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Contributions

Who Gets the Credit? And Does It Matter? Household vs. Firm Lending Across Countries

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Who Gets the Credit? And Does It Matter? Household vs. Firm Lending Across Countries[*]

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Abstract

While theory predicts different effects of household credit and enterprise credit on the economy, the empirical literature has mainly used aggregate measures of overall bank lending to the private sector. We construct a new dataset from 45 developed and developing countries, decomposing bank lending into lending to enterprises and lending to households and assess the different effects of these two components on real sector outcomes. We find that: 1) enterprise credit is positively associated with economic growth whereas household credit is not; and 2) enterprise credit is significantly associated with faster reductions in income inequality whereas household credit is not. We also find that the share of household credit is higher in more urban societies, in countries with smaller manufacturing sectors and more market-based financial systems, while market structure and regulatory policies are not related to credit composition.

KEYWORDS: financial intermediation, household credit, firm credit, economic growth

1. Introduction

The theoretical literature linking the financial sector to the real economy makes a clear distinction between the roles of enterprise and household credit. Most theoretical models with endogenous financial intermediation focus on an enterprise in need of external finance for investment or production purposes (see Levine, 2005, for an overview). These models are motivated by the observation of financing constraints experienced by enterprises in many developing countries (McKinnon, 1973). In contrast, the empirical cross-country literature has used aggregate credit measures that combine enterprise and household credit (e.g. Beck, Levine and Loayza, 2000; Demirguc-Kunt and Maksimovic, 1998; Rajan and Zingales, 1998).[1] Even the microfinance revolution started from the observation that lack of access to credit is the only constraint that holds poor entrepreneurs back (Armendariz de Aghion and Morduch, 2005). However, the focus on enterprise credit in both the theoretical and the empirical finance literature does not sit well with reality. Lending to the household sector has increased over time and, in fact, in many countries banks lend more to households than to firms. This observation puts into perspective the large theoretical and empirical literature that has studied the effects of private credit from the standpoint of firm credit only.

This paper (i) documents the cross-country variation in household and enterprise credit, (ii) assesses whether bank lending to enterprises and bank lending to households have independent impacts on GDP per capita growth, industry growth and changes in income inequality, and (iii) explores the country characteristics explaining the variation in credit composition across countries, using a newly constructed data set from 45 developed and developing countries. In addition to building a broad disaggregated data set, our contribution is in matching theory more closely to empirics by considering the effects of household and enterprise lending separately. First, we assess whether measures of bank lending to enterprises and to households enter independently in standard OLS and IV cross-country growth regressions as well as industry growth difference-in-difference regressions. Second, we explore whether enterprise credit and household credit are independently associated with reductions in income inequality. Third, we gauge which country characteristics can explain the large cross-country variation in credit composition.

Analyzing the impact of cross-country variation in household and enterprise credit is important for several reasons. First, understanding the

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[1] One exception is Büyükarabacak and Krause (2009) who study the relationship between credit composition and trade balance.

consequences of credit composition can have important repercussions for theory. If household credit has an independent impact on growth, this has implications for how theory should model the link between financial sector development and economic growth. Second, decomposing overall bank lending into its components might help us to understand why the effect of financial development on growth varies across countries at different levels of economic development and to provide insights into the channels through which financial systems foster economic development. Specifically, Aghion, Howitt, and Mayer-Foulkes (2005) and Rioja and Valev (2004 a, b) show that the effects of financial development on growth in high-income countries are smaller than in middle or low-income countries. Third, understanding whether enterprise credit, household credit or both explain the negative relationship between financial sector development and income inequality can help us to understand the channels through which this relationship works. Finally, finding a differential impact of enterprise and household credit on growth and changes in income inequality can have important implications for policy makers who are interested in maximizing the real sector effect of financial sector policies.

While theory has suggested several mechanisms through which enterprise credit helps economic growth, it provides ambiguous predictions about the effect of household credit on economic growth. Jappelli and Pagano (1994) argue that alleviating credit constraints on households reduces the savings rate, with negative repercussions for economic growth. Specifically, they show for a sample of 25 middle- and high-income countries that lower liquidity constraints on households, proxied by the loan-to-value ratio for mortgages, are associated with a lower savings rate and lower GDP per capita growth. On the other hand, Galor and Zeira (1993) and De Gregorio (1996) argue that household credit can foster economic development if it increases human capital accumulation. Empirical results by De Gregorio (1996) show for a sample of 20 OECD countries that higher loan-to-value ratios are associated with higher secondary school enrolment, but not with economic growth.[2] Both theory and previous empirical work thus provide ambiguous predictions, with the effect of household credit on economic growth mainly depending on the use of the credit. Unlike our paper, most previous empirical work has been limited to OECD countries.[3]

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[2] Informal markets can also be important sources of household credit, though our data set does not capture informal loans. Banerjee (2003) describes the contract-theoretic basis and importance of informal credit markets which play a key role in alleviating credit constraints especially for the poor. One example are rotating savings and credit associations (Roscas) which are shown by Besley, Coate, and Loury (1993) to arise and alleviate credit constraints on households excluded from formal credit markets improving their welfare.

[3] There is also a literature that shows how relaxing liquidity constraints on households and providing them with easier access to credit can result in lower excess sensitivity of household

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Recent cross-country comparisons have shown that countries with higher levels of financial intermediary development experience faster reductions in income inequality (Beck, Demirgüç-Kunt and Levine, 2007), thus confirming theories that predict that financial development helps the poor both by accelerating aggregate growth and by reducing income inequality.[4] Theory, however, points to different channels through which this relationship can work. On the one hand, financial development has the potential to enable the poor to invest in their human capital and in microenterprises by gaining access to credit. This effect is more likely to be captured by household credit (Galor and Zeira, 1993; Banerjee and Newman, 1993). Recent literature on micro-lending also focuses on the role of micro loans for consumption and investment of micro-entrepreneurs (Zeller, 2001; Mahjabeen, 2008; see Karlan and Morduch, 2009 for an overview). On the other hand, financial deepening might result in a more efficient capital allocation across incumbent and new enterprises, fostering structural change, higher growth and lower income inequality, an effect, which is more likely to be captured by enterprise credit (Gine and Townsend, 2004; Beck, Levine and Levkov, 2010). Disentangling the exact mechanisms requires more detailed data on the use of credit. Here we aim to provide tentative evidence by showing whether credit to enterprises or credit to households contributes more to reductions in income inequality.

To summarize the existing literature, the effect of household credit on economic growth is ambiguous, while enterprise credit can be expected to be positively related to economic growth. Also, theoretically it is not clear whether enterprise credit, household credit or both explain the negative relationship between financial sector development and changes in income inequality.

Theory also provides little guidance regarding which factors should drive the composition of credit to the private sector.[5] We therefore relate our analysis of cross-country variation in the share of household credit to the basic analytics of credit provision by financial institutions – economizing on transaction costs and improving risk management (Diamond, 1984; Ramakrishnan and Thakor, 1984; Boyd and Prescott, 1986; Allen, 1990; among many others). Household loans are typically of smaller size and households typically are harder to evaluate and have

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consumption to business cycle variations (see, among others, Jappelli and Pagano, 1989; Bacchetta and Gerlach, 1997; Ludvigson, 1999).

[4] See also Li, Squire and Zou (1998) and Clarke, Xu and Zou (2006) who show that countries with higher levels of financial development have lower *levels* of income inequality.

[5] While Jappelli and Pagano (1989) discuss the determinants of consumer debt, rather than the composition of credit, they provide a useful discussion on some supply and demand side factors of consumer credit. On the supply side, they concentrate on interest spreads and on indicators of credit rationing and, on the demand side, on tax incentives to borrow, the age structure of the population, the earnings profiles of consumers, and their preferences.

less collateral to offer, so that both transaction costs and information asymmetries constitute a higher hurdle. In our cross-country analysis, we will therefore relate different country characteristics to the degree to which financial institutions can overcome these market frictions.

