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Credit Creation, Economic Progress and the Saturation Effect: A Sector Level Analysis

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JEL codes: D72, O11

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[1] We gratefully acknowledge Stata coding advice from Jan Ditzen and thank him for sharing an updated version of his code. We also acknowledge comments from seminar participants at Sussex. All remaining errors are our own.

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1 Introduction

Credit creation has long been identified as an important cog in the development process (Bagehot, 1873; Schumpeter, 1911). Modern market economies rely heavily on well-functioning credit markets to deliver growth. Indeed, credit creation has increased manifold since the late 1970s as more and more countries transitioned away from a planned economy to a market based financial system (Reinhart and Rogoff, 2009). McKinnon (1973) and Shaw (1973) independently highlighted the long-term economic costs of a planned economy and proposed market-based reforms and liberalization as a way forward. Even though a market based financial system is widely perceived to deliver superior growth outcome, it remains an open question whether the relationship between the two variables is indeed linear. This is notably significant at a time when highly financialized advanced market economies are experiencing persistently weaker growth compared to the emerging markets.

A large literature covers the growth implications of finance. Levine (2005, 2018) and Panizza (2014) offer excellent surveys of this literature. Owing to this literature, we are now well aware of the aggregate macroeconomic effects of financial development. However, a much deeper question of sector level implications of finance remains largely unexplored. The literature is also yet to unbundle private credit and examine its potentially heterogeneous effects on sector level growth. Distinct and heterogeneous agents such as households and corporations consume private credit. Therefore, its unbundling is desirable. Deeply financialised economies can also get satiated from credit and thus exhibit diminishing returns from additional credit creation. Therefore, the credit saturation question also needs investigating using new data and improved econometric models.

In this paper, we address these questions. In particular, we empirically test the following three questions. First, what effect credit creation has on real value added in manufacturing, services and agriculture? Second, whether the effect of credit creation on growth in real value added is indeed non-linear conditional on the level of development (saturation effect)? Third, to what extent the effects are homogeneous across different types of credit (households and non-financial corporations)? Fourth, what effect credit impulse (or new credit creation) has on growth? Note that credit impulse is defined as the change in credit (or new credit issued) as a percentage of GDP.

Using a sample of up to 95 countries covering the period 1970 to 2017, we find that private credit has strong positive effects on manufacturing value added in a linear specification after accounting for mean reversion using lagged manufacturing value added (or the lagged dependent variable) as a control[3]. Agriculture and services value added appears to remain unaffected in a linear specification. In a non-linear specification involving an interaction term between value added and private credit, we find evidence of credit saturation effect across all three sectors even though the effect is noticeably weaker for agriculture. The unbundled effects of household and non-financial corporation credit on value added in manufacturing and services are statistically significant. Even though curious, such effects should be interpreted with caution due to small sample size. The latter attributed to data availability challenges associated with unbundling credit at the sector level. We also do not find any effect of credit impulse suggesting that the relationship between credit creation and value added is essentially at levels as opposed to growth.

We contribute to the literature by estimating the disaggregated effects of credit creation. To the best of our knowledge, sector level analysis of credit creation on growth has not been attempted in the literature. Furthermore, estimates of credit saturation and credit impulse effects across sectors are also new results. We introduce new and expanded data covering up to 95 countries observed over the period 1970 to 2017 (48 years) which is also unmatched in this literature. We use mean group (MG) and common correlated effects mean-

[3] Note that controlling for the lagged dependent variable implies that we are estimating a growth model. The estimated coefficient can be interpreted as growth elasticity or level effect. See section 3 for further details.

group (CCEMG) estimators, which is an improvement over the dynamic generalized method of moments (GMM) estimator commonly used in the literature. The MG and CCEMG estimators successfully address the challenge of cross-sectional dependence ensuring estimate precision and reliability. More on this in section 3.

Literature on finance and growth is not new and has a long history. Bagehot (1873) stress the crucial role of finance in resource allocation and growth promotion. Hicks (1969) identifies liquidity transformation and large fixed capital formation as the linchpin of industrial revolution in Britain. Schumpeter (1911) highlights the importance of financial intermediaries in stimulating creative destruction. Patrick (1966) separates the role of finance into 'supply-leading' and 'demand-following' phenomena. The former is characterized by a transfer of resources from the low-return traditional sector to the high-return modern sector (Gurley and Shaw, 1955; Goldsmith, 1969; McKinnon, 1973) whereas the latter highlights the role of elevated demand for external finance from firms with the rapid expansion of economic activities (Robinson, 1952; Kuznets, 1955). Lucas (1988) takes a contrarian position as he deems the role of finance in generating growth is often overstated. Needless to say, that our paper is related to this early literature.

More recent empirical literature on this topic can be traced back to Goldsmith (1969). The study reports positive correlation between finance and economic activity across 35 countries over the period 1860 to 1963. Other notable econometric studies claiming a causal relationship include King and Levine (1993), Levine (1998, 1999, 2005), La Porta et al. (1998), Levine et al. (2000), Beck et al. (2000), and Demirgüc-Kunt and Levine (2008).[4] Even though several of these contributions follow the instrumental variable approach using legal origin as an exogenous instrument or use dynamic GMM to address endogeneity and omitted variable bias, they have hardly managed to conclusively put these doubts to rest.

[4] Rajan and Zingales (1998) and Aghion et al. (2005) take a somewhat different approach from the abovementioned studies. The former focus on the effect of finance on industrial growth whereas the latter examine the effect of finance on economic convergence.

Notable studies exploring heterogeneous effects of finance across levels of development include Deidda and Fattouh (2002), Rioja and Valev (2004a), and Huang and Lin (2009). Deidda and Fattouh (2002) find that the macro effect is only significant for high-income countries. In contrast, Huang and Lin (2009) report that the effect is positive and greater in magnitude in low income countries. Their result appears to confirm earlier findings by Rioja and Valev (2004a) that the strong positive effect in developing countries is primarily driven by capital accumulation whereas a weaker positive effect in developed countries is driven by productivity growth.

The overall positive effect of finance on growth appears to fade with new data covering the period 1990 to 2004 (e.g., Rousseau and Wachtel, 2011). This 'vanishing effect' is attributed to excessive credit creation and financial crisis. However, others attribute such effects to model misspecification (Arcand et al., 2015).

Latest analysis of non-linearity in the finance-growth nexus could be attributed to Arcand et al. (2015), Samargandi et al. (2015), and Rioja and Valev (2004b). Using parametric and semi-parametric modeling Arcand et al. (2015) estimate the threshold level of private sector credit to GDP ratio to be 80 to 120 percent of GDP beyond which further credit injection starts to erode growth. Samargandi et al. (2015) show that the relationship is non-monotonic and demonstrates an inverted U-shape in a sample of 52 middle-income countries. These results appear to confirm earlier findings of non-linearity in Rioja and Valev (2004b).

Note that none of the papers listed above examine the disaggregated effects of credit creation at the sector level. They also do not test non-linearity or the satiation effect at the sector level. The issue of credit impulse and unbundled credit also appears to be ignored by these studies. We set out to fill this void here.

The remainder of the paper is structured as follows: Section 2 discusses the data. Section 3 asks the following questions. First, what impact credit creation has on economic progress at the sector level? Second, is there evidence of credit saturation at the sector level? In order to address the questions, section 3 introduces the empirical strategy and presents associated results. Section 4 deals with credit impulse and its effect on growth. Section 5 examines potential heterogeneous effects of household credit and non-financial corporation credit. Section 6 concludes.

2 Data

We compile a large cross-national panel dataset of credit creation and sectoral national accounts using multiple sources from the International Monetary Fund (IMF), United Nations, and the World Bank. In particular, we use data from Beck et al. (2000, 2009)'s Global Financial Development Database (GFDD), IMF's Global Debt Database (GDD), United Nation's National Accounts Main Aggregate Database (NAMAD), and World Bank's Open Data Database (ODD). Our consolidated long panel dataset observes 95 countries over the period 1970 to 2017. Note that the panel is somewhat constrained due to the requirements imposed by panel mean-group estimators. The estimators require a steady stream of non-missing time series per country (Cavalcanti et al., 2015; Mohaddes and Raissi, 2017). Therefore, following the literature we include countries that have at least 25 consecutive non-missing observations. Nevertheless, we can safely claim that despite some attrition due to mean-group estimator-imposed constraints, our sample is adequately representative and large. In what follows, we carefully discuss the nature and source of our data. Table 1 presents summary statistics of all the key variables. Appendices A1 and A2 presents country-year coverage of our dataset and variable names with descriptions respectively.

2.1 The Global Financial Development Database

Private credit to GDP ratio (PC_{it}) is our key measure of credit or financial development. It is sourced from the Global Financial Development Database (GFDD) developed by Beck et al. (2000). The rationale for using 'credit to the private sector' as our main measure are twofold.

First, such lending is more likely to have greater growth elasticity relative to directed lending from public-sector banks to state-owned enterprises. King and Levine (1993) and Arcand et al. (2015) note that this could be due to superior risk assessment and corporate control capacities of private firms and private financial institutions. Second, 'private credit to GDP ratio' also offers us the widest possible country and year coverage. Nevertheless, we also use alternative and diverse measures of credit. The diverse measures of credit are catalogued in section 2.2.

The GFDD is an extensive dataset of financial systems covering 214 countries going back all the way to 1960. It was initially compiled by Beck et al. (2000) and was named the Financial Development and Structure Database. It has been extended since by Cihak et al. (2012) to cover several additional variables. Our main variable PC_{it} is defined as 'private credit by deposit money banks (or domestic commercial banks) and other financial institutions to GDP' and is taken from the GFDD October 2019 updated version. It includes the financial resources provided to the private sector by the abovementioned financial institutions. In particular, it is computed using the following formula.

$$PC_{it} = \frac{\left(\frac{\$PC_{it}}{CPI_{e,it}} + \frac{\$PC_{it-1}}{CPI_{e,it-1}}\right) \Big/ 2}{\frac{\$GDP_{it}}{CPI_{a,it}}} \qquad (1)$$

Note that the nominal variables in the abovementioned formula are denoted by the \$ sign. The nominal variables are deflated by using consumer price index (CPI) both at the end of the period (e) and the average for the period (a). GFDD computes real private credit volume at period t as a two-year moving average of the actual real private credit volume. Real private credit volume is then deflated by the real GDP to arrive at 'private credit as a share of GDP'. GFDD sources the raw data for these variables from the IMF's International Financial Statistics (IFS).

Table 1 reports the sample average of 'private credit to GDP' as 0.41. Austria in 1970 would fit as an example of the sample average. The sample median however is somewhat lower at 0.28. Azerbaijan in 2014 is an example of the sample median. With PC_{it} at 0.008 in 1983, Ghana appears to have the least private credit coverage in its economy relative to size. In contrast, Iceland in 2006 appears to have the maximum private credit coverage relative to size with PC_{it} at approximately 2.61.

An alternative measure of credit creation is liquid liabilities (broad money or M3) to GDP. Liquid liabilities are measured by broad money or M3. In particular, broad money or M3 is the sum of currency and deposits with the central banks (M0); transferable deposits and electronic currency (M1); time and savings deposits, foreign currency transferable deposits, deposit certificates, and securities repurchase agreements (M2); and travelers checks, foreign currency time deposits, commercial paper, shares of mutual or market funds held by residents. We use this measure to test the robustness of our key results. However, we refrain from using it as our main measure as PC_{it} offer superior country-year coverage.

2.2 The Global Debt Database

To understand the potential heterogeneous effects of household credit and non-financial corporation credit, we use the Global Debt Database (GDD) compiled by the IMF. It provides historical debt data for a wide range of countries and it defines debt as, “the gross outstanding stock of all liabilities that are debt instruments.” Therefore, it includes loans, debt securities, special drawing rights, currency and deposits, other account payables, and insurance, pension, and standardized guarantee schemes. GDD concedes that collecting data on all dimensions of debt for multiple countries is challenging. Therefore, they propose an alternative measure of private debt that include the core debt instruments of loans and debt securities. This has the advantage of a wider country-year coverage. Primary sources for GDD data include official government publications, databases compiled by researchers, and international organizations.

Methodologically, GDD data follows the Bank for International Settlement (BIS) database and significantly expands country coverage from the original 43 BIS countries to 153 countries. We source the 'household credit' and the 'non-financial corporation credit' variables from the GDD.

