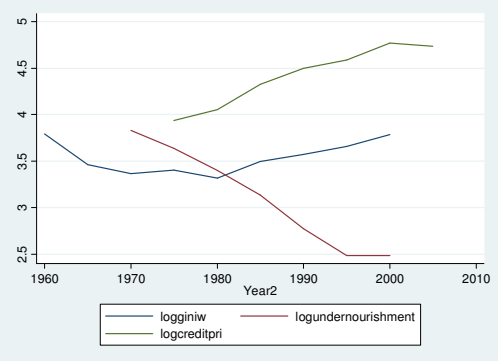


Appendix 6 Trends of Finance (the share of private credit in GDP) and Economic, Inequality and Undernourishment

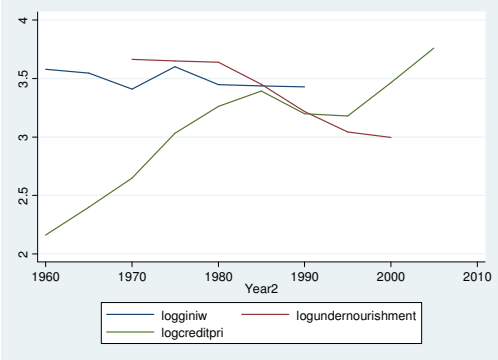
Bangladesh



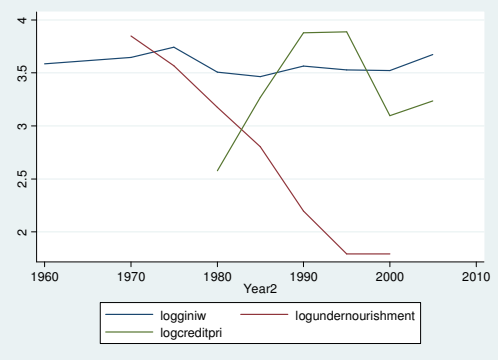
China



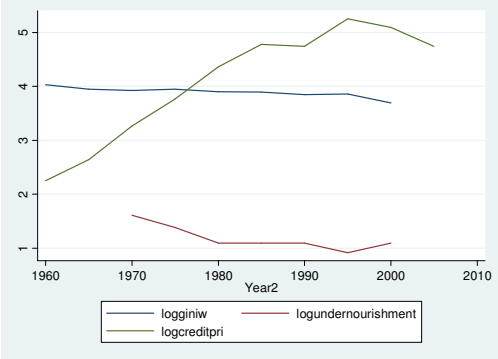
India



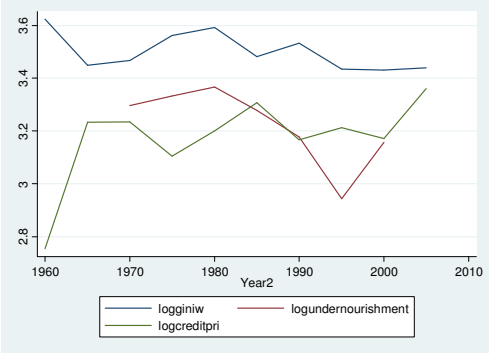
Indonesia



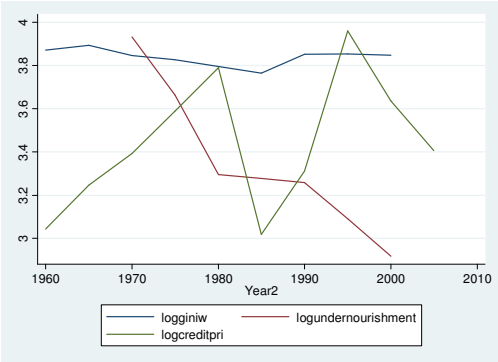
Malaysia



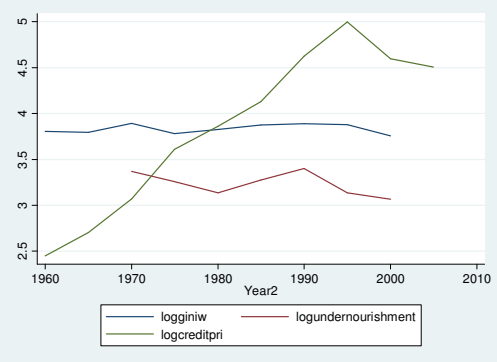
Pakistan



Philippines



Thailand



Vietnam