We analyze credit composition across countries and over time showing that the share of household in total credit increases as countries develop economically and financially. However, cross-country regressions with data averaged over 1994 to 2005 suggest that only bank lending to enterprises is linked to GDP per capita growth. This finding is robust to the use of instrumental variables, sample composition, and controlling for a large array of other country factors. We also confirm our findings using industry level data: industries that are more reliant on external finance grow faster in countries with higher levels of enterprise credit, while their growth does not vary with the level of household credit. We also find that the relationship between enterprise lending and growth is more precisely estimated than the relationship between overall bank lending and growth and it is significant for a broader range of countries. Cross-country regressions also show a negative and robust relationship between Enterprise Credit to GDP and changes in income distribution, while there is no robust link between Household Credit to GDP and changes in income inequality after we control for enterprise lending.

Exploring country characteristics related to credit composition shows that the share of household credit is related both to demand and supply-side constraints but not to banking market structure or regulatory policies. Specifically, the share of household credit is higher in more urban societies and in countries with smaller manufacturing sectors. Market-based financial systems where firms can access alternative financing sources through capital markets have a higher share of household credit. While overall institutional development is positively correlated with the share of household credit in total credit, effective contract enforcement is negatively associated with the household credit share. We do not find any significant relationship between credit composition and bank market structure and regulatory policies, a finding that sheds doubt on the ability of policy makers to influence credit composition.

This paper is a first attempt at understanding the composition of bank lending across countries and its impact and is therefore subject to several caveats. First, the definition of household vs. firm credit is not homogenous across countries and our variable is therefore subject to measurement error. Further, a strict separation into firm and household credit might not be possible in the case of proprietorships. Second, cross-country regressions are subject to the usual biases of endogeneity and simultaneity. While we control for these biases by employing instrumental variables, our estimations are subject to the usual caveats of cross-country regressions. However, we confirm our findings using a

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difference-in-difference estimator that focuses on a specific mechanism through which bank lending affects growth. Third, we focus on a sample period ending well before the recent global financial crisis to thus not confound the effect of financial development on growth during normal times with the relationships between real and financial aggregates during crisis times.

The remainder of the paper is organized as follows. Section 2 discusses the construction of our main variable of interest. Section 3 presents the relationship between credit composition and economic growth and changes in income inequality, while Section 4 explores cross-country co-variates with credit composition. Section 5 concludes.

2. Decomposing Bank Lending

Standard financial sector indicators focus on the aggregate value of credit to the private sector by deposit money banks, but do not distinguish between lending to households and lending to firms. We compile data from national central bank reports, annual bulletins, and other statistical sources where disaggregated credit data are available. Our dataset includes 45 countries spanning different time periods depending on data availability but with a significant overlap during the period from 1994 to 2005. In order to avoid discrepancies between different countries we standardized our data collection methodology by focusing on the collection of data on credit to non-financial corporations and/or private enterprises/businesses by deposit money banks, where available. If private credit is reported for various economic sectors, we define business credit as the sum of loans to industry, construction, services, agriculture, and trade.[6] We then use the credit series from the Financial Structure Database of Beck, Demirgüç-Kunt and Levine (2010) to obtain the distribution of credit into enterprise credit and household credit as the difference between overall credit and enterprise credit. While we have annual data available, we will mostly use averages over the period 1994 to 2005.

Table 1 presents the large variation in overall banking sector development and the relative importance of enterprise and household credit across our 45 sample countries. Specifically, we present Bank Credit to GDP – total claims of deposit money banks on the private sector as ratio of GDP - and its two components – Enterprise Credit to GDP and Household Credit to GDP. We also present the relative share of enterprise and household credit in total bank credit.

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[6] Appendix Table A1 lists the definition of enterprise credit for each country in our sample.

Table 1: Banking sector development and credit composition across countries, 1994-2005

Bank Credit to GDP is total claims of deposit money banks on the private domestic non-financial sector as ratio to GDP. Enterprise Credit to GDP is total claims of deposit money banks on enterprises as ratio to GDP. Household Credit to GDP is total claims of deposit money banks on households as ratio to GDP. Enterprise and Household Credit Share are the relative shares in total credit.

	Bank Credit to GDP	Enterprise credit to GDP	Household Credit to GDP	Enterprise Credit Share	Household Credit Share
Argentina	0.212	0.087	0.125	0.410	0.590
Australia	0.823	0.279	0.544	0.339	0.661
Austria	1.005	0.653	0.352	0.650	0.350
Belgium	0.744	0.314	0.430	0.422	0.578
Bulgaria	0.219	0.145	0.075	0.660	0.340
Canada	0.962	0.188	0.773	0.196	0.804
Costa Rica	0.245	0.113	0.132	0.461	0.539
Czech Republic	0.484	0.314	0.171	0.648	0.352
Denmark	0.894	0.133	0.761	0.149	0.851
Egypt	0.446	0.372	0.075	0.833	0.167
Estonia	0.286	0.176	0.111	0.613	0.387
Finland	0.630	0.227	0.403	0.361	0.639
France	0.850	0.339	0.511	0.399	0.601
Germany	1.053	0.653	0.400	0.620	0.380
Greece	0.663	0.379	0.283	0.572	0.428
Hungary	0.231	0.189	0.042	0.820	0.180
Iceland	0.918	0.492	0.426	0.536	0.464
India	0.219	0.156	0.063	0.713	0.287
Indonesia	0.252	0.170	0.082	0.676	0.324
Ireland	1.128	0.704	0.424	0.624	0.376
Jamaica	0.213	0.110	0.103	0.517	0.483
Japan	1.549	1.070	0.479	0.691	0.309
Kenya	0.240	0.190	0.049	0.794	0.206
Korea	0.698	0.313	0.385	0.448	0.552
Latvia	0.199	0.160	0.039	0.805	0.195
Lithuania	0.149	0.104	0.045	0.699	0.301
Macedonia	0.187	0.140	0.046	0.751	0.249
Malaysia	1.278	1.145	0.133	0.896	0.104
Mexico	0.186	0.087	0.099	0.468	0.532
Netherlands	1.639	0.630	1.010	0.384	0.616
New Zealand	1.118	0.703	0.415	0.629	0.371
Pakistan	0.225	0.175	0.050	0.776	0.224
Poland	0.244	0.135	0.110	0.552	0.448
Portugal	1.103	0.507	0.596	0.460	0.540
Russia	0.147	0.114	0.033	0.777	0.223
Slovak Republic	0.415	0.265	0.150	0.638	0.362
Slovenia	0.340	0.240	0.099	0.707	0.293
South Africa	0.625	0.309	0.316	0.494	0.506
Sweden	0.636	0.233	0.402	0.367	0.633
Switzerland	1.603	0.604	1.000	0.377	0.623
Thailand	1.226	1.001	0.225	0.816	0.184
Turkey	0.179	0.115	0.064	0.645	0.355
United Kingdom	1.269	0.557	0.712	0.439	0.561
United States	0.498	0.118	0.380	0.236	0.764
Uruguay	0.392	0.194	0.198	0.495	0.505

Whereas Bank Credit to GDP was 15% over the sample period in Russia, it was 164% in the Netherlands. Enterprise Credit to GDP varied from 9% in Argentina and Mexico to 114% in Malaysia, while Household Credit to GDP varied from 3% in Russia to 101% in the Netherlands. Whereas Canada, Denmark, and the U.S. had a household credit share well over 70% of total bank credit during 1994-2005, the household credit share was 10% in Malaysia during the same period.