2.3 The National Accounts Main Aggregates Database

For our sectoral real value-added variables, we use the National Accounts Main Aggregates Database from the United Nations Statistics Division. Services sector value added SVA is the sum of sectoral value added of transport, storage, communication, wholesale, retail trade, restaurants, and hotels. The first three categories are listed as ISIC I whereas the remaining five as ISIC G-H.[5] The agricultural sector value added $AGRVA$ consists of agricultural, hunting, forestry, and fishing listed under ISIC A-B. Manufacturing value added MVA is reported as a separate category under ISIC D. We normalize the value-added variables by population to construct value added per capita. Note that the database reports the value-added variables measured in 2015 constant US Dollars. Therefore, they are real variables.

The United Nations Statistics Division compiles national accounts data from official sources of the member countries. These sources typically report information denominated in national currencies and in current or constant prices. The compiled data in current and constant prices are then converted into US Dollars using the corresponding market exchange rates as reported in the IMF or other IMF rates in the event of unavailability for some countries. If there are no exchange rates data from the IMF for a particular country, then the UN Statistics Division uses the annual average of the UN operational rates of exchange (UNOP). Note that the UNOPs are conversion rates used in official transactions of the UN with the concerned countries. They are based on official, commercial, and tourism rates of exchange and therefore a reasonable proxy.

[5] ISIC stands for the International Standard Industrial Classification of All Economic Activities.

In cases where a country experiences considerable distortion in the conversion rates due to exchange rate volatility, the United Nations Statistics Division uses price-adjusted rates of exchange (PARE) as an alternative to the IMF rates or the UNOP. The PARE conversion corrects for the short-term uneven price volatility induced distortion effects[6].

The sectoral real value-added variables implicitly assume manufactures, services and agriculture commodities are tradable and faced common US dollar world price in 2015. This is a reasonable assumption as world markets in goods and services have experienced significant integration following the latest wave of globalization starting in the 1980s. Nevertheless, local prices do diverge from world prices due to transport costs, import tariffs, export subsidies, regulatory costs and other forms of distortion. This divergence is likely to be enhanced in agriculture relative to the other sectors as it is the least integrated. Notwithstanding the limitations of comparing prices across countries, the common 2015 US dollar world price seems to be a sensible way forward to approximate real sectoral value added across countries.

There is significant variation among countries in terms of their sectoral value-added footprint. For instance, Ireland in 2017 is the largest manufacturing value added country relative to size with a per capita value added of 23,365.27 US dollars. In contrast, Gambia in 1978 is the least manufacturing value added country relative to size with a per capita value added of 4.78 US dollars. Greece in 1975 with a manufacturing per capita value added of 1779.69 US dollars would fit the sample average reported in table 1 well.

Similarly, for services, Luxembourg in 2016 is the largest value-added country relative to size with a per capita value added of 87,064.81 US dollars. In contrast, Rwanda in 1975 records the least services footprint with a per capita value added of 49.23 US dollars. Portugal in 1989 with a per capita value added of 9057.81 US dollars approximately

[6] See https://unstats.un.org/unsd/snaama/ for further details.

represents the sample average reported in table 1.

Finally, for agriculture, Iceland in 1988 is the largest value-added country relative to size with a per capita value added of 4299.26 US dollars. This is likely driven by fisheries, forestry and hunting. In contrast, Singapore in 2017 is the least per capita agriculture value added country with 14.60 US dollars. Saudi Arabia in 1978 with a per capita value added of 410.86 US dollars reflects the sample average approximately.

2.4 The World Bank Database

Our control variables are from the World Bank's World Development Indicators (WDI). These variables are government consumption as a percentage of GDP (GC), and trade openness ($OPEN$). The size of government is measured as the government's final consumption expenditure as a share of GDP. It includes all government expenditures for purchases of goods and services (including compensation to employees) and national defense and security. However, it excludes expenditures that are part of government capital formation. Trade openness is calculated by aggregating a country's exports and imports and then normalizing it by its GDP. All real variables are expressed in constant 2015 US dollars. Table 1 presents descriptive statistics.

3 Credit Creation, Growth and Saturation at the Sector Level

We estimate the effect of credit creation on the growth rate of real value added in manufacturing, services and agriculture sectors. In addition, we also estimate the saturation effect. The growth elasticity of credit could decline at a higher level of development with additional credit exhibiting diminishing returns. In what follows, we describe our models and results in turn.

3.1 Credit Creation and Growth at the Sector Level: Models

We use the following econometric model to identify the effect of credit creation on sectoral real value-added growth:

$$\Delta VA_{it} = c_i + \mu_t + \rho VA_{it-1} + \beta_{PC} PC_{it} + \Gamma' \mathbf{X}_{it} + \varepsilon_{it} \quad (2)$$

Where VA_{it} is the real value added measured in log scale for country i and time t. Therefore, the dependent variable ΔVA_{it} is the log difference measuring growth. The model controls for country specific unobserved heterogeneity c_i and time varying common shocks μ_t. PC_{it} is the private credit to GDP ratio measured in log scale and β_{PC} is the growth elasticity of private credit. A positive and statistically significant β_{PC} coefficient would imply that private credit expansion on average is growth enhancing in a particular sector. $\mathbf{X}_{it}$ is a vector of control variables that include the measures of trade openness and government consumption in log scale. ε_{it} is the error term.

Equation (2) can also be rewritten in a level form as follows,

$$VA_{it} = c_i + \mu_t + (1+\rho) VA_{it-1} + \beta_{PC} PC_{it} + \Gamma' \mathbf{X}_{it} + \varepsilon_{it} \quad (2a)$$

Thus, equation (2) is a dynamic panel model rendering the standard fixed effects estimators biased due to the systematic correlation between the demeaned lagged dependent variable and the residual error term. Arguably, such a bias decline in long panel datasets (i.e., with large time dimension). However, it is near impossible to determine the magnitude of such a bias in an individual case. To address such challenges the literature typically uses difference-GMM and system-GMM estimators developed by Arellano and Bond (1991) and Blundell and Bond (1998) respectively. However, the standard GMM estimators assume cross-sectional independence across panel groups. In order to effectively address the challenge of cross-sectional dependence, we also estimate the model using MG and CCEMG estimators. More on this follows.

In order to estimate the saturation effect, we allow for the coefficient on private credit to vary with the level of value added. We add an interaction term between the lagged value added and private credit as follows:

$$VA_{it} = c_i + \mu_t + (1+\rho)VA_{it-1} + \beta_{PC}PC_{it} + \beta_{VA\times PC}VA_{it-1} \times PC_{it} + \Gamma'\mathbf{X}_{it} + \varepsilon_{it} \quad (3)$$

Note that the marginal effect of a change in PC_{it} is a linear function of value added and is given by $\frac{\delta VA_{it}}{\delta PC_{it}} = \beta_{PC} + \beta_{VA\times PC}VA_{it-1}$. The speed of convergence of value added is also a linear function of PC_{it} and is given by $\frac{\delta \Delta VA_{it}}{\delta VA_{it-1}} = \rho + \beta_{VA\times PC}PC_{it}$.

We also estimate the models using mean-group (MG) estimator of Pesaran and Smith (1995) that assumes cross-sectional independence, and the common correlated effects mean-group (CCEMG) estimator of Pesaran (2006) and Chudik and Pesaran (2015) that relaxes the said assumption. In what follows, we describe these methods.

The FE and GMM estimators restrict the slope coefficients to be the same for all countries and assume cross-sectional independence across panel groups. If the true parameters differ across countries and they are not independent, then both FE and GMM estimators yield inconsistent estimates of the average parameters (see Pesaran and Smith, 1995; Lee et al., 1997; Pesaran et al., 1999; Pesaran, 2015). We use the dynamic CCEMG estimator of Chudik and Pesaran (2015) to estimate heterogenous panel models that account for cross-sectional dependence across countries. The key advantages of CCEMG is that it works well under conditions of nonstationary, structural breaks, weak or strong unobserved common factors such as global shocks and spatial spillovers, and cointegration or the lack of it (Söderbom et al., 2014, p. 392-393).

Consider the following modification of equation (2a) to illustrate the MG and CCEMG estimators.

$$VA_{it} = c_i + (1+\rho)VA_{it-1} + \beta_{PC}PC_{it} + \Gamma'\mathbf{X}_{it} + u_{it} \quad (4)$$

Where $u_{it} = \gamma_i'\mu_t + \varepsilon_{it}$.

Note that the time varying common shocks now have heterogeneous factor loading γ_i. Model (4) can be estimated by MG estimators using a two-step process as described in Eberhardt (2012). In particular, *N* OLS regressions are estimated for each group and then the estimated coefficients are averaged across groups. Therefore, the MG estimates are $\hat{\theta}_{MG} = (1+\hat{\rho}) = N^{-1}\Sigma_i\theta_i$ and $\hat{\beta}_{MG} = N^{-1}\Sigma_i\beta_{PCi}$.

However, the MG estimator ignores the presence of common factors across countries or country groups by assuming cross-sectional independence. To estimate the full model without assuming cross-sectional independence, Pesaran (2006) proposes the CCEMG estimator in which the unobserved common factors is approximated by the cross-sectional averages of dependent and independent variables. In dynamic panels as in (4), Chudik and Pesaran (2015) show that adding lags of the cross-sectional averages ensure consistency of the Pesaran (2006) CCEMG estimator.[7] Thus, the estimation equation becomes:

$$VA_{it} = c_i + (1+\rho)VA_{it-1} + \beta'_{PC,i}PC_{it} + \Gamma'\mathbf{X}_{it} + \sum_{l=0}^{K_T}\psi'\overline{Z}_{it-l} + u_{it} \qquad (5)$$

where $\overline{Z}_{it} = (\overline{VA}_{t-1}, \overline{PC}_t, \overline{X}_t)$. The CCEMG estimates are obtained by averaging the group-specific coefficients estimated by OLS for each group.

3.2 Credit Creation and Growth at the Sector Level: Evidence

Table 2 reports fixed effects, difference GMM[8], and system GMM estimates of equations 2a and 3 in a sample of 88 countries observed annually over the period 1970 to 2017. Columns 1-3 in panels A-C report a linear model (equation 2a) and we observe the growth elasticity of private credit is negative across manufacturing and services sectors. The magnitude and statistical significance of the effects in manufacturing appears to be weaker relative to

[7] CCEMG estimator of Pesaran (2006) is valid for static models with strictly exogenous regressors. Chudik and Pesaran (2015) show that adding lags of cross-sectional averages to the estimation equation allows for weakly exogenous regressors (such as the lagged dependent variable) and yield consistent estimates of the parameters.

[8] We use 'xtabond2' command in Stata developed by Roodman (2009) to estimate the difference and system GMM.

services. The sign of the elasticity estimate appears to reverse in agriculture indicating positive returns to credit in this sector. Overall, it is worthwhile noting that the difference and system GMM estimates reported in table 2 fail diagnostic tests. Therefore, these results should be interpreted with caution.

The challenges of poor diagnostic test results and omitted variable bias notwithstanding, columns 4-6 of table 2 reports estimates of equation 3. We observe that the effect of private credit on growth across the three sectors is indeed non-linear. There appears to be a threshold level of sectoral value added below which private credit seems to play a growth enhancing role whereas the converse is observed above the threshold. This is indicative that credit at the sector level transmits heterogeneous effects across developed and emerging markets. However, note that the coefficient estimates are largely statistically insignificant and thus unreliable.

Note that the bias in fixed effects estimates is likely to be less severe in long panels. The annual panel used to generate table 2 results contain 48 time series data points per country and therefore reasonably long. Thus, it is reasonable to expect that the bias in these estimates is of a less severe nature.

The literature on GMM notes that inflated Hansen test *p*-value is an indicator of instrument proliferation (Roodman, 2009). It is worthwhile noting that all GMM estimates reported in table 2 returns inflated Hansen test *p*-value of 1.00. This is likely indicative of instrument proliferation as anticipated by Roodman (2009). Cavalcanti et al. (2015) proposes a remedy. A data structure involving non-overlapping 5-year averages appear to perform well in tackling instrument proliferation. We follow Cavalcanti et al. (2015) and use non-overlapping 5-year averages to estimate difference and system GMM. This is reported in Long Appendix table LA1. The issue of inflated Hansen test *p*-value appears to have been resolved without fundamentally altering the direction of results as reported in table 2. The associated marginal effects from the non-overlapping 5-year averages data structure is displayed in figure 1.

Table 3 presents estimates of models 2a and 3 using the mean group (MG) estimator. Note that the conventional panel data model estimation methods used earlier assume homogeneity of slope parameters and does not address cross-sectional dependence. We now move to panel data models that allow for heterogeneity in slope parameters across cross-sectional units. In particular, table 3 reports MG estimates assuming cross-sectional independence whereas tables 4 and 5 report dynamic CCEMG estimates that augment the models with cross-sectional averages to approximate cross-sectional dependence.