The correlations in Table 2 Panel A indicate that both Enterprise Credit to GDP and Household Credit to GDP are positively and significantly correlated with Bank Credit to GDP. As banking sectors develop, however, the share of household credit increases, as can be seen from the negative and significant correlation of Enterprise Credit Share with Bank Credit to GDP. Similarly, while economically more developed countries have higher ratios of both enterprise and household credit to GDP, the relative importance of household credit increases. This is not surprising, as economic development can influence the provision of household credit both through the supply and demand channels. On the one hand, rising incomes will allow a larger share of households to overcome the threshold of minimum loan size for consumer and mortgage loans (Beck, Demirgüç-Kunt and Martinez Peria, 2008). On the other hand, the cost of financial service provision declines with economic development (Harrison, Sussman and Zeira, 1999). Both trends should increase the share of household credit in total bank lending.

Table 2: Correlations
Bank Credit to GDP is total claims of deposit money banks on the private domestic non-financial sector as ratio to GDP. Enterprise Credit to GDP is total claims of deposit money banks on enterprises as ratio to GDP. Household Credit to GDP is total claims of deposit money banks on households as ratio to GDP. Enterprise and Household Credit Share are the relative shares in total credit.

Panel A: 45 country sample for growth regressions

	GDP p.c. growth	Log (initial GDP p.c.)	Bank Credit to GDP	Enterprise Credit to GDP	Household Credit to GDP
Log (initial GDP p.c.)	0.012				
Bank Credit to GDP	0.252*	0.668***			
Enterprise Credit to GDP	0.382***	0.349**	0.84***		
Household Credit to GDP	0.031	0.7716***	0.8262***	0.3884***	
Enterprise Credit Share	0.137	-0.680***	-0.271*	0.225	-0.694***

Panel B: 33 country sample for income inequality regressions

	Growth of Gini	Growth of lowest income share	Bank Credit to GDP	Enterprise Credit to GDP	Household Credit to GDP
Growth of lowest income share	-0.596***				
Bank Credit to GDP	-0.470***	0.257			
Enterprise Credit to GDP	-0.495***	0.301*	0.866***		
Household Credit to GDP	-0.264	0.108	0.791***	0.379**	
GDP pc growth	-0.124	0.292*	-0.160	0.292*	-0.653***

3. Credit composition and real sector outcomes

We run cross-country regressions to assess the independent effect of enterprise and household lending on (i) GDP per capita growth, (ii) industry growth, and (iii) changes in income inequality. In all our empirical analysis, we are limited to cross-country rather than panel analysis, as data on credit composition are only available for few years for most countries. To control for reverse causation and omitted variable bias, we use exogenous country characteristics as instruments for enterprise and household credit, as well as a difference-in-difference estimation. In the following, we will first present our identification strategy and present the first stage results. Then we will discuss the relationship between credit composition and growth before turning to the relationship between credit composition and income inequality. In both cases, we will first discuss the regression set-up before presenting the results

3.1. Identifying causal effects

OLS regressions suffer from several biases, including omitted variable, measurement and endogeneity biases. We therefore use instrumental variable regressions to extract the exogenous components of bank lending to enterprises and households and relate them to GDP per capita growth. Following the seminal work by La Porta et al. (1997, 1998) who identified variation in countries' legal origin as a historical exogenous factor explaining current variation in countries' level of financial development, an extensive literature has utilized this variable to extract the exogenous component of financial development.[7] Stulz and Williamson (2003), on the other hand, suggest religious composition as important driver of cross-country differences in financial development.[8]

Table 3 presents regressions of the logs of Enterprise Credit to GDP and Household Credit to GDP on the included exogenous variables from the second stage regressions, legal origin dummies and indicators of religious composition. Specifically, we include dummy variables indicating British Common Law countries, French Civil Code countries, German Civil Code countries and Scandinavian Civil Code countries, with transition economies being the omitted category. We include the share of the population belonging to the Catholic, Muslim and Protestant denominations in 1980, with data from La Porta et al. (1999).

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[7] Specifically, an extensive literature has discussed the empirical observation that British Common Law countries have better developed financial systems than French Civil Code countries, with German and Scandinavian Civil Code systems falling in between. As most countries acquired their legal system through colonization or occupation several centuries ago, legal origin can be considered an exogenous variable. See Beck and Levine (2005) for an overview.
[8] Specifically, they show that countries with predominantly Protestant population have stronger creditor rights.

Table 3: Exogenous determinants of Enterprise and Household Credit to GDP

The regressions are the first stage regressions for the IV regression in column 5 of Table 4. Both Enterprise and Household Credit to GDP are in logs. Initial income per capita is the log of real GDP per capita in 1994, secondary enrolment is the share of the respective age cohort enrolled in secondary schools, government consumption is total govt. expenditures relative to GDP, Trade is the ratio of exports and imports to GDP, Inflation is the average log difference in the Consumer Price Index over the sample period, the legal origin dummies indicate the origin country of each country's legal system, and Catholic, Protestant and Muslim population share is the share of population with the respective religious belief in total population. All regressions are run with OLS and p-values are reported. *,**,*** indicate significance at the 10%, 5% and 1% level, respectively.

	Enterprise Credit to GDP	Household Credit to GDP
Initial income per capita	0.249	0.474***
	(0.106)	(0.000)
Secondary enrolment	-0.00158	0.00208
	(0.807)	(0.603)
Government consumption	0.167	0.365
	(0.654)	(0.304)
Trade	0.518***	0.139
	(0.003)	(0.336)
Inflation	-2.551**	-1.748**
	(0.011)	(0.038)
French legal origin	0.480	1.009***
	(0.118)	(0.001)
German legal origin	1.135**	1.027***
	(0.022)	(0.004)
British legal origin	0.752***	1.061***
	(0.008)	(0.000)
Scandinavian legal origin	0.496	0.371
	(0.337)	(0.340)
Catholic population share	-0.00661**	-0.00166
	(0.026)	(0.546)
Muslim population share	0.00163	-0.00222
	(0.700)	(0.413)
Protestant population share	-0.0116**	0.00179
	(0.027)	(0.676)
Constant	-5.961***	-8.196***
	(0.000)	(0.000)
Observations	45	45
R-squared	0.625	0.855
F-test legal origin (p-value)	0.068	0.004
F-test religion (p-value)	0.022	0.795
F-test all excluded variables (p-value)	0.009	0.013

The Table 3 regressions suggest that the exogenous excluded variables – legal origin and religious composition – can jointly explain variation in both Enterprise Credit to GDP and Household Credit to GDP after controlling for the

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included exogenous variables. Specifically, Catholic countries have lower levels of Enterprise Credit to GDP. Also, British and French legal origin countries have significantly higher levels of Household Credit to GDP than the omitted category of transition economies.[9]

Although we reject the null hypothesis that the historic variables cannot explain cross-country variation in enterprise and household lending, we note that the F-tests reported at the bottom of Table 3 are relatively low, below the threshold of 10, suggested by Stock and Staiger (1997). We are thus working with weak instruments. In our analysis, we will therefore perform a battery of additional specification tests to confirm the adequateness of our approach.

3.2. Credit composition and economic growth

We run cross-country growth regressions to assess the impact of bank lending to enterprises and households on economic growth, averaged over the sample period 1994 to 2005. By averaging data over ten years, we are confident that we abstract from business cycle variations and focus on the effect of different credit components on medium- to long-term growth. Specifically, we utilize Barro-style growth regressions of the following form:

$$g(i) = [y(i,t) - y(i,t-1)]/11 = \alpha_1 + \beta_1 \text{Enterprise Credit to GDP}(i) +$$
$$+ \beta_2 \cdot \text{Household Credit to GDP}(i) + \gamma' C(i) + \delta y(i,t-1) + \varepsilon(i)$$
$$(1),$$

where $y(i)$ is the log of real GDP per capita and C is a set of conditioning information. The coefficients of interest are β_1 and β_2. We run regressions where we force $\beta_1 = \beta_2$, thus replicating the standard finance and growth regression with the aggregate measure of Bank Credit to GDP, regressions with $\beta_1 = 0$, regressions with $\beta_2 = 0$ and regressions where we allow β_1 and β_2 to enter independently.

To assess the strength of the independent link between bank lending to enterprises and households and economic growth, we control for other potential determinants of economic growth in our regressions. Following the finance and growth literature, our set of conditioning information includes (i) the log of initial real GDP per capita to control for convergence, (ii) secondary school enrolment to

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[9] The results suggest that legal origin explains primarily the variation of enterprise credit whereas religious composition explains primarily the variation of household credit. This does not mean that Enterprise Credit to GDP does not vary across different legal families or that Household Credit to GDP does not vary across countries with different religious preferences. Rather, these variables cannot explain residual variation in the two types of credit after controlling for initial GDP per capita and other country factors that we will include in the second stage regressions.

control for human capital accumulation, (iii) the share of exports and imports to GDP, (iv) the inflation rate, and (v) the ratio of government expenditures to GDP.[10] Finally, we are also including a dummy for transition economies as our sample includes 11 formerly socialist economies that had a different growth experience in the 1990s than expected from their income levels. In robustness tests, we include additional variables, which we will discuss below. All data are averaged over the sample period 1994 to 2005, with the exception of initial GDP per capita, measured in 1994. We include most regressors, including Enterprise Credit to GDP and Household Credit to GDP in logs, to take account of potential non-linearities in their relationship with GDP per capita growth. Our main findings, however, are confirmed when using the financial development indicators in levels rather than logs.

GDP per capita growth, calculated as the average annual real growth rate in GDP per capita, varied significantly across our sample over the period 1994 to 2005, ranging from -0.6% in Russia to 5.5% in Korea. While it is positively and significantly correlated with Bank Credit to GDP and Enterprise Credit to GDP, it is not significantly correlated with Household Credit to GDP (Table 2 Panel A). In sensitivity analyses, we also consider capital per capita growth and productivity per capita growth. We use capital data from the Penn World Tables in 1992 and – following King and Levine (1994) - use the perpetual inventory method with a depreciation rate of seven percent to compute capital stocks through 2005. Following Beck, Levine and Loayza (2000), we then compute productivity growth as GDP per capita growth minus 0.3*Capital per capita growth, where 0.3 is the capital share in the aggregate production function that we assume to be common across countries.

The Table 4 results show a positive and significant relationship between enterprise credit and GDP per capita growth, but an insignificant relationship between household credit and GDP per capita growth. Columns 1 to 4 present simple OLS regressions utilizing indicators of overall banking sector credit to GDP, enterprise credit to GDP, and household credit to GDP controlling for an array of other country characteristics.

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[10] Similar sets of conditioning information were used by Beck, Levine and Loayza (2000) and Beck and Levine (2004). Appendix Table A2 provides definition and sources for all variables.

Table 4: Enterprise Credit, Household Credit and Economic Growth

Dependent variable is the average annual growth rate of real GDP per capita. Initial income per capita is the log of real GDP per capita in 1994, secondary enrolment is the share of the respective age cohort enrolled in secondary schools, government consumption is total govt. expenditures relative to GDP, Trade is the ratio of exports and imports to GDP, Inflation is the average log difference in the Consumer Price Index over the sample period, Bank Credit to GDP is total claims of deposit money banks on private domestic non-financial sector as ratio to GDP. Enterprise Credit to GDP is total claims of deposit money banks on enterprises as ratio to GDP, Household Credit to GDP is total claims of deposit money banks on households as ratio to GDP. Regressions (1) – (4) are OLS regressions, regression (5) is IV regression, with legal origin and religious composition as excluded exogenous and Enterprise Credit to GDP and Household Credit GDP as endogenous variables. P-values are reported. *,**,*** indicate significance at the 10%, 5% and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)
Initial income per capita	-0.002	-0.001	-0.001	-0.001	0.001
	(0.472)	(0.852)	(0.694)	(0.709)	(0.756)
Secondary enrolment	0.000	6.78e-05	2.93e-05	6.37e-05	0.000
	(0.500)	(0.416)	(0.737)	(0.469)	(0.480)
Government consumption	-0.020**	-0.019**	-0.021**	-0.019**	-0.020***
	(0.031)	(0.033)	(0.025)	(0.046)	(0.024)
Trade	0.004	0.004	0.006*	0.004	0.003
	(0.208)	(0.177)	(0.076)	(0.178)	(0.357)
Inflation	0.003	-0.003	-0.013	-0.001	-0.005
	(0.894)	(0.881)	(0.600)	(0.950)	(0.831)
Transition economies	0.001	-0.002	-0.001	-0.001	
	(0.879)	(0.688)	(0.887)	(0.885)	
Bank Credit to GDP	0.008**				
	(0.019)				
Enterprise Credit to GDP		0.006**		0.006**	0.008*
		(0.010)		(0.016)	(0.089)
Household Credit to GDP			0.004	0.001	-0.003
			(0.418)	(0.783)	(0.658)
Constant	0.077***	0.063***	0.071*	0.071*	0.053
	(0.002)	(0.003)	(0.095)	(0.083)	(0.173)
Observations	45	45	45	45	45
R-squared	0.333	0.329	0.273	0.331	
Ramsey test (p-value)	0.358	0.472	0.164	0.462	
White test (p-value)	0.240	0.271	0.220	0.411	
Cook-Weisberg test (p-value)	0.545	0.914	0.410	0.749	
Sargan test (p-value)					0.400

The column 1 regression confirms the previous finding of a positive and significant relationship between banking sector development and GDP per capita growth. Bank Credit to GDP enters positively and significantly at the 5% level. The column 2 regression shows a positive and significant relationship between Enterprise Credit to GDP and GDP per capita growth, while the column 3 regression shows an insignificant relationship between Household Credit to GDP and GDP per capita growth. When we include both Enterprise Credit to GDP and

Household Credit to GDP, our findings are confirmed (column 4).[11] Among the variables in the set of conditioning information, only government consumption enters consistently with a negative and significant coefficient. In unreported regressions, we confirm our findings in a smaller sample that excludes 11 transition economies. Throughout all of the analyses in this paper, we identify and assess the potential impact of outliers by following the methodology of Besley, Kuh, and Welsch (1980).[12] While for regression (4) we could not identify any influential outlier for enterprise credit, we dropped Korea, Latvia, Russia, Switzerland, and South Africa as potentially influencing the result on household credit. Even when excluding these countries, Household Credit to GDP does not enter significantly at the 5% level, while Enterprise Credit to GDP continues to enter positively and significantly.

The effect of Enterprise Credit to GDP is not only statistically, but also economically significant. Take Bulgaria and Portugal, the countries at the 25th and 75th percentiles of Enterprise Credit to GDP. The regression results in column 2 suggest that if Bulgaria had the level of Enterprise Credit to GDP as Portugal, it would have grown 0.7 percentage points faster per year over the period 1994 to 2005. This economic effect is somewhat smaller than the economic effect of Bank Credit. Specifically, using the column 1 estimate and comparing Hungary and Canada, the countries at the 25th and 75th percentiles of Bank Credit to GDP, yields an economic effect of Bank Credit to GDP of 1.2 percentage points higher growth per year.