Table 3 consists of eight columns. Columns 1-4 presents results without the interaction term and with/without control variables such as trade openness and government consumption, whereas columns 5-8 presents the results with the interaction term. Panel A, columns 1 – 3 builds up the model whereas column 4 presents the full specification. Column 4 shows that financial development measured by private credit expansion has positive effect on manufacturing value added. However, no effect is observed in services and agriculture as is revealed by column 4, panels B and C.

Columns 5-8 reports estimates from non-linear models with the interaction. Column 8 presents the full specification with all controls. We observe a similar pattern as noted in table 2 across all 3 sectors. In particular, we observe a direct positive effect of private credit on valued added whereas a negative effect via the interaction term between private credit and lagged value added. The interpretation here is identical to what we discussed earlier. Financial development appears to be growth promoting in poorer countries but it exhibits diminishing returns in countries with higher per capita value added. We label the latter as a credit satiation effect. It is also worthwhile noting the convergence implications of this result. Expansion of credit in poorer countries appear to promote convergence in living standards.

The credit satiation effect is uniform across all three sectors but it appears to be the strongest in manufacturing and the weakest in agriculture both in terms of magnitude and statistical significance. We speculate more on why this is so in section 6.

All specifications reported in table 3 fails the cross-sectional dependence (CD) test developed by Pesaran (2015). The reported test statistic is significantly greater than the critical value thus rejecting the null hypothesis of weak cross-sectional dependence against the alternative of strong cross-sectional dependence. The rationale for having 'weak cross-sectional dependence' as opposed to 'cross-sectional independence' as the null is that the latter is a restrictive assumption for large panels, and only strong cross-sectional dependence poses a problem for estimation (Pesaran, 2015; Ditzen, 2018). Therefore, to address cross-sectional dependence we use the dynamic CCEMG estimate that augments the model with cross-sectional averages to approximate the unobserved common factors. The working of the model is described in equation 5. Note that, in table 4 we only include the control variables trade openness and government consumption in the cross-sectional averages without adding them as regressors in order to maintain sufficient degrees of freedom for the estimation. Nevertheless, column 8 of the long appendix table LA 4 reports CCEMG results with trade openness and government consumption as regressors. Coefficients on PC_{it} and $VA_{it-1} \times PC_{it}$ turn statistically insignificant and the specification fail the CD test.

Table 4 is similar in design to tables 2 and 3 and consists of 8 columns with the first four reporting linear estimates whereas the last four reporting estimates with the interaction term. Columns 4 and 8 report the full model therefore it is proper we focus on them. The full linear models reported in column 4, panels A-C show no direct effect of financial development on value added in the three sectors. However, that pattern changes in column 8 once the interaction term is added. Credit injection seems to have a positive effect on manufacturing value added in countries who are below the per capita manufacturing value added threshold of 244.70 US dollars. The effects on services and agriculture value added are not significant.

What is the economic significance of the manufacturing value added result? The partial effect of a 1 percentage point increase in private credit on manufacturing value added is given by $\frac{\delta MVA_{it}}{\delta PC_{it}} = \beta_{PC} + \beta_{MVA\times PC} MVA_{it-1} = 4.966 - 0.902 MVA_{it-1}$. In order to compute the threshold value added above which the partial effect turns negative, we have to set the latter to zero and solve for MVA. Setting the partial effect to zero yields $MVA = \frac{4.966}{0.902} = 5.51$ which is expressed in log scale. Therefore, the nominal value of the threshold would be 244.70 US dollars.

To illustrate the magnitude of the partial effect it is perhaps useful to compare the effects on two countries unambiguously below and above the threshold. We choose Australia and Benin as two countries above and below the threshold respectively. For Australia, the average MVA (measured in log scale) over the sample period 1970 to 2017 is 8.22 (or 3714.50 US dollars) which is above the threshold 5.51 (or 244.70 US dollars). The growth elasticity of a 1 percentage point increase in private credit in Australia is $4.966 - 0.902 \times 8.22 \approx -2.45$ percent which is equivalent to 11.59 US dollar decrease in manufacturing value added per capita. In contrast, the average MVA (measured in log scale) over the sample period 1970 to 2017 in Benin is 4.51 (or 90.92 US dollars) which is below the threshold 5.51 (or 244.70 US dollars). The growth elasticity of a 1 percentage point increase in private credit in Benin is $4.966 - 0.902 \times 4.51 \approx 0.898$ percent which is equivalent to 2.46 US dollar increase in manufacturing value added per capita. Such an effect would allow Benin to catch up with Botswana which records sample average MVA per capita of 5.09 (or 162.39 US dollars).

The CD test statistic for the dynamic CCEMG estimates reported in table 4 follow a similar pattern as in table 3. While the statistic is significantly reduced, the test still strongly rejects the null of weak cross-sectional dependence. Ditzen (2018) notes that the unbalanced version of the CD test uses only the observations which are in both cross-sections when calculating the pairwise correlations. Therefore, a problem could occur if one unit produces very high correlations due to small number of observations. This unit would then bias the CD test statistic upwards and thus misleadingly rejecting the null. To mend this, we re-estimate the model using balanced panels in table 5. In particular, we use two balanced panels in table 5. The balanced panel in columns 1-4 cover the full period of 1970-2017 whereas the balanced panel in columns 5-8 span 1990-2017. The full period sample covers fewer countries (48) as opposed to the truncated sample (65). As is apparent from columns 4 and 8 of table 5, the CD test statistic improves significantly as we fail to reject the null without qualitatively altering our key result.

4 Credit Impulse, Growth and Saturation at the Sector Level

Using high frequency macroeconomic data Biggs and Mayer (2013) demonstrate that for most countries the change in new credit relative to the size of its economy is a superior predictor of economic activity as opposed to the volume of credit relative to size. In particular, they define credit impulse as a change in new credit issued as a percentage of GDP and show that in most countries it correlates well with private spending[9]. Thus, a change in the flow of credit is a superior predictor of GDP growth as opposed to a change in the stock of credit.

Table 6 examines the effect of credit impulse on sectoral growth. Note that the data structure in table 6 is identical to the same in table 5 as we use a balanced panel. Columns 1-4 focus on a balanced sample of 48 countries covering the time period 1970 to 2017 whereas

[9] Note that private spending is defined as the sum of consumption expenditure (C) and private investment expenditure (I).

columns 5-8 focus on a balanced sample of 65 countries covering the time period 1990 to 2017. Note the tradeoff between country and time coverage in a balanced panel. As is apparent in panels A-C in table 6, we fail to find any statistically significant effect of credit impulse on growth in manufacturing, services and agriculture. We speculate that this could be due to the fundamental difference in the data generating process. Credit impulse could be a superior predictor of short-term fluctuations in aggregate monthly or quarterly GDP. Such short-term variation is likely smoothed out in annual GDP thus dampening the effects of credit impulse. It could also be the case that credit impulse is relatively unimportant at the sector level.

5 Credit and Growth: Households and Corporations

Next, we examine potential heterogeneous effects of household and non-financial corporation credit on sectoral growth. Note that we have data for these variables for 58 countries and the observations are sparse. The typical sample size is insufficient for producing CCEMG estimates. As a consequence, we are unable to generate CCEMG estimates for unbalanced and balanced panels. Instead we present difference and systems GMM estimates.

Our difference and systems GMM estimate with annual data exhibits instrument proliferation tendencies and other issues. This is reported in long appendix tables LA2 – LA3. In tables 7 and 8, we follow Cavalcanti et al. (2015) to tackle instrument proliferation and use non-overlapping 5-year averages as it performs well in tackling instrument proliferation. Table 7 reports the effects of household credit on sectoral growth. Columns 3 and 4 report systems GMM estimates without and with the interaction term respectively. It is noteworthy that we find evidence of credit saturation effect in column 6 panels A and B in both manufacturing and services sectors. However, we observe no such effect in the agriculture sector. These results are unsurprising as household credit is mainly geared towards consumption and housing services. Therefore, they are likely to influence growth in manufacturing and services sectors. In contrast, household credit is largely decoupled from the agriculture sector. It might create some additional demand for agricultural commodities but the demand for such commodities is typically inelastic.

Table 8 reports the effects of non-financial corporation credit on sectoral growth. Results are largely analogous to table 7. We find that non-financial corporation credit is growth promoting in manufacturing and services only in countries that has a credit footprint below the estimated threshold.

6 Conclusions

Growth effects of credit creation and financial development is a recurrent theme in economics and a large literature exist around it. We have reviewed some of the notable and relevant studies in section 1. Even though far from a consensus view, majority of studies in this literature argue that credit creation is beneficial for growth. In this paper, we explore some nuances that appears to remain largely unexplored. What is the effect of credit creation on value added in manufacturing, services and agriculture? Is there a threshold level of development beyond which credit creation ceases facilitating growth in value added? We label this as saturation effect. To what extent the effects are heterogeneous across household and non-financial corporation credit? Unbundling the effect of credit is merited as heterogeneous agents such as households and corporations consume private credit. Is it the stock of credit or the flow of new credit that matters for sectoral growth?

We find evidence of credit saturation across all three sectors even though the effect is noticeably weaker for agriculture. The estimated threshold level of value added per capita above which credit ceases to be a growth facilitator is 244.70 US dollars. This implies for a country located below that threshold, credit is a growth facilitator. For instance, a 1% credit expansion in Benin would increase its manufacturing value added per capita by 2.46 US dollars which would bring it near Botswana. In contrast, a similar shock in Australia which is located above the value-added per capita threshold would decrease manufacturing value added per capita by 11.59 US dollars. We also find that household and non-financial corporation credit expansion is largely beneficial for manufacturing and services in countries where the initial stock of credit is below the threshold. No such effect is observed for agriculture. We also do not find any effect of credit impulse on sectoral growth. Our key contribution is the estimation of the sectoral effects of credit creation. To the best of our knowledge, these results are new and adds significant value to the literature.

Even though cross-national studies may not adequately address internal validity challenges, it often does a far better job in the formulation of a general policy guidance internationally. Thus, it is worthwhile speculating on the lessons from our study for developing countries. The results indicate that credit creation is largely expansionary for manufacturing and services for these countries. However, there are nuances that policymakers must heed. Credit creation in these countries are often cyclical to the US Fed monetary policy posture. If the Fed's policy posture is loose, then that would create additional opportunities for banks and financial institutions in developing countries to borrow externally in dollars and expand foreign and domestic currency denominated credit locally. Even though expansionary in the short term, this can also be profoundly destabilising in the long term. Uncontrolled money emmission unmatched by commensurate expansion in supply of goods and services in the real economy could be inflationary and has the potential to derail long term investments and growth. Therefore, credit expansion in the local economy would have to be prudent. In particular, developing country central banks would have to ensure robust balance sheets of the local financial institutions through adequate prudential regulations before embarking on credit expansion. Thus, banking reforms and a robust prudential regulatory framework is a necessary precondition for the success of credit expansion.

Unlike the positive effects of credit in manufacturing and services the effects on agriculture appears to be mild or absent. This could be due to the non-commercialised nature of agriculture and limited market integration in the majority of countries in our sample. This is not to say that credit expansion is futile in agriculture. On the contrary, market reforms in agriculture coupled with credit injection could transform the agricultural landscape in a majority of these countries. Rather than a sanctuary for surplus labour and a drag on growth, with the aid of adequate policies agriculture could transform itself into an engine of growth.