The relationship between Enterprise Credit to GDP and GDP per capita growth is robust to controlling for endogeneity and simultaneity and measurement biases (column 5). When instrumenting for both Enterprise and Household Credit to GDP with indicators of country's legal origin and religious composition, Enterprise Credit to GDP continues to enter positively and significantly, although only at the 10% significance level. As discussed above, the first-stage F-tests reject the hypotheses that the legal origin and religious composition indicators cannot explain the variation in Enterprise Credit to GDP and Household Credit to GDP. Therefore our set of instrumental variables not only has the ability to explain the variation in the endogenous variables, but also allows us to separate the effect of historical determinants on enterprise and on household lending. The

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[11] Further, a difference test between the coefficient on Enterprise Credit to GDP and Household Credit to GDP is significant.

[12] Specifically, we (i) compute the change in the coefficient on Enterprise Credit to GDP when the ith observation is omitted from the regression, (ii) scale the change by the estimated standard error of the coefficient, (iii) take the absolute value, and (iv) call the result $\Delta\beta_i$. Then, we use the Besley, Kuh, and Welsch recommendation of a critical value of two, and identify those observations where abs $(\Delta\beta_i) > 2/\text{sqrt}(n)$, where abs(x) yields the absolute value of x, sqrt(x) yields the square root of x, and n represents the number of observations in the regression.

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Sargan test of overidentifying restrictions is not rejected, suggesting that legal origin and religious composition affect GDP per capita growth only through one of the explanatory variables.[13] While subject to the usual caveats of cross-country instrumental variable regression – bias due to lagged dependent variable, potentially weak instruments, weak tests of overidentifying restrictions and lack of instruments for other explanatory variables – these findings suggest that the relationship between Enterprise Credit to GDP and GDP per capita growth is not driven by endogeneity, simultaneity or measurement biases.[14]

Small datasets such as ours pose challenges in drawing reliable inference, as the probabilistic assumptions that underlie our estimations might not hold. Specifically, in small sample, the assumption of normally, independently and identically distributed error terms might be violated. We therefore present several additional specification tests in Table 4. Specifically, following Edwards et al. (2006), we use Ramsey's (1969) Regression Specification Error Test to gauge whether the errors are linear with respect to the conditioning variables. More specifically, it tests whether non-linear combinations of the estimated values help explain the endogenous variable and thus tests for mis-specification. In no case can we reject the null hypothesis that there are no omitted variables. Second, we also tested for heteroskedasticity using both the White (1980) test and the Cook-Weisberg (1983) test, whose null hypothesis is rejected in all instances.

We also undertake several additional robustness tests, whose results are available on request. First, we rerun regression (4) including Bank Credit and Household Credit, as they might have a similar degree of measurement error.[15] While Bank Credit continues to enter positively and significantly, Household Credit does not enter significantly. Second, as household credit might be more likely to be used for enterprise purposes in countries with higher degrees of informality, we added an interaction term between the share of informal activity and Household Credit; neither Household Credit nor the interaction enters significantly. Third, we test for the significance of alternative education

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[13] Given the low F-tests in our first stage regressions, we considered additional specification tests, available on request. Specifically, the Anderson canonical correlations likelihood ratio test of instrument relevance, Shea's partial R squares measure of instrument relevance, and the Cragg-Donald test of weak instruments provide evidence that both the legal origin and the religious composition variables are valid and relevant instruments. Similarly, we do not find that either the legal origin or the religious composition set of instrumental variables are redundant in the sense that excluding either set of instrumental variables improves the asymptotic efficiency of the estimation. See Baum, Shaffer and Stillmann (2003) for a discussion of these different test statistics.

[14] For further discussion on OIR tests, see Murray (2006) and Baum, Schaffer and Stillman (2003).

[15] As described in section 2, we construct Enterprise Credit to GDP from underlying sectoral data while Household Credit to GDP is a residual category.

indicators, such as primary enrolment rates. This variable does not enter significantly and our results are not changed.

Taken together, the results in Table 4 suggest that only the component of private sector lending that goes to enterprises is robustly linked with economic growth, while bank lending to households is not. Our results confirm theoretical predictions that financial institutions and markets foster economic growth through alleviating firms' financing constraints. They are consistent with the empirical finance and growth literature that analyzes the relationship between financial sector development and firms' financing constraints and growth. They are also consistent with an ambiguous relationship between household credit and economic growth, with positive effects through human capital allocation and negative effects through dampening the savings rate canceling each other out.

The Table 5 results confirm the robustness of our findings to (i) adding control variables and (ii) looking at the sources of growth. The result in column 1 suggests that the positive effect of Enterprise Credit to GDP is independent of the positive effect that stock market development has on economic growth. Specifically, here we control for Value Traded to GDP, an indicator of stock market liquidity that previous studies have found to be positively and significantly associated with GDP per capita growth (Levine and Zervos, 1998; Beck and Levine, 2004). While we confirm the positive impact of liquid stock market, Enterprise Credit to GDP continues to enter positively and significantly. The columns 2-4 regressions shed light on the channels through which Enterprise Credit fosters economic growth. Specifically, column 2 shows that Enterprise Credit to GDP is no longer significant when controlling for the square of Investment to GDP, while the square of investment ratio itself does not enter significantly either.[16] This suggests that enterprise credit enhances economic growth not necessarily through capital accumulation but through productivity growth and resource allocation. This finding is confirmed in columns 3 and 4 where we use two dependent variables that capture the sources of economic growth – capital accumulation and productivity growth. The column 3 regression shows no significant relationship between capital accumulation and Enterprise Credit to GDP, while column 4 shows a significant and positive relationship between productivity growth per capita and Enterprise Credit to GDP. This confirms findings by Beck, Levine and Loayza (2000) of a robust and positive relationship between financial intermediary development and productivity growth and an at most tenuous relationship between financial intermediary development and capital accumulation. Household Credit to GDP does not enter significantly in any of the Table 5 regressions.

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[16] We are using the square rather than the level, as the Ramsey test is rejected at the 5% level when we use the level.

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Table 5: Enterprise Credit, Household Credit and Economic Growth – Robustness Tests

Dependent variables are the average annual growth rate of real GDP per capita, average annual capital per capita growth rate and the average annual productivity per capita growth, computed as GDP per capita growth – 0.3*Capital per capita growth. Initial income per capita is the log of real GDP per capita in 1994, secondary enrolment is the share of the respective age cohort enrolled in secondary schools, government consumption is total govt. expenditures relative to GDP, Trade is the ratio of exports and imports to GDP, Inflation is the average log difference in the Consumer Price Index over the sample period, Bank Credit to GDP is total claims of deposit money banks on private domestic non-financial sector as ratio to GDP. Enterprise Credit to GDP is total claims of deposit money banks on enterprises as ratio to GDP, Household Credit to GDP is total claims of deposit money banks on households as ratio to GDP. Investment ratio is investment relative to GDP and Value Traded to GDP is total value traded on national stock exchanges relative to GDP. P-values are reported. *,**,*** indicate significance at the 10%, 5% and 1% level, respectively.