Appendices

A1. Data Coverage by Countries and Years

#	Country	Country Code	Yearly obs.	#	Country	Country code	Yearly obs.
1	Algeria	DZA	45	49	Japan	JPN	48
2	Argentina	ARG	41	50	Jordan	JOR	42
3	Armenia	ARM	26	51	Kazakhstan	KAZ	25
4	Australia	AUS	48	52	Kenya	KEN	48
5	Austria	AUT	46	53	Kuwait	KWT	44
6	Azerbaijan	AZE	26	54	Lebanon	LBN	29
7	Bahamas	BHS	40	55	Luxembourg	LUX	45
8	Bahrain	BHR	33	56	Madagascar	MDG	48
9	Belgium	BEL	46	57	Malaysia	MYS	48
10	Benin	BEN	48	58	Malta	MLT	48
11	Botswana	BWA	46	59	Mauritania	MRT	35
12	Brazil	BRA	48	60	Mauritius	MUS	42
13	Bulgaria	BGR	27	61	Mexico	MEX	48
14	Burkina Faso	BFA	48	62	Morocco	MAR	44
15	Cambodia	KHM	25	63	Namibia	NAM	28
16	Cameroon	CMR	48	64	Netherlands	NLD	46
17	Canada	CAN	39	65	New Zealand	NZL	46
18	Central African Republic	CAF	47	66	Nicaragua	NIC	48
19	Chile	CHL	48	67	Niger	NER	48
20	Colombia	COL	46	68	Nigeria	NGA	37
21	Comoros	COM	36	69	Norway	NOR	48
22	Congo	COG	42	70	Oman	OMN	45
23	Costa Rica	CRI	48	71	Pakistan	PAK	48
24	Czech Republic	CZE	25	72	Panama	PAN	48
25	Denmark	DNK	48	73	Paraguay	PRY	48
26	Dominican Republic	DOM	48	74	Peru	PER	48
27	Ecuador	ECU	48	75	Philippines	PHL	48
28	Egypt	EGY	48	76	Portugal	PRT	48
29	El Salvador	SLV	48	77	Rwanda	RWA	47
30	Estonia	EST	25	78	Saudi Arabia	SAU	48
31	Finland	FIN	48	79	Senegal	SEN	48
32	France	FRA	46	80	Singapore	SGP	48
33	Gabon	GAB	48	81	Slovenia	SVN	27
34	Gambia	GMB	39	82	South Africa	ZAF	47
35	Germany	DEU	48	83	Spain	ESP	46
36	Ghana	GHA	48	84	Sri Lanka	LKA	48
37	Greece	GRC	48	85	Sudan	SDN	41
38	Guatemala	GTM	48	86	Sweden	SWE	48
39	Guinea	GIN	28	87	Switzerland	CHE	47
40	Honduras	HND	26	88	Thailand	THA	47
41	Hungary	HUN	27	89	Togo	TGO	48
42	Iceland	ISL	48	90	Tunisia	TUN	44
43	India	IND	48	91	Turkey	TUR	48
44	Indonesia	IDN	38	92	Ukraine	UKR	26
45	Ireland	IRL	48	93	United Kingdom	GBR	48
46	Israel	ISR	48	94	United States	USA	48
47	Italy	ITA	48	95	Uruguay	URY	48
48	Jamaica	JAM	46				

A2. Data Appendix

Variables	Description.	Secondary Source	Primary Source
MVA	Gross value added of manufacturing sector in constant 2015 US$	-	The National Accounts Main Aggregates of the United Nations Statistics Division
SVA	Gross value added of services sector in constant 2015 US$	-	
$AGRVA$	Gross value added of agricultural sector in constant 2015 US$	-	
PC	Private credit by deposit money banks and other financial institutions as a percentage of GDP	The Global Financial Development Database Beck, Demirgüç-Kunt, and Levine (2000, 2009) and Cihak et al. (2012)	IMF International Financial Statistics (IFS)
PC^b	Private credit by deposit money banks as a percentage of GDP		
LL	Liquid liabilities as a percentage of GDP		
HHD	Household debt as a share of GDP: the total stock of loans and debt securities issued by households as a share of GDP	Global Debt Database, IMF	-
NFCD	Non-Financial Corporate Debt as a share of GDP: : the total stock of loans and debt securities issued by non-financial corporations as a share of GDP		
$OPEN$	The sum of imports and exports of goods and services divided by GDP	-	World Development Indicators
GC	Government final consumption expenditure as a percentage of GDP	-	

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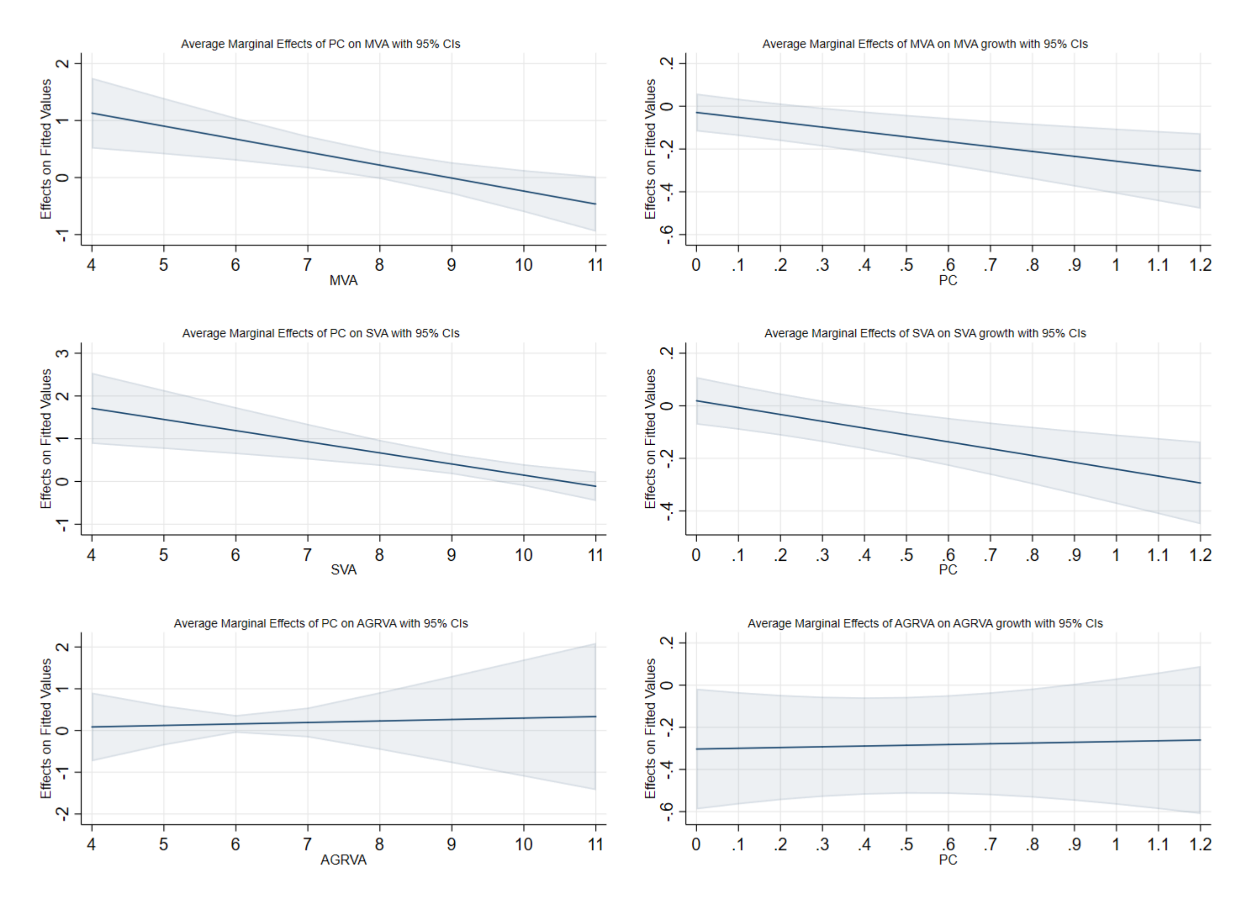
Figure 1: Credit Creation and Sectoral Growth: Marginal Effects from Homogenous Panel Data Models using 5- years non-overlapping averages



Note: The graph shows two marginal effects for each sector: 1) The marginal effects of private credit on sectoral output as a function of output. 2) The marginal effects of the lagged output on output growth as a function private credit. MVA: Manufacturing value-added, SVA: Services value-added, AGRVA: Agricultural value-added. These graphs correspond to the system GMM estimates of equation (3) using 5-years non-overlapping averages. Actual estimates reported in table LA1 column (6), Long Appendix.

Table 1: Descriptive statistics

Variables	Obs.	Mean	Median	Standard deviation	Min	Max
<u>In levels</u>						
MVA	4410	1778.86	708.18	2335.84	4.78	23365.27
SVA	4410	9015.35	2927.21	12249.22	49.23	87064.81
$AGRVA$	4410	412.85	319.76	390.9	14.6	4299.26
PC	4195	0.41	0.28	0.36	0.01	2.61
$OPEN$	4277	0.75	0.63	0.51	0.06	4.37
GC	4230	0.16	0.15	0.06	0.01	0.76
<u>In logs</u>						
MVA	4410	6.5	6.56	1.59	1.56	10.06
SVA	4410	8.06	7.98	1.61	3.9	11.37
$AGRVA$	4410	5.78	5.77	.67	2.68	8.37
PC	4195	3.33	3.33	.94	-.14	5.56
$OPEN$	4277	4.14	4.14	.59	1.84	6.08
GC	4230	2.69	2.73	.41	-.09	4.33

Note: MVA, SVA, and $AGRVA$ variables are sectoral value added per capita for manufacturing, services, and agricultural, respectively. PC is the ratio of private credit to GDP. Trade openness $OPEN$ is calculated as the ratio of the sum of imports and exports to GDP. GC is the ratio of government consumption to GDP. See Appendix (Table A1 and A2) for more details about data coverage, data source, and variables definitions.

Table 2: Credit Creation and Sectoral Growth: Homogenous Panel Data Estimates

Dependent variable: Sectoral value added VA_t	(1) FE	(2) Diff-GMM	(3) Sys-GMM	(4) FE	(5) Diff-GMM	(6) Sys-GMM
Panel A: Manufacturing sector						
VA_{t-1}	0.928***	0.890***	0.963***	0.930***	0.876***	0.957***
	(0.013)	(0.057)	(0.047)	(0.013)	(0.066)	(0.054)
PC_t	-0.016*	-0.093*	-0.078	0.115*	0.550	0.604
	(0.009)	(0.051)	(0.060)	(0.064)	(0.436)	(0.383)
$VA_{t-1} \times PC_t$				-0.016**	-0.080	-0.078*
				(0.008)	(0.055)	(0.046)
$OPEN_t$	0.041***	-0.015	0.070	0.041***	0.010	0.075
	(0.010)	(0.071)	(0.046)	(0.009)	(0.076)	(0.046)
GC_t	-0.051***	-0.013	-0.039	-0.051***	0.009	-0.048*
	(0.016)	(0.049)	(0.027)	(0.016)	(0.057)	(0.029)
Obs.	3799	3687	3799	3799	3687	3799
Countries	88	88	88	88	88	88
R-squared	0.932	-	-	0.932	-	-
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
Specification tests (*p-values*)						
Hansen test	-	1.000	1.000	-	1.000	1.000
Serial correlation						
First - order	-	0.002	0.002	-	0.003	0.003
Second - order	-	0.058	0.082	-	0.061	0.084
Panel B: Services sector						
VA_{t-1}	0.963***	0.980***	1.017***	0.963***	0.945***	1.016***
	(0.006)	(0.031)	(0.028)	(0.006)	(0.058)	(0.056)
PC_t	-0.020***	-0.130***	-0.096***	0.028	-0.137	-0.200
	(0.006)	(0.029)	(0.025)	(0.065)	(0.274)	(0.294)
$VA_{t-1} \times PC_t$				-0.005	0.005	0.013
				(0.006)	(0.030)	(0.030)
$OPEN_t$	0.024***	-0.024	0.010	0.024***	-0.037	0.012
	(0.007)	(0.021)	(0.014)	(0.007)	(0.037)	(0.043)
GC_t	-0.025**	-0.040**	-0.076***	-0.024**	-0.037	-0.079**
	(0.010)	(0.016)	(0.017)	(0.010)	(0.034)	(0.034)
Obs.	3799	3687	3799	3799	3687	3799
Countries	88	88	88	88	88	88
R-squared	0.974	-	-	0.974	-	-
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
Specification tests (*p-values*)						
Hansen test	-	1.000	1.000	-	1.000	1.000
Serial correlation						
First - order	-	0.000	0.000	-	0.000	0.000
Second - order	-	0.072	0.051	-	0.080	0.049
Panel C: Agricultural sector						
VA_{t-1}	0.927***	0.045	-0.149***	0.928***	0.180	0.449***
	(0.018)	(0.035)	(0.056)	(0.014)	(0.121)	(0.158)
PC_t	-0.013	0.008	0.282***	0.006	1.969	-1.368
	(0.012)	(0.071)	(0.102)	(0.139)	(1.394)	(1.233)
$VA_{t-1} \times PC_t$				-0.003	-0.342	0.252
				(0.021)	(0.228)	(0.212)
$OPEN_t$	0.008	0.006	-0.266***	0.008	-0.010	-0.287***
	(0.009)	(0.039)	(0.053)	(0.009)	(0.120)	(0.089)
GC_t	-0.022	-0.144***	0.018	-0.022	-0.082	-0.122
	(0.014)	(0.039)	(0.071)	(0.014)	(0.077)	(0.086)
Obs.	3799	3687	3799	3799	3687	3799
Countries	88	88	88	88	88	88
R-squared	0.851	-	-	0.851	-	-
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
Specification tests (*p-values*)						
Hansen test	-	1.000	1.000	-	1.000	1.000
Serial correlation						
First - order	-	0.000	0.664	-	0.111	0.000
Second - order	-	0.500	0.120	-	0.661	0.807

Note: Standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. The dependent variables are the logarithm of sectoral value added per capita (VA). The set of independent variables include the level of private credit over GDP (PC), the logarithm of trade openness ($OPEN$), and the logarithm of government consumption over GDP (GC). The estimates use annual data. Diff-GMM stands for the difference GMM estimator of Arellano and Bond (1991). Sys-GMM stands for the system GMM estimator of Blundell and Bond (1998). The Hansen test is the test of the H0: the instruments as a group are exogenous. Hansen test p-value from the two step GMM estimations is reported which is robust to heteroskedasticity or autocorrelation. P-value of AR(1) & AR(2) serial correlation tests in residuals are also reported. Note that to pass these tests, one has to reject the null of no AR(1) and fail to reject the null of no AR(2). See Appendix (Table A1 and A2) for more details about data coverage, data source, and variables definitions.

Table 3: Credit Creation and Sectoral Growth: Mean Group Estimates

Dependent variable: Sectoral value added VA_t	(1) MG	(2) MG	(3) MG	(4) MG	(5) MG	(6) MG	(7) MG	(8) MG
Panel A: Manufacturing sector								
VA_{t-1}	0.901***	0.850***	0.877***	0.823***	0.970***	0.900***	0.951***	0.894***
	(0.012)	(0.014)	(0.014)	(0.015)	(0.037)	(0.040)	(0.044)	(0.045)
PC_t	0.054*	0.044	0.101**	0.098**	2.946***	2.563**	3.014***	2.677***
	(0.030)	(0.033)	(0.043)	(0.047)	(1.065)	(1.030)	(1.096)	(0.940)
$VA_{t-1} \times PC_t$					-0.540**	-0.478**	-0.548**	-0.462**
					(0.233)	(0.227)	(0.236)	(0.181)
$OPEN_t$		0.072***		0.092***		0.079***		0.096***
		(0.023)		(0.020)		(0.022)		(0.022)
GC_t			-0.134***	-0.130***			-0.151***	-0.157***
			(0.023)	(0.023)			(0.024)	(0.027)
Obs.	4109	4070	4025	4024	4109	4070	4025	4024
Countries	95	95	95	95	95	95	95	95
RMSE	0.09	0.08	0.08	0.08	0.09	0.08	0.08	0.08
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
CD test statistic	41.05***	37.69***	37.58***	33.03***	39.93***	35.81***	35.86***	30.27***
Panel B: Services sector								
VA_{t-1}	0.960***	0.939***	0.945***	0.927***	0.986***	0.939***	0.981***	0.954***
	(0.008)	(0.011)	(0.012)	(0.013)	(0.023)	(0.032)	(0.027)	(0.028)
PC_t	0.001	-0.010	0.031	0.019	2.113*	2.081	2.727**	2.405**
	(0.031)	(0.038)	(0.036)	(0.039)	(1.091)	(1.280)	(1.072)	(1.145)
$VA_{t-1} \times PC_t$					-0.291*	-0.303	-0.380**	-0.337*
					(0.161)	(0.192)	(0.165)	(0.175)
$OPEN_t$		0.063***		0.049***		0.058***		0.052***
		(0.014)		(0.009)		(0.010)		(0.009)
GC_t			-0.100***	-0.092***			-0.091***	-0.081***
			(0.024)	(0.024)			(0.018)	(0.019)
Obs.	4109	4070	4025	4024	4109	4070	4025	4024
Countries	95	95	95	95	95	95	95	95
RMSE	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
CD test statistic	21.20***	17.28***	14.53***	12.06***	20.09***	16.74***	14.25***	11.92***
Panel C: Agricultural sector								
VA_{t-1}	0.769***	0.710***	0.738***	0.676***	0.817***	0.734***	0.766***	0.699***
	(0.021)	(0.024)	(0.023)	(0.026)	(0.045)	(0.050)	(0.046)	(0.054)
PC_t	0.046	0.027	0.067**	0.044	2.514***	1.924*	2.261**	1.886*
	(0.031)	(0.038)	(0.033)	(0.042)	(0.928)	(1.100)	(0.937)	(1.114)
$VA_{t-1} \times PC_t$					-0.443***	-0.350*	-0.387**	-0.331*
					(0.168)	(0.197)	(0.170)	(0.199)
$OPEN_t$		0.022		0.027		0.036		0.041
		(0.029)		(0.029)		(0.032)		(0.030)
GC_t			-0.051**	-0.064**			-0.065**	-0.081***
			(0.024)	(0.026)			(0.026)	(0.026)
Obs.	4109	4070	4025	4024	4109	4070	4025	4024
Countries	95	95	95	95	95	95	95	95
RMSE	0.09	0.08	0.08	0.08	0.09	0.08	0.08	0.08
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
CD test statistic	3.11***	2.26**	2.39**	1.77*	3.05***	2.29**	2.49**	1.83*

Notes: Standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. MG stands for Mean Group estimator of Pesaran and Smith (1995) which is obtained by averaging the estimated coefficients of the OLS regression for each group (see section 3.1 for more details). The dependent variables are the logarithm of sectoral value added per capita (VA). The set of independent variables include the level of private credit over GDP (PC), the logarithm of trade openness ($OPEN$), and the logarithm of government consumption over GDP (GC). RMSE is the root mean squared error. CD test reports the Pesaran (2015) test under the null of weak cross-sectionally dependent residuals against the alternative of strong cross-sectional dependence. As referred in section 3.2, cross-sectional independence is a restrictive assumption for large panels and only weak cross-sectional dependence is required for estimation (see Pesaran (2015) and Ditzen (2018)).

Table 4: Credit Creation and Sectoral Growth: Dynamic CCEMG Estimates using Unbalanced Panels

Dependent variable: Sectoral value added VA_t	(1) Dynamic CCEMG	(2) Dynamic CCEMG	(3) Dynamic CCEMG	(4) Dynamic CCEMG	(5) Dynamic CCEMG	(6) Dynamic CCEMG	(7) Dynamic CCEMG	(8) Dynamic CCEMG
Panel A: Manufacturing sector								
VA_{t-1}	0.798***	0.763***	0.697***	0.551***	0.854***	0.761***	0.777***	0.739***
	(0.020)	(0.025)	(0.025)	(0.108)	(0.057)	(0.048)	(0.051)	(0.050)
PC_t	-0.003	0.010	-0.038	-0.087	5.261***	4.049***	5.185***	4.966***
	(0.052)	(0.062)	(0.071)	(0.127)	(1.724)	(1.262)	(1.530)	(1.499)
$VA_{t-1} \times PC_t$					-1.005***	-0.721***	-0.970***	-0.902***
					(0.364)	(0.244)	(0.297)	(0.285)
Cross-sectional averages								
$OPEN$	No	Yes	No	Yes	No	Yes	No	Yes
GC	No	No	Yes	Yes	No	No	Yes	Yes
Obs.	3762	3723	3672	3668	3762	3837	3788	3785
Countries	95	95	95	95	95	95	95	95
RMSE	0.08	0.08	0.07	0.07	0.08	0.08	0.07	0.06
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
CD test statistic	24.44***	13.44***	13.53***	10.98***	19.60***	14.63***	11.81***	11.75***
Panel B: Services sector								
VA_{t-1}	0.869***	0.826***	0.789***	0.751***	0.901***	0.781***	0.827***	0.668***
	(0.021)	(0.025)	(0.026)	(0.034)	(0.050)	(0.056)	(0.042)	(0.077)
PC_t	-0.051	-0.004	-0.026	-0.032	4.774***	0.675	3.189**	-1.480
	(0.042)	(0.050)	(0.055)	(0.059)	(1.634)	(1.912)	(1.286)	(2.435)
$VA_{t-1} \times PC_t$					-0.670***	-0.029	-0.454**	0.220
					(0.228)	(0.288)	(0.176)	(0.341)
Cross-sectional averages								
$OPEN$	No	Yes	No	Yes	No	Yes	No	Yes
GC	No	No	Yes	Yes	No	No	Yes	Yes
Obs.	3762	3723	3672	3668	3762	3837	3788	3785
Countries	95	95	95	95	95	95	95	95
RMSE	0.05	0.05	0.05	0.04	0.05	0.04	0.04	0.04
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
CD test statistic	17.94***	8.12***	10.15***	7.90***	14.03***	9.5***	9.30***	7.86***
Panel C: Agricultural sector								
VA_{t-1}	0.578***	0.423***	0.414***	0.261***	0.661***	0.570***	0.435***	0.579***
	(0.033)	(0.035)	(0.036)	(0.045)	(0.098)	(0.103)	(0.098)	(0.165)
PC_t	-0.028	0.001	0.082	0.033	4.040**	2.757	1.770	3.742
	(0.047)	(0.058)	(0.072)	(0.109)	(1.899)	(2.008)	(1.621)	(2.586)
$VA_{t-1} \times PC_t$					-0.717**	-0.485	-0.331	-0.636
					(0.331)	(0.361)	(0.280)	(0.456)
Cross-sectional averages								
$OPEN$	No	Yes	No	Yes	No	Yes	No	Yes
GC	No	No	Yes	Yes	No	No	Yes	Yes
Obs.	3762	3723	3672	3668	3762	3837	3788	3785
Countries	95	95	95	95	95	95	95	95
RMSE	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
CD test statistic	2.38**	1.67*	2.03**	2.45**	4.01***	1.46	1.81*	2.35**

Notes: Standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. CCEMG stands for the common correlated effects mean-group estimator of Pesaran (2006), which is implemented by augmenting the group-specific OLS regression by the cross-sectional averages of the dependent and independent variables. For the dynamic CCEMG, we add further cross-section averages of additional lags as outlined in Chudik and Pesaran (2015) (see section 3.1 for more details). The dependent variables are the logarithm of sectoral value added per capita (VA). The set of independent variables include the level of private credit over GDP (PC), the logarithm of trade openness ($OPEN$), and the logarithm of government consumption over GDP (GC). RMSE is the root mean squared error. CD test reports the Pesaran (2015) test under the null of weak cross-sectionally dependent residuals against the alternative of strong cross-sectional dependence. As referred in section 3.2, cross-sectional independence is a restrictive assumption for large panels and only weak cross-sectional dependence is required for estimation (see Pesaran (2015) and Ditzen (2018)).

Table 5: Credit Creation and Sectoral Growth: Dynamic CCEMG Estimates using Balanced Panels

Dependent variable: Sectoral value added VA_t	(1) Dynamic CCEMG	(2) Dynamic CCEMG	(3) Dynamic CCEMG	(4) Dynamic CCEMG	(5) Dynamic CCEMG	(6) Dynamic CCEMG	(7) Dynamic CCEMG	(8) Dynamic CCEMG
Panel A: Manufacturing sector								
VA_{t-1}	0.725***	0.722***	0.732***	0.682***	0.634***	0.668***	0.549***	0.740***
	(0.057)	(0.064)	(0.051)	(0.062)	(0.172)	(0.144)	(0.128)	(0.151)
PC_t	3.147***	3.645**	3.513***	3.120**	7.078*	11.021***	4.875*	13.264***
	(1.059)	(1.422)	(1.149)	(1.383)	(3.723)	(3.688)	(2.678)	(3.653)
$VA_{t-1} \times PC_t$	-0.488***	-0.560**	-0.578***	-0.504**	-1.181*	-2.026***	-0.905*	-2.417***
	(0.180)	(0.260)	(0.197)	(0.245)	(0.658)	(0.667)	(0.480)	(0.645)
Cross-sectional averages								
$OPEN$	No	Yes	No	Yes	No	Yes	No	Yes
GC	No	No	Yes	Yes	No	No	Yes	Yes
Obs.	2112	2160	2160	2160	1560	1625	1625	1625
Countries	48	48	48	48	65	65	65	65
RMSE	0.08	0.06	0.06	0.06	0.08	0.04	0.04	0.04
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1990-2017	1990-2017	1990-2017	1990-2017
CD test statistic	-0.81	0.07	-1.20	-1.00	0.28	0.18	-0.33	-0.50
Panel B: Services sector								
VA_{t-1}	0.733***	0.759***	0.766***	0.747***	0.266**	0.351**	0.225**	0.124
	(0.073)	(0.076)	(0.073)	(0.076)	(0.135)	(0.140)	(0.114)	(0.156)
PC_t	1.637	1.643	2.106	1.645	-1.351	4.755	-0.904	-0.722
	(2.364)	(2.550)	(2.231)	(2.370)	(4.426)	(3.614)	(2.896)	(3.707)
$VA_{t-1} \times PC_t$	-0.163	-0.143	-0.201	-0.133	0.433	-0.629	0.268	0.200
	(0.350)	(0.388)	(0.342)	(0.363)	(0.736)	(0.513)	(0.403)	(0.523)
Cross-sectional averages								
$OPEN$	No	Yes	No	Yes	No	Yes	No	Yes
GC	No	No	Yes	Yes	No	No	Yes	Yes
Obs.	2112	2160	2160	2160	1560	1625	1625	1625
Countries	48	48	48	48	65	65	65	65
RMSE	0.04	0.04	0.04	0.04	0.05	0.03	0.02	0.02
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1990-2017	1990-2017	1990-2017	1990-2017
CD test statistic	-1.58	-2.12**	-1.96*	-2.13**	-1.08	-0.78	-1.86*	0.31
Panel C: Agricultural sector								
VA_{t-1}	0.816***	0.846***	0.724***	0.706***	-0.112	0.102	0.125	-0.081
	(0.104)	(0.105)	(0.096)	(0.104)	(0.178)	(0.190)	(0.177)	(0.329)
PC_t	7.050***	7.250***	6.122***	6.307***	-3.113	2.223	0.566	2.980
	(2.153)	(2.203)	(2.093)	(2.386)	(2.795)	(2.968)	(2.657)	(5.627)
$VA_{t-1} \times PC_t$	-1.273***	-1.328***	-1.102***	-1.162***	0.520	-0.408	-0.076	-0.433
	(0.379)	(0.400)	(0.372)	(0.426)	(0.496)	(0.533)	(0.469)	(0.957)
Cross-sectional averages								
$OPEN$	No	Yes	No	Yes	No	Yes	No	Yes
GC	No	No	Yes	Yes	No	No	Yes	Yes
Obs.	2112	2160	2160	2160	1560	1625	1625	1625
Countries	48	48	48	48	65	65	65	65
RMSE	0.06	0.06	0.06	0.06	0.05	0.05	0.06	0.05
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1990-2017	1990-2017	1990-2017	1990-2017
CD test statistic	-3.48**	-3.31***	-3.17***	-3.42***	-1.45	-1.70*	-2.02**	-2.71***