	(1)	(2)	(3)	(4)
	GDP per capita growth	GDP per capita growth	Capital per capita growth	Productivity per capita growth
Initial income per capita	-0.001	-0.001		-0.002
	(0.659)	(0.666)		(0.354)
Secondary enrolment	8.52e-05	6.51e-05	1.51e-05	2.34e-05
	(0.344)	(0.521)	(0.920)	(0.788)
Government consumption	-0.019*	-0.013	-0.014	-0.010
	(0.051)	(0.156)	(0.277)	(0.276)
Trade	0.004	0.002	0.003	0.003
	(0.134)	(0.482)	(0.505)	(0.168)
Inflation	-0.003	0.005	0.059***	-0.018
	(0.882)	(0.800)	(0.010)	(0.158)
Transition economies	-0.001	-0.005	0.012*	0.006
	(0.872)	(0.586)	(0.095)	(0.521)
Enterprise Credit to GDP	0.005**	0.004	0.002	0.005**
	(0.023)	(0.138)	(0.479)	(0.033)
Household Credit to GDP	-0.0003	0.0008	0.0060	7.05e-05
	(0.939)	(0.867)	(0.425)	(0.987)
Value traded to GDP	0.002**			
	(0.016)			
Investment ratio squared		0.010		
		(0.150)		
Initial capital per capita			0.002	
			(0.721)	
Constant	0.067*	-0.002	0.041	0.056
	(0.088)	(0.975)	(0.545)	(0.129)
Observations	45	45	35	35
R-squared	0.372	0.394	0.259	0.373
Ramsey test (p-value)	0.944	0.403	0.164	0.576
White test (p-value)	0.430	0.430	0.420	0.420
Cook-Weisberg test (p-value)	0.570	0.764	0.717	0.195

Several studies have found significant country heterogeneity in the finance-growth relationship; Aghion, Howitt and Mayer-Foulkes (2005) found that the finance-growth link is much weaker or even non-existent for high-income countries, while Rioja and Valev (2004a, b) found that the relationship is strongest for middle-income countries. Can the cross-country variation in credit composition explain this country heterogeneity?

The regressions in Table 6 show that Bank Credit to GDP and Enterprise Credit to GDP are significant at the 25th and 50th of initial income per capita, while Household Credit to GDP does not enter significantly at any level of economic development. Here, we add interaction terms of Bank Credit to GDP (column 1), Enterprise Credit to GDP (column 2) and Household Credit to GDP (column 3) with the log of initial GDP per capita to assess whether there is a differential effect of banking sector development across different levels of economic development. Further, we report the overall effect of banking sector development at different levels of initial GDP per capita. The column 1 regression of Table 6 shows that the relationship between banking sector development and GDP per capita growth decreases in the level of economic development and turns insignificant for high income countries.[17] Specifically, while Bank Credit to GDP is significant both at the 25th and 50th percentile of GDP per capita, it is insignificant at the 75th percentile. Overall, the relationship between Bank Credit to GDP and GDP per capita growth is significant at the 5% level for 25 of the 45 countries in our sample. Similarly, the column 2 regression shows that Enterprise Credit/GDP has a significant relationship with GDP per capita growth at the 25th and 50th percentile of initial income per capita, while it is insignificant at the 75th percentile of GDP per capita. A more detailed analysis, however, shows that the relationship between Enterprise Credit to GDP and GDP per capita growth is significant at the 5% level for 29 of our 45 sample countries. The relationship between Household Credit to GDP and GDP per capita growth is insignificant, irrespective of the level of initial GDP per capita.

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[17] The fact that both Bank Credit to GDP, initial income and their interaction are insignificant, can be explained by the very high correlation between the three variables.

Table 6: Enterprise Credit, Household Credit and Economic Growth – Non-linearities

Dependent variable is the average annual growth rate of real GDP per capita. Initial income per capita is the log of real GDP per capita in 1994, secondary enrolment is the share of the respective age cohort enrolled in secondary schools, government consumption is total govt. expenditures relative to GDP, Trade is the ratio of exports and imports to GDP, Inflation is the average log difference in the Consumer Price Index over the sample period, Bank Credit to GDP is total claims of deposit money banks on private domestic non-financial sector as ratio to GDP. Enterprise Credit to GDP is total claims of deposit money banks on enterprises as ratio to GDP, Household Credit to GDP is total claims of deposit money banks on households as ratio to GDP. All regressions are run with OLS and p-values are reported. *,**,*** indicate significance at the 10%, 5% and 1% level, respectively. The effects of Bank, Enterprise and Household Credit to GDP are evaluated at the 25th, 50th and 75th percentile of initial income per capita using lincom commands in Stata.

	(1)	(2)	(3)
Initial income per capita	-0.004	-0.005	-0.004
	(0.332)	(0.233)	(0.591)
Secondary enrollment	3.47e-05	4.32e-05	1.62e-05
	(0.645)	(0.577)	(0.833)
Government consumption	-0.018*	-0.018*	-0.204**
	(0.061)	(0.058)	(0.045)
Trade	0.003	0.003	0.005
	(0.446)	(0.421)	(0.162)
Inflation	0.004	0.004	-0.015
	(0.851)	(0.860)	(0.553)
Transition economies	0.001	-0.001	-0.001
	(0.812)	(0.906)	(0.855)
Bank Credit to GDP	0.032		
	(0.211)		
Bank Credit to GDP*	-0.003		
Initial income per capita	(0.351)		
Enterprise Credit to GDP		0.035**	
		(0.046)	
Enterprise Credit to GDP*		-0.003*	
Initial income per capita		(0.088)	
Household Credit to GDP			0.017
			(0.499)
Household Credit to GDP*			-0.001
Initial income per capita			(0.600)
Constant	0.0993***	0.107***	0.0977
	(0.0346)	(0.0314)	(0.170)
Observations	45	45	45
R-squared	0.356	0.365	0.284
Effect on 25th percentile of initial income	0.011**	0.010***	0.005
Effect on 50th percentile of initial income	0.008**	0.007***	0.004
Effect on 75th percentile of initial income	0.005	0.003	0.002

Figures 1 and 2 illustrate that the estimation of the relationship between enterprise credit to GDP and growth is more precise than the estimation of the relationship between overall credit to GDP and growth. Specifically, we show the marginal effect of Bank Credit to GDP (Figure 1) and Enterprise Credit to GDP (Figure 2) on GDP per capita growth at different levels of initial GDP per capita, as well as the 5% level significance band. While both relationships clearly slope downwards, the significance bands for Bank Credit to GDP are wider, resulting in an insignificant relationship with GDP per capita both at the low end of our sample in terms of initial economic development, as well as in the upper third. The relationship between Enterprise Credit to GDP and GDP per capita growth, on the other hand, is more precisely estimated. Specifically, the relationship between Bank Credit to GDP and growth is significant for GDP per capita between 1,000 and 8,000 dollars, while the relationship between Enterprise Credit to GDP and growth is significant for GDP per capita of up to 13,000 dollars, including New Zealand. While the relationship between Bank Credit to GDP and economic growth is thus significant mostly for middle-income countries, the relationship between Enterprise Credit to GDP and economic growth is significant for low-, middle- and even some high-income countries.

Figure 1: The relationship between Bank Credit to GDP and GDP per capita growth at different levels of GDP per capita
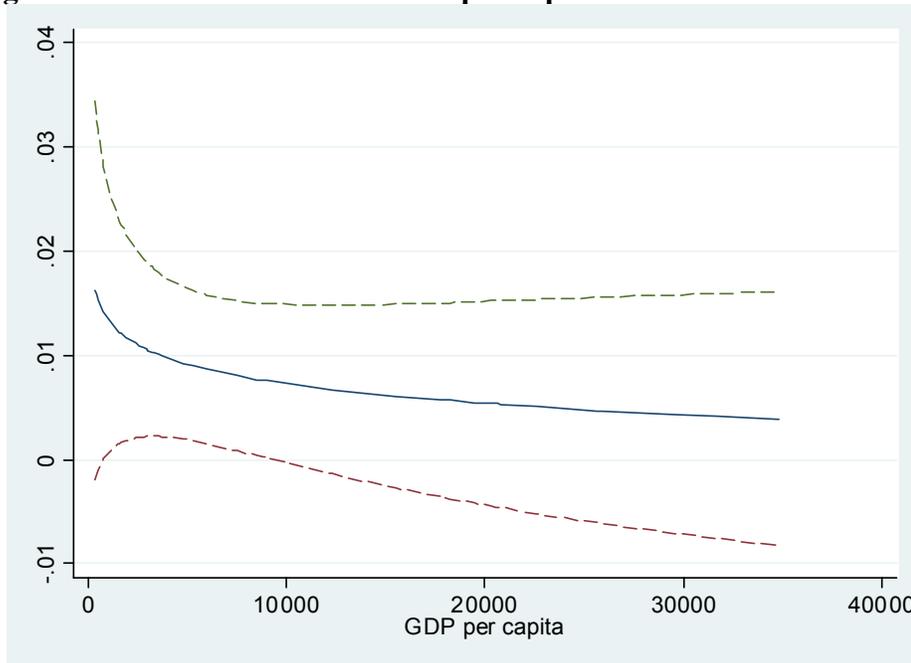
The graph shows the marginal effect of Bank Credit to GDP across different levels of initial GDP per capita. The dotted lines indicate the 95% confidence intervals.