Notes: Standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. CCEMG stands for the common correlated effects mean-group estimator of Pesaran (2006), which is implemented by augmenting the group-specific OLS regression by the cross-sectional averages of the dependent and independent variables. For the dynamic CCEMG, we add further cross-section averages of additional lags as outlined in Chudik and Pesaran (2015) (see section 3.1 for more details). The dependent variables are the logarithm of sectoral value added per capita (VA). The set of independent variables include the level of private credit over GDP (PC), the logarithm of trade openness ($OPEN$), and the logarithm of government consumption over GDP (GC). RMSE is the root mean squared error. CD test reports the Pesaran (2015) test under the null of weak cross-sectionally dependent residuals against the alternative of strong cross-sectional dependence. As referred in section 3.2, cross-sectional independence is a restrictive assumption for large panels and only weak cross-sectional dependence is required for estimation (see Pesaran (2015) and Ditzen (2018)).

Table 6: Credit Impulse and Sectoral Growth: Dynamic CCEMG Estimates using Balanced Panels

Dependent variable: Sectoral value added VA_t	(1) Dynamic CCEMG	(2) Dynamic CCEMG	(3) Dynamic CCEMG	(4) Dynamic CCEMG	(5) Dynamic CCEMG	(6) Dynamic CCEMG	(7) Dynamic CCEMG	(8) Dynamic CCEMG
Panel A: Manufacturing sector								
VA_{t-1}	0.789***	0.787***	0.756***	0.745***	0.530***	0.455***	0.466***	0.310***
	(0.025)	(0.024)	(0.026)	(0.027)	(0.041)	(0.049)	(0.043)	(0.057)
ΔPC_t	4.905	4.609	6.359*	5.875	13.040*	10.923	9.288	4.819
	(3.995)	(3.856)	(3.636)	(4.052)	(7.719)	(7.594)	(6.840)	(7.915)
$VA_{t-1} \times \Delta PC_t$	-0.609	-0.547	-0.749	-0.709	-2.677	-1.956	-1.992	-0.843
	(0.733)	(0.715)	(0.686)	(0.750)	(1.705)	(1.457)	(1.519)	(1.545)
Cross-sectional averages								
$OPEN$	No	Yes	No	Yes	No	Yes	No	Yes
GC	No	No	Yes	Yes	No	No	Yes	Yes
Obs.	2112	2160	2160	2160	1560	1625	1625	1625
Countries	48	48	48	48	65	65	65	65
RMSE	0.07	0.07	0.07	0.07	0.05	0.05	0.05	0.04
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1990-2017	1990-2017	1990-2017	1990-2017
CD test statistic	-0.34	-0.14	-0.83	-0.52	0.97	-0.59	0.13	0.42
Panel B: Services sector								
VA_{t-1}	0.826***	0.848***	0.786***	0.794***	0.387***	0.423***	0.389***	0.326***
	(0.024)	(0.024)	(0.026)	(0.028)	(0.060)	(0.053)	(0.052)	(0.064)
ΔPC_t	2.656	5.013*	6.042**	6.195*	3.824	6.815	1.233	1.844
	(2.652)	(2.878)	(2.966)	(3.282)	(6.783)	(5.110)	(3.456)	(4.939)
$VA_{t-1} \times \Delta PC_t$	-0.284	-0.621	-0.729*	-0.752	-0.817	-0.903	0.019	-0.126
	(0.385)	(0.422)	(0.440)	(0.490)	(0.987)	(0.763)	(0.487)	(0.691)
Cross-sectional averages								
$OPEN$	No	Yes	No	Yes	No	Yes	No	Yes
GC	No	No	Yes	Yes	No	No	Yes	Yes
Obs.	2112	2160	2160	2160	1560	1625	1625	1625
Countries	48	48	48	48	65	65	65	65
RMSE	0.05	0.05	0.05	0.04	0.03	0.03	0.03	0.03
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1990-2017	1990-2017	1990-2017	1990-2017
CD test statistic	-2.12**	-2.15**	-2.91***	-2.78***	-2.08**	-1.80*	-1.40	-1.00
Panel C: Agricultural sector								
VA_{t-1}	0.746***	0.684***	0.724***	0.620***	0.299***	0.222***	0.350***	0.125*
	(0.030)	(0.035)	(0.033)	(0.038)	(0.060)	(0.052)	(0.056)	(0.064)
ΔPC_t	2.218	3.142	2.128	0.183	-2.663	-1.292	-0.413	0.859
	(4.071)	(4.224)	(4.770)	(4.558)	(8.354)	(7.911)	(7.090)	(9.846)
$VA_{t-1} \times \Delta PC_t$	-0.466	-0.666	-0.497	-0.174	0.448	-0.069	-0.045	-0.364
	(0.724)	(0.766)	(0.851)	(0.806)	(1.415)	(1.381)	(1.237)	(1.728)
Cross-sectional averages								
$OPEN$	No	Yes	No	Yes	No	Yes	No	Yes
GC	No	No	Yes	Yes	No	No	Yes	Yes
Obs.	2112	2160	2160	2160	1560	1625	1625	1625
Countries	48	48	48	48	65	65	65	65
RMSE	0.06	0.06	0.07	0.06	0.06	0.06	0.06	0.06
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1990-2017	1990-2017	1990-2017	1990-2017
CD test statistic	-3.71***	-3.38***	-3.57***	-3.06***	-1.50	-2.23**	-1.07	-1.93*

Notes: Standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. CCEMG stands for the common correlated effects mean-group estimator of Pesaran (2006), which is implemented by augmenting the group-specific OLS regression by the cross-sectional averages of the dependent and independent variables. For the dynamic CCEMG, we add further cross-section averages of additional lags as outlined in Chudik and Pesaran (2015) (see section 3.1 for more details). The dependent variables are the logarithm of sectoral value added per capita (VA). The set of independent variables include the level of private credit over GDP (PC), the logarithm of trade openness ($OPEN$), and the logarithm of government consumption over GDP (GC). RMSE is the root mean squared error. CD test reports the Pesaran (2015) test under the null of weak cross-sectionally dependent residuals against the alternative of strong cross-sectional dependence. As referred in section 3.2, cross-sectional independence is a restrictive assumption for large panels and only weak cross-sectional dependence is required for estimation (see Pesaran (2015) and Ditzen (2018)).

Table 7: Household Credit and Sectoral Growth: Homogenous Panel Estimates using non-overlapping 5-year averages

Dependent variable: Sectoral value added VA_t	(1) FE	(2) Diff-GMM	(3) Sys-GMM	(4) FE	(5) Diff-GMM	(6) Sys-GMM
Panel A: Manufacturing sector						
VA_{t-1}	0.673***	0.511***	1.106***	0.725***	0.565***	1.148***
	(0.112)	(0.116)	(0.085)	(0.109)	(0.113)	(0.079)
HHD	-0.278***	-1.045***	-0.237	2.208***	3.715***	1.810**
	(0.074)	(0.290)	(0.269)	(0.547)	(1.191)	(0.802)
$VA_{t-1} \times HHD_t$				-0.305***	-0.510***	-0.263**
				(0.067)	(0.125)	(0.108)
$OPEN_t$	0.114*	0.145	0.170	0.080	-0.200	0.203*
	(0.065)	(0.216)	(0.110)	(0.059)	(0.229)	(0.109)
GC_t	-0.172*	-0.227	-0.567	-0.223***	-0.246	-0.364
	(0.088)	(0.221)	(0.341)	(0.076)	(0.157)	(0.319)
Obs.	275	218	275	275	218	275
Countries	57	57	57	57	57	57
R-squared	0.758	-	-	0.785	-	-
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
Specification tests (*p-values*)						
Hansen test	-	0.315	1.000	-	0.423	0.328
Serial correlation						
First - order	-	0.667	0.002	-	0.505	0.061
Second - order	-	0.103	0.082	-	0.413	0.221
Panel B: Services sector						
VA_{t-1}	0.399**	0.325	1.077***	0.438**	0.268**	1.144***
	(0.198)	(0.215)	(0.066)	(0.164)	(0.128)	(0.065)
HHD	0.026	-0.499*	-0.040	2.892***	4.619***	3.619***
	(0.069)	(0.291)	(0.211)	(0.536)	(1.080)	(0.796)
$VA_{t-1} \times HHD_t$				-0.286***	-0.464***	-0.383***
				(0.051)	(0.104)	(0.086)
$OPEN_t$	-0.110	-0.346*	0.112	-0.151**	-0.391***	0.116
	(0.078)	(0.174)	(0.111)	(0.063)	(0.146)	(0.109)
GC_t	-0.129	0.005	-0.681***	-0.197**	0.083	-0.319
	(0.087)	(0.149)	(0.254)	(0.085)	(0.100)	(0.213)
Obs.	275	218	275	275	218	275
Countries	57	57	57	57	57	57
R-squared	0.874	-	-	0.902	-	-
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
Specification tests (*p-values*)						
Hansen test	-	0.271	0.130	-	0.617	0.266
Serial correlation						
First - order	-	0.853	0.070	-	0.841	0.088
Second - order	-	0.607	0.445	-	0.539	0.462
Panel C: Agricultural sector						
VA_{t-1}	0.771***	0.526***	0.807***	0.803***	0.529***	0.799***
	(0.059)	(0.083)	(0.107)	(0.064)	(0.142)	(0.155)
HHD	-0.202***	-0.318	0.169	0.275	-0.216	0.028
	(0.071)	(0.254)	(0.222)	(0.284)	(1.266)	(1.224)
$VA_{t-1} \times HHD_t$				-0.070*	-0.014	0.024
				(0.042)	(0.169)	(0.191)
$OPEN_t$	-0.059	0.173	-0.359***	-0.062	0.135	-0.364***
	(0.057)	(0.147)	(0.104)	(0.058)	(0.136)	(0.108)
GC_t	-0.113*	-0.131	0.071	-0.108	-0.115	0.060
	(0.066)	(0.138)	(0.251)	(0.066)	(0.115)	(0.272)
Obs.	275	218	275	275	218	275
Countries	57	57	57	57	57	57
R-squared	0.691	-	-	0.694	-	-
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
Specification tests (*p-values*)						
Hansen test	-	0.459	0.302	-	0.527	0.281
Serial correlation						
First - order	-	0.932	0.048	-	0.928	0.067
Second - order	-	0.223	0.447	-	0.266	0.467

Notes: Standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. The dependent variables are the logarithm of sectoral value added per capita (VA). The set of independent variables include the level of Household debt over GDP (HHD), the logarithm of trade openness ($OPEN$), and the logarithm of government consumption over GDP (GC).The estimates use 5-years non-overlapping averages data. Diff-GMM stands for the difference GMM estimator of Arellano and Bond (1991). Sys-GMM stands for the system GMM estimator of Blundell and Bond (1998). Hansen test is the test of the H0: the instruments as a group are exogenous. Hansen test p-value from the two step GMM estimations is reported which is robust to heteroskedasticity or autocorrelation. P-value of AR(1) & AR(2) serial correlation tests in residuals are also reported. Note that to pass these tests, one has to reject the null of no AR(1) and fail to reject the null of no AR(2). See Appendix (Table A1 and A2) for more details about data coverage, data source, and variables definitions.