Figure 2: The relationship between Enterprise Credit to GDP and GDP per capita growth at different levels of GDP per capita
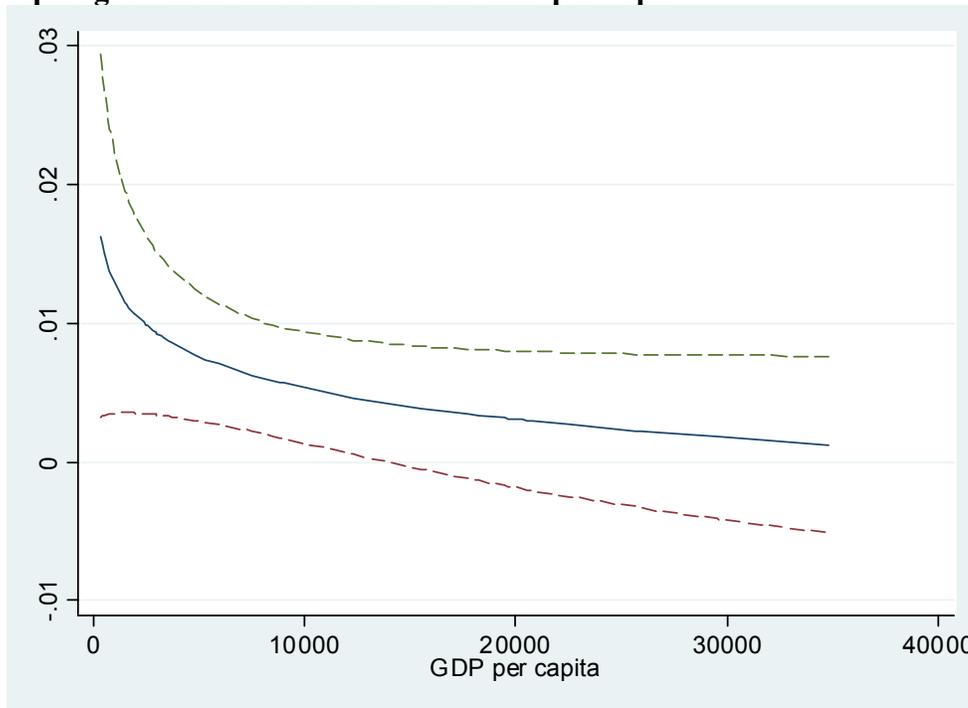
The graph shows the marginal effect of Enterprise Credit to GDP across different levels of initial GDP per capita. The dotted lines indicate the 95% confidence intervals.

In a further attempt to address the endogeneity issue, we utilize the seminal work by Rajan and Zingales (1998) to identify the role of enterprise and household credit in industry growth. In particular, we interact an industry characteristic – each industry's technological dependence on external finance – with a country characteristic – the level of enterprise or household credit to GDP.[18] Rajan and Zingales (1998) measure an industry's dependence on external finance (the difference between investment and cash from operations) using data on large, public corporations in the United States. Assuming that financial markets are relatively frictionless for large listed companies in the United States, they identify each industry's "technological" demand for external finance, i.e., the demand for external finance in a frictionless financial system. They further assume that this technological demand for external finance is the same across

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[18] The differences-in-differences approach of Rajan and Zingales has subsequently been used by many other researchers interested in the linkage between financial development and growth and specific mechanisms and channels, including Beck and Levine (2002), Beck, Demirguc-Kunt, Laeven and Levine (2008), Braun and Larrain (2005), Claessens and Laeven (2003), Fisman and Love (2003), and Raddatz (2006).

countries. While Rajan and Zingales focus on aggregate lending, we will assess whether this interaction varies across the two components of bank lending going to enterprises and households. By focusing on within-industry, within-country variation, we can provide further evidence that our cross-country findings are not due to endogeneity or omitted variable bias.

Specifically, we estimate the following differences-in-differences model:

$$Growth_{i,k} = \sum_k \alpha_k Country_k + \sum_i \beta_i Industry_i + \gamma\, Share_{i,k}$$

$$+ \delta_1 (EFD_i * EnterpriseCredit_k) + \delta_2 (EFD_i * HouseholdCredit_k) + \varepsilon_{i,k}, \quad (2),$$

where $Growth_{ik}$ is the growth rate in real value added for 1990-2000 for industry i in country k, $Country_k$ and $Industry_i$ are country and industry dummies, respectively, and $Share_{ik}$ is the industry i's share of total value added in manufacturing in 1990 in country k. EFD_i measures the external finance dependence of industry i defined as the fraction of capital expenditure not financed with internal funds using large US firms in industry i in 1980. Enterprise and Household Credit are defined as above. The sample excludes the industrial sectors in the US, which serves as the benchmark. Regressions are estimated with standard errors clustered on the country-level, i.e. allowing for correlation of error terms across industries within countries. Compared to the cross-country regressions, we have data available only for 20 countries, while at the same time gaining industry-level variation.

The Table 7 results confirm our previous findings using industry growth regressions. In column 1, we confirm the Rajan and Zingales (1998) finding that industries that are relatively more in need of external finance develop faster in countries with more developed financial markets, as measured by the total Bank Credit to GDP ratio. While Enterprise Credit to GDP enters positively and significantly in columns 2 and 4, Household Credit to GDP enters only marginally significant in column 3 and loses significance once we control for both Enterprise and Household Credit to GDP (column 4). This suggests that industries that naturally rely more on external finance grow faster in countries with higher levels of enterprise credit, but that their growth does not vary with the country level of household credit. In unreported robustness tests, available on request, we also gauged whether industries' reliance on small firms interacts significantly with the two components of bank lending, following work by Beck et al. (2008); however, we do not find for our rather small sample that the level of either enterprise or household credit is significantly associated with variation of growth across industries that rely to a different extent on small firms.

Table 7: Enterprise and household credit and industry growth

The dependent variable is the growth rate in real value added for 1990–2000 for each industry in each country, using the data from Beck et al. (2008). The sample excludes the industrial sectors in the US, which serves as the benchmark (Rajan and Zingales, 1998). Country and industry dummy variables are included in the regressions but not reported. Share in value added is the industry's share of total value added in manufacturing in 1990. EFD is external finance dependence [the fraction of capital expenditures not financed with internal funds for US firms in the same industry in 1980 (Rajan and Zingales, 1998)]. Credit variables are averaged over the 1990-2000 period. Regressions are estimated using ordinary least squares and countries are clustered using heteroskedasticity-robust standard errors. P-values are presented in parentheses. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	1	2	3	4
Share in value added	-0.266	-0.265	-0.255	-0.270
	(0.195)	(0.201)	(0.223)	(0.193)
EFD x Private Credit	0.040			
	(0.038)**			
EFD x Enterprise Credit		0.063		0.049
		(0.002)***		(0.009)***
EFD x Household Credit			0.059	0.034
			(0.064)*	(0.305)
Constant	-0.034	0.036	0.034	0.032
	(0.573)	(0.553)	(0.577)	(0.596)
Observations	412	412	412	412
Countries	20	20	20	20
R^2	0.4832	0.4829	0.4815	0.4837

To summarize, the positive impact of financial development on growth, documented in the literature, has been driven by bank lending to enterprises rather than to households. The increasing importance of household credit in total credit in high-income countries documented in section 2 also partly explains why the impact of overall bank lending on GDP per capita growth in these countries is insignificant. The relationship between Enterprise Credit to GDP and GDP per capita growth turns insignificant at higher levels of GDP per capita than the relationship between Bank Credit to GDP and GDP per capita growth.