Table 8: Corporation Credit and Sectoral Growth: Homogenous Panel Estimates using non-overlapping 5-year averages

Dependent variable: Sectoral value added VA_t	(1) FE	(2) Diff-GMM	(3) Sys-GMM	(4) FE	(5) Diff-GMM	(6) Sys-GMM
Panel A: Manufacturing sector						
VA_{t-1}	0.677***	0.461***	1.070***	0.754***	0.534***	1.063***
	(0.111)	(0.120)	(0.063)	(0.112)	(0.135)	(0.055)
$NFCD$	-0.058	-0.164*	-0.041	1.407***	2.632***	3.173***
	(0.044)	(0.096)	(0.116)	(0.225)	(0.499)	(1.080)
$VA_{t-1} \times NFCD_t$				-0.176***	-0.336***	-0.380***
				(0.028)	(0.064)	(0.131)
$OPEN_t$	0.164**	0.027	0.069	0.145**	-0.093	0.084
	(0.064)	(0.222)	(0.112)	(0.057)	(0.222)	(0.076)
GC_t	-0.219**	-0.442**	-0.656**	-0.155**	-0.167	-0.247
	(0.088)	(0.216)	(0.273)	(0.075)	(0.200)	(0.305)
Obs.	275	218	275	275	218	275
Countries	57	57	57	57	57	57
R-squared	0.748	-	-	0.777	-	-
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
Specification tests (*p-values*)						
Hansen test	-	0.099	0.299	-	0.392	0.105
Serial correlation						
First - order	-	0.900	0.053	-	0.649	0.038
Second - order	-	0.267	0.246	-	0.126	0.224
Panel B: Services sector						
VA_{t-1}	0.407**	0.298	1.107***	0.451***	0.334**	1.082***
	(0.200)	(0.194)	(0.055)	(0.164)	(0.135)	(0.042)
$NFCD$	-0.004	-0.116	-0.069	1.262***	2.052***	1.707***
	(0.022)	(0.122)	(0.103)	(0.339)	(0.528)	(0.436)
$VA_{t-1} \times NFCD_t$				-0.123***	-0.205***	-0.165***
				(0.034)	(0.058)	(0.042)
$OPEN_t$	-0.115	-0.279	0.076	-0.132**	-0.249**	0.042
	(0.079)	(0.171)	(0.112)	(0.060)	(0.110)	(0.079)
GC_t	-0.125	-0.089	-0.754***	-0.059	0.138	-0.481***
	(0.083)	(0.161)	(0.273)	(0.067)	(0.123)	(0.177)
Obs.	275	218	275	275	218	275
Countries	57	57	57	57	57	57
R-squared	0.874	-	-	0.895	-	-
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
Specification tests (*p-values*)						
Hansen test	-	0.106	0.117	-	0.252	0.205
Serial correlation						
First - order	-	0.102	0.066	-	0.392	0.051
Second - order	-	0.322	0.549	-	0.542	0.487
Panel C: Agricultural sector						
VA_{t-1}	0.728***	0.440***	0.915***	0.710***	0.395***	0.782***
	(0.048)	(0.102)	(0.071)	(0.051)	(0.131)	(0.241)
$NFCD$	-0.088**	-0.133	0.012	-0.221	-0.284	-0.822
	(0.039)	(0.115)	(0.074)	(0.249)	(0.672)	(1.156)
$VA_{t-1} \times NFCD_t$				0.018	0.016	0.128
				(0.030)	(0.102)	(0.183)
$OPEN_t$	-0.034	0.158	-0.293***	-0.032	0.143	-0.350***
	(0.058)	(0.140)	(0.075)	(0.057)	(0.145)	(0.113)
GC_t	-0.149**	-0.280*	-0.024	-0.161**	-0.346**	-0.067
	(0.068)	(0.165)	(0.234)	(0.069)	(0.156)	(0.222)
Obs.	275	218	275	275	218	275
Countries	57	57	57	57	57	57
R-squared	0.699	-	-	0.701	-	-
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
Specification tests (*p-values*)						
Hansen test	-	0.266	0.390	-	0.206	0.372
Serial correlation						
First - order	-	0.600	0.001	-	0.488	0.008
Second - order	-	0.364	0.330	-	0.403	0.365

Notes: Standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. The dependent variables are the logarithm of sectoral value added per capita (VA). The set of independent variables include the level of non-financial corporate debt over GDP (NFCD), the logarithm of trade openness ($OPEN$), and the logarithm of government consumption over GDP (GC). The estimates use 5-years non-overlapping averages data. Diff-GMM stands for the difference GMM estimator of Arellano and Bond (1991). Sys-GMM stands for the system GMM estimator of Blundell and Bond (1998). Hansen test is the test of the H0: the instruments as a group are exogenous. Hansen test p-value from the two step GMM estimations is reported which is robust to heteroskedasticity or autocorrelation. P-value of AR(1) & AR(2) serial correlation tests in residuals are also reported. Note that to pass these tests, one has to reject the null of no AR(1) and fail to reject the null of no AR(2). See Appendix (Table A1 and A2) for more details about data coverage, data source, and variables definitions.

Long Appendix (NOT FOR PUBLICATION)

Table LA1: Credit Creation and Sectoral Growth: Homogenous Panel Data Estimates using 5- years non-overlapping averages

Dependent variable: Sectoral value added VA_t	(1) FE	(2) Diff-GMM	(3) Sys-GMM	(4) FE	(5) Diff-GMM	(6) Sys-GMM
a) Manufacturing sector						
VA_{t-1}	0.693***	0.505***	0.974***	0.722***	0.583***	0.971***
	(0.041)	(0.121)	(0.052)	(0.039)	(0.121)	(0.045)
PC_t	0.020	-0.188	0.133	1.193***	2.002**	2.041***
	(0.043)	(0.136)	(0.161)	(0.264)	(0.946)	(0.592)
$VA_{t-1} \times PC_t$				-0.144***	-0.251**	-0.228***
				(0.032)	(0.106)	(0.072)
$OPEN_t$	0.128***	-0.118	0.149	0.123***	-0.024	0.125
	(0.041)	(0.133)	(0.097)	(0.038)	(0.133)	(0.123)
GC_t	-0.119**	0.004	-0.192	-0.115**	0.015	-0.088
	(0.049)	(0.135)	(0.151)	(0.048)	(0.109)	(0.141)
Obs.	661	571	661	661	571	661
Countries	88	88	88	88	88	88
R-squared	0.731	-	-	0.743	-	-
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
Specification tests (*p-values*)						
Hansen test	-	0.044	0.011	-	0.046	0.077
Serial correlation						
First - order	-	0.266	0.086	-	0.202	0.078
Second - order	-	0.649	0.904	-	0.667	0.998
b) Services sector						
VA_{t-1}	0.778***	0.469***	1.076***	0.779***	0.543***	1.019***
	(0.036)	(0.048)	(0.023)	(0.034)	(0.128)	(0.046)
PC_t	0.014	-0.132	0.106*	1.149***	1.630*	2.754***
	(0.032)	(0.080)	(0.056)	(0.237)	(0.828)	(0.723)
$VA_{t-1} \times PC_t$				-0.115***	-0.170**	-0.261***
				(0.023)	(0.081)	(0.077)
$OPEN_t$	0.099**	-0.245***	0.016	0.084**	-0.095	0.098
	(0.040)	(0.053)	(0.038)	(0.038)	(0.131)	(0.106)
GC_t	-0.057	0.014	-0.313***	-0.048	0.042	-0.194
	(0.051)	(0.048)	(0.051)	(0.048)	(0.103)	(0.126)
Obs.	661	571	661	661	571	661
Countries	88	88	88	88	88	88
R-squared	0.853	-	-	0.862	-	-
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
Specification tests (*p-values*)						
Hansen test	-	0.008	0.002	-	0.004	0.013
Serial correlation						
First - order	-	0.828	0.003	-	0.440	0.009
Second - order	-	0.358	0.004	-	0.186	0.002
c) Agricultural sector						
VA_{t-1}	0.830***	0.368***	0.272***	0.838***	0.420***	0.697***
	(0.051)	(0.047)	(0.046)	(0.041)	(0.103)	(0.146)
PC_t	-0.080**	-0.365***	0.470***	0.022	0.362	-0.056
	(0.037)	(0.094)	(0.091)	(0.339)	(0.968)	(1.155)
$VA_{t-1} \times PC_t$				-0.016	-0.110	0.035
				(0.049)	(0.149)	(0.186)
$OPEN_t$	0.026	0.169**	-0.471***	0.025	0.195	-0.372***
	(0.032)	(0.070)	(0.096)	(0.032)	(0.132)	(0.091)
GC_t	-0.017	-0.170***	-0.029	-0.017	-0.166	0.064
	(0.043)	(0.064)	(0.066)	(0.043)	(0.132)	(0.138)
Obs.	661	571	661	661	571	661
Countries	88	88	88	88	88	88
R-squared	0.657	-	-	0.657	-	-
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
Specification tests (*p-values*)						
Hansen test	-	0.489	0.050	-	0.495	0.013
Serial correlation						
First - order	-	0.968	0.088	-	0.999	0.083
Second - order	-	0.382	0.306	-	0.585	0.013

Notes: Standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. The dependent variables are the logarithm of sectoral value added per capita (VA). The set of independent variables include the level of private credit over GDP (PC), the logarithm of trade openness ($OPEN$), and the logarithm of government consumption over GDP (GC). The estimates use 5-years non-overlapping averages data. Diff-GMM stands for the difference GMM estimator of Arellano and Bond (1991). Sys-GMM stands for the system GMM estimator of Blundell and Bond (1998). Hansen test is the test of the H0: the instruments as a group are exogenous. Hansen test p-value from the two step GMM estimations is reported which is robust to heteroskedasticity or autocorrelation. P-value of AR(1) & AR(2) serial correlation tests in residuals are also reported. Note that to pass these tests, one has to reject the null of no AR(1) and fail to reject the null of no AR(2). See Appendix (Table A1 and A2) for more details about data coverage, data source, and variables definitions.

Table LA2: Household Credit and Sectoral Growth: Homogenous Panel Estimates using annual data

Dependent variable: Sectoral value added VA_t	(1) FE	(2) Diff-GMM	(3) Sys-GMM	(4) FE	(5) Diff-GMM	(6) Sys-GMM
a) Manufacturing sector						
VA_{t-1}	0.934***	1.249***	0.622	0.939***	0.641***	0.331
	(0.011)	(0.140)	(0.512)	(0.011)	(0.230)	
HHD	-0.073***	-0.463	0.082	0.380**	2.023	-5.876
	(0.023)	(0.328)	(0.979)	(0.149)	(1.774)	
$VA_{t-1} \times HHD_t$				-0.056***	-0.243	0.713
				(0.019)	(0.236)	
$OPEN_t$	0.062***	0.047	-0.144	0.059***	-0.246	-0.422
	(0.011)	(0.233)	(0.268)	(0.011)	(0.298)	
GC_t	-0.048**	-0.671	-0.036	-0.054***	-0.349	0.103
	(0.020)	(0.575)	(0.531)	(0.018)	(0.498)	(0.297)
Obs.	1510	1451	1510	1510	1451	1510
Countries	58	58	58	58	58	58
R-squared	0.948	-	-	0.949	-	-
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
Specification tests (*p-values*)						
Hansen test	-	1.000	1.000	-	1.000	1.000
Serial correlation						
First - order	-	0.000	0.083	-	0.201	…
Second - order	-	0.252	0.300	-	0.673	…
b) Services sector						
VA_{t-1}	0.931***	0.696***	1.046***	0.920***	0.652***	1.055***
	(0.022)	(0.179)	(0.053)	(0.025)	(0.213)	(0.032)
HHD	-0.019	-0.316	-0.088	0.400***	0.777**	0.866
	(0.014)	(0.356)	(0.313)	(0.130)	(0.349)	(1.376)
$VA_{t-1} \times HHD_t$				-0.041***	-0.096	-0.117
				(0.013)	(0.077)	(0.127)
$OPEN_t$	-0.000	-0.314	0.084	-0.009	-0.297	0.049
	(0.011)	(0.228)	(0.124)	(0.012)	(0.242)	(0.102)
GC_t	-0.055***	0.108	-0.221	-0.066***	-0.104	0.021
	(0.017)	(0.353)	(0.306)	(0.015)		(0.167)
Obs.	1510	1451	1510	1510	1451	1510
Countries	58	58	58	58	58	58
R-squared	0.978	-	-	0.979	-	-
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
Specification tests (*p-values*)						
Hansen test	-	1.000	1.000	-	1.000	1.000
Serial correlation						
First - order	-	0.614	0.411	-	0.022	…
Second - order	-	0.735	0.944	-	0.713	0.898
c) Agricultural sector						
VA_{t-1}	0.852***	0.236	0.568	0.853***	0.285	0.659
	(0.030)	(0.272)	(0.760)	(0.029)	(0.400)	(0.514)
HHD	-0.022	-0.186	0.206	-0.003	2.763	0.353
	(0.025)	(0.731)	(1.051)	(0.134)	(4.030)	(2.085)
$VA_{t-1} \times HHD_t$				-0.003	-0.509	-0.043
				(0.021)	(0.629)	(0.364)
$OPEN_t$	-0.011	0.208	0.245	-0.011	0.113	0.091
	(0.020)	(0.228)	(0.362)	(0.020)	(0.402)	(0.253)
GC_t	-0.115***	0.266	0.293	-0.115***	0.503	0.223
	(0.030)	(0.330)	(1.026)	(0.030)	(0.575)	(0.492)
Obs.	1510	1451	1510	1510	1451	1510
Countries	58	58	58	58	58	58
R-squared	0.782	-	-	0.782	-	-
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
Specification tests (*p-values*)						
Hansen test	-	1.000	1.000	-	1.000	1.000
Serial correlation						
First - order	-	0.103	0.001	-	…	0.000
Second - order	-	0.632	0.006	-	…	0.000

Notes: Standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. The dependent variables are the logarithm of sectoral value added per capita (VA). The set of independent variables include the level of Household debt over GDP (HHD), the logarithm of trade openness ($OPEN$), and the logarithm of government consumption over GDP (GC). The estimates use annual data. Diff-GMM stands for the difference GMM estimator of Arellano and Bond (1991). Sys-GMM stands for the system GMM estimator of Blundell and Bond (1998). Hansen test is the test of the H0: the instruments as a group are exogenous. Hansen test p-value from the two step GMM estimations is reported which is robust to heteroskedasticity or autocorrelation. P-value of AR(1) & AR(2) serial correlation tests in residuals are also reported. Note that to pass these tests, one has to reject the null of no AR(1) and fail to reject the null of no AR(2). See Appendix (Table A1 and A2) for more details about data coverage, data source, and variables definitions.

Table LA3: Corporation Credit and Sectoral Growth: Homogenous Panel Estimates using annual data

Dependent variable: Sectoral value added VA_t	(1) FE	(2) Diff-GMM	(3) Sys-GMM	(4) FE	(5) Diff-GMM	(6) Sys-GMM
a) Manufacturing sector						
VA_{t-1}	0.944***	1.046***	1.079***	0.940***	0.852***	1.059***
	(0.010)	(0.033)	(0.137)	(0.013)	(0.169)	(0.064)
$NFCD$	-0.001	-0.118	-0.312	-0.070	0.145	-0.739
	(0.009)	(0.090)	(0.285)	(0.110)	(0.908)	(0.937)
$VA_{t-1} \times NFCD_t$				0.008	-0.029	0.051
				(0.014)	(0.111)	(0.090)
$OPEN_t$	0.074***	-0.148	-0.073	0.074***	-0.178	-0.094**
	(0.012)	(0.215)	(0.127)	(0.012)	(0.257)	(0.035)
GC_t	-0.061***	0.045	-0.313	-0.062***	-0.199	-0.186
	(0.022)	(0.289)	(0.372)	(0.023)	(0.373)	(0.323)
Obs.	1509	1450	1509	1509	1450	1509
Countries	58	58	58	58	58	58
R-squared	0.947	-	-	0.947	-	-
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
Specification tests (*p-values*)						
Hansen test	-	1.000	1.000	-	1.000	1.000
Serial correlation						
First - order	-	0.344	0.319	-	0.115	0.232
Second - order	-	0.363	0.516	-	0.784	0.867
b) Services sector						
VA_{t-1}	0.931***	0.831***	0.964***	0.927***	0.879***	1.048***
	(0.022)	(0.138)	(0.057)	(0.023)	(0.272)	(0.099)
$NFCD$	-0.009**	-0.143	0.030	0.073	-0.100	-0.435
	(0.004)	(0.112)	(0.111)	(0.096)	(0.504)	(0.643)
$VA_{t-1} \times NFCD_t$				-0.008	0.008	0.034
				(0.009)	(0.042)	(0.056)
$OPEN_t$	0.003	-0.248	0.035	0.001	-0.210	0.004
	(0.011)	(0.168)	(0.107)	(0.011)	(0.297)	(0.148)
GC_t	-0.058***	-0.220	-0.357	-0.056***	-0.122	-0.222
	(0.017)	(0.198)	(0.267)	(0.018)	(0.258)	(0.471)
Obs.	1509	1450	1509	1509	1450	1509
Countries	58	58	58	58	58	58
R-squared	0.978	-	-	0.979	-	-
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
Specification tests (*p-values*)						
Hansen test	-	1.000	1.000	-	1.000	1.000
Serial correlation						
First - order	-	0.343	0.238	-	0.649	0.868
Second - order	-	0.556	0.257	-	0.768	0.763
c) Agricultural sector						
VA_{t-1}	0.842***	0.550	0.888***	0.830***	0.008	0.645
	(0.028)	(0.344)	(0.325)	(0.030)	(0.312)	(0.674)
$NFCD$	-0.024*	-0.159	-0.219	-0.095	-1.008	-0.311
	(0.014)	(0.193)	(0.226)	(0.074)	(1.009)	(2.121)
$VA_{t-1} \times NFCD_t$				0.010	0.110	0.025
				(0.009)	(0.150)	(0.321)
$OPEN_t$	-0.009	0.132	-0.216	-0.008	-0.195	-0.258
	(0.020)	(0.511)	(0.227)	(0.020)	(0.326)	(0.410)
GC_t	-0.120***	-0.306	0.092	-0.127***	0.043	0.357
	(0.030)		(0.451)	(0.032)	(0.530)	(0.845)
Obs.	1509	1450	1509	1509	1450	1509
Countries	58	58	58	58	58	58
R-squared	0.783	-	-	0.784	-	-
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
Specification tests (*p-values*)						
Hansen test	-	1.000	1.000	-	1.000	1.000
Serial correlation						
First - order	-	0.310	0.052	-	0.037	0.173
Second - order	-	0.602	0.024	-	0.400	0.093

Notes: Standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. The dependent variables are the logarithm of sectoral value added per capita (VA). The set of independent variables include the level of non-financial corporate debt over GDP (NFCD), the logarithm of trade openness ($OPEN$), and the logarithm of government consumption over GDP (GC). The estimates use annual data. Diff-GMM stands for the difference GMM estimator of Arellano and Bond (1991). Sys-GMM stands for the system GMM estimator of Blundell and Bond (1998). Hansen test is the test of the H0: the instruments as a group are exogenous. Hansen test p-value from the two step GMM estimations is reported which is robust to heteroskedasticity or autocorrelation. P-value of AR(1) & AR(2) serial correlation tests in residuals are also reported. Note that to pass these tests, one has to reject the null of no AR(1) and fail to reject the null of no AR(2). See Appendix (Table A1 and A2) for more details about data coverage, data source, and variables definitions.

Table LA4: Credit Creation and Sectoral Growth: Dynamic CCEMG Estimates using Unbalanced Panels and with trade openness and government consumption as regressors

Dependent variable: Sectoral value added VA_t	(1) Dynamic CCEMG	(2) Dynamic CCEMG	(3) Dynamic CCEMG	(4) Dynamic CCEMG	(5) Dynamic CCEMG	(6) Dynamic CCEMG	(7) Dynamic CCEMG	(8) Dynamic CCEMG
a) Manufacturing sector								
VA_{t-1}	0.798***	0.713***	0.647***	0.542***	0.854***	0.743***	0.731***	0.647***
	(0.020)	(0.026)	(0.028)	(0.030)	(0.057)	(0.052)	(0.051)	(0.065)
PC_t	-0.003	-0.024	0.042	-0.022	5.261***	4.172***	4.801***	1.677
	(0.052)	(0.057)	(0.081)	(0.089)	(1.724)	(1.300)	(1.536)	(2.185)
$VA_{t-1} \times PC_t$					-1.005***	-0.727***	-0.893***	-0.250
					(0.364)	(0.256)	(0.299)	(0.463)
$OPEN_t$		0.108***		0.061		0.085***		0.123*
		(0.029)		(0.040)		(0.029)		(0.066)
GC_t			-0.140***	-0.172***			-0.177***	-0.182***
			(0.034)	(0.037)			(0.028)	(0.062)
Obs.	3762	3723	3672	3668	3762	3837	3788	3785
Countries	95	95	95	95	95	95	95	95
RMSE	0.06	0.08	0.08	0.07	0.08	0.08	0.06	0.06
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
CD test statistic	11.75***	24.44***	13.21***	11.58***	19.60***	14.37***	11.69***	7.53***
b) Services sector								
VA_{t-1}	0.869***	0.800***	0.751***	0.652***	0.901***	0.806***	0.762***	0.600***
	(0.021)	(0.028)	(0.028)	(0.041)	(0.050)	(0.072)	(0.052)	(0.079)
PC_t	-0.051	0.016	-0.004	0.050	4.774***	1.673	2.698*	-0.881
	(0.042)	(0.057)	(0.052)	(0.062)	(1.634)	(2.159)	(1.464)	(2.319)
$VA_{t-1} \times PC_t$					-0.670***	-0.146	-0.368*	0.189
					(0.228)	(0.318)	(0.207)	(0.339)
$OPEN_t$		0.036***		-0.005		0.012		-0.001
		(0.014)		(0.057)		(0.018)		(0.021)
GC_t			-0.070***	-0.046			-0.097***	-0.102***
			(0.021)	(0.046)			(0.023)	(0.025)
Obs.	3762	3723	3672	3668	3762	3837	3788	3785
Countries	95	95	95	95	95	95	95	95
RMSE	0.05	0.04	0.04	0.04	0.05	0.04	0.04	0.04
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
CD test statistic	17.94***	7.37***	7.06***	3.44***	14.03***	9.44***	6.26***	4.45***
c) Agricultural sector								
VA_{t-1}	0.578***	0.423***	0.414***	0.261***	0.661***	0.570***	0.435***	0.579***
	(0.033)	(0.035)	(0.036)	(0.045)	(0.098)	(0.103)	(0.098)	(0.165)
PC_t	-0.028	0.001	0.082	0.033	4.040**	2.757	1.770	3.742
	(0.047)	(0.058)	(0.072)	(0.109)	(1.899)	(2.008)	(1.621)	(2.586)
$VA_{t-1} \times PC_t$					-0.717**	-0.485	-0.331	-0.636
					(0.331)	(0.361)	(0.280)	(0.456)
$OPEN_t$		-0.031		-0.024		-0.018		-0.037
		(0.034)		(0.095)		(0.030)		(0.035)
GC_t			-0.085**	0.013			-0.095**	-0.081
			(0.037)	(0.119)			(0.045)	(0.053)
Obs.	3762	3723	3672	3668	3762	3837	3788	3785
Countries	95	95	95	95	95	95	95	95
RMSE	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample period	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017	1970-2017
CD test statistic	2.38**	1.67*	2.03**	2.45**	4.01***	1.46	1.81*	2.35**

Notes: Standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. CCEMG stands for the common correlated effects mean-group estimator of Pesaran (2006), which is implemented by augmenting the group-specific OLS regression by the cross-sectional averages of the dependent and independent variables. For the dynamic CCEMG, we add further cross-section averages of additional lags as outlined in Chudik and Pesaran (2015) (see section 3.1 for more details). The dependent variables are the logarithm of sectoral value added per capita (VA). The set of independent variables include the level of private credit over GDP (PC), the logarithm of trade openness ($OPEN$), and the logarithm of government consumption over GDP (GC). RMSE is the root mean squared error. CD test reports the Pesaran (2015) test under the null of weak cross-sectionally dependent residuals against the alternative of strong cross-sectional dependence. As referred in section 3.2, cross-sectional independence is a restrictive assumption for large panels and only weak cross-sectional dependence is required for estimation (see Pesaran (2015) and Ditzen (2018)).