3.3. Credit composition and changes in income distribution

We utilize the same regression set-up as in (1) to assess the effect of Enterprise Credit to GDP and Household Credit to GDP on changes in income inequality. Following Beck, Demirgüç-Kunt and Levine (2007), we use two measures of income inequality: the Gini coefficient and the income share of the poorest quintile. The Gini coefficient is derived from the Lorenz curve, where larger values imply greater income inequality. **Growth of Gini** equals the annual growth rate of each country's Gini coefficient, computed over the latest multi-year time

period, for which data are available.[19] Specifically, we compute the log difference between the last and the first available observation and divide by the number of years between these two observations, with the time span being between at least five and at most seven years. **Growth of Lowest Income Share** equals the annual growth rate of the share of the lowest income quintile, computed over the same period as Growth of Gini. Specifically, Growth of Lowest Income Share is defined as the difference between the logarithm of the share of the lowest income quintile for the last observation and the logarithm of the share of the lowest income quintile for the first observation, divided by the number of years between the two observations. These data are available for 33 of our 45 sample countries. In our regression analysis, we will control for the same country factors as in the growth regressions, plus the average annual growth rate in real GDP per capita, following Beck, Demirgüç-Kunt and Levine (2007). As in the growth regressions, we will also control for reverse causation and simultaneity bias by utilizing legal origin dummies and religious composition indicators as instrumental variables for enterprise and household lending.

Not only the level, but also changes in income inequality vary significantly across countries. On average the Gini dropped by 7% per year in Japan over the period 1989 to 1995, while it increased by 8% in Jamaica over the period 1993 to 97. The share of the lowest income quintile grew by an annual 18% in Macedonia between 1996 and 2001, while it dropped by an annual 15% in Australia over the period 1993 to 98. While Bank Credit to GDP and Enterprise Credit to GDP are both significantly and negatively correlated with Growth in Gini, Household Credit to GDP is not. None of the three financial sector indicators is significantly correlated with Growth in Lowest Income Share at the 5% level.

The results in Table 8 show a negative relationship between Enterprise Credit to GDP and changes in the Gini coefficient and the income share of the lowest quintile, but no significant relationship of Household Credit to GDP with either measure of changes in income distribution. Here, we regress Growth of Gini and Growth of Lowest Income Share on the initial dependent variable, government consumption, trade share, inflation, GDP per capita growth as well as our financial sector indicators. While both Bank Credit to GDP (Column 1) and Enterprise Credit to GDP (Column 2) enter negatively and significantly, Household Credit to GDP does not (Column 2). When instrumenting for both

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[19] We use income quintile and Gini data from Dollar and Kraay (2002) and UNU-WIDER (2006) to compute the level and growth rate of this variable. Dollar and Kraay obtain income share and Gini data from Deininger and Squire (1996), the UN-WIDER World Income Inequality Database, Chen and Ravallion (2000) and Lundberg and Squire (2000). We update their data with more recent data points from UNU-WIDER (2006). Unlike in the case of GDP numbers, income inequality data are not available for every year.

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Enterprise and Household Credit to GDP in column 3, we confirm our finding of a negative and significant relationship between enterprise lending and reductions in the Gini coefficient, while household lending continues to enter insignificantly. The Sargan test and the first stage F-tests both confirm the validity of our model. Columns 4 – 6 show similar findings for our second measure of changes in income inequality, the average annual growth rate in the lowest income share. While Bank Credit to GDP does not enter significantly (column 4), Enterprise Credit to GDP enters positively and significantly in both OLS and IV regression (columns 5 and 6). Household Credit to GDP does not enter significantly in the OLS regression and even negatively and significantly in the IV regression. As before, Sargan and first stage F-tests confirm the validity of our instruments and specification for the IV regression. As in Table 4, we recognize the weaknesses of the IV approach and regard these as suggestive rather than conclusive results, also given the extremely small sample of countries we have available.

Together, these results suggest that the impact of financial sector development on reductions in income inequality goes through enterprise rather than household lending, a finding that is consistent with Gine and Townsend (2004) and Beck, Levine and Levkov (2010) and inconsistent with theories focusing on credit for the poor helping them to pull themselves out of poverty by investing in human capital or microenterprises (Galor and Zeira, 1993; Banerjee and Newman, 1993). While our small sample does not allow us to use changes in poverty levels, such as the headcount as dependent variable, the findings in Table 8 underline that it is Enterprise Credit that drives the pro-poor nature of financial sector development, as changes in poverty can be decomposed in economic growth and changes in income inequality (Kakwani, 1993; Datt and Ravallion, 1992).

Table 8: Enterprise Credit, Household Credit and Changes in Income Distribution

Growth of Gini is the annual growth rate in the Gini coefficient, while of lowest income share is the annual growth rate in the income share of the poorest quintile. Initial dependent variable is in logs and for the first year of the respective sample period, secondary enrolment is the share of the respective age cohort enrolled in secondary schools, government consumption is total govt. expenditures relative to GDP, Trade is the ratio of exports and imports to GDP, Inflation is the average log difference in the Consumer Price Index over the sample period, Bank Credit to GDP is total claims of deposit money banks on private domestic non-financial sector as ratio to GDP. Enterprise Credit to GDP is total claims of deposit money banks on enterprises as ratio to GDP, Household Credit to GDP is total claims of deposit money banks on households as ratio to GDP. Regressions (1), (2), (4), and (5) are OLS regressions, while regressions (3) and (6) are IV regressions, with legal origin and religious composition as excluded exogenous and Enterprise Credit to GDP and Household Credit GDP as endogenous variables. P-values are reported. *,**,*** indicate significance at the 10%, 5% and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Growth of Gini	Growth of Gini	Growth of Gini	Growth lowest income share	Growth lowest income share	Growth lowest income share
Initial dependent variable	-0.020	-0.026	-0.041*	-0.073**	-0.082**	-0.089***
	(0.219)	(0.176)	(0.054)	(0.022)	(0.013)	(0.000)
Secondary enrolment	0.000*	0.000	-0.000	-0.001***	-0.001	-0.000
	(0.071)	(0.220)	(0.906)	(0.006)	(0.157)	(0.962)
Government consumption	-0.012	-0.014	-0.017	0.075***	0.090***	0.095***
	(0.404)	(0.362)	(0.222)	(0.008)	(0.003)	(0.000)
Trade	0.008	0.008	0.010	0.032	0.023	0.016
	(0.448)	(0.479)	(0.469)	(0.191)	(0.265)	(0.496)
Inflation	-0.001***	-0.001***	-0.000	0.001	0.001	-0.000
	(0.001)	(0.002)	(0.472)	(0.282)	(0.213)	(0.832)
Growth in GDP pc	-0.041	-0.028	-0.024	-0.936	-1.109*	-1.146**
	(0.899)	(0.933)	(0.929)	(0.101)	(0.066)	(0.040)
Bank Credit to GDP	-0.029***			0.033		
	(0.001)			(0.113)		
Enterprise Credit to GDP		-0.019**	-0.020*		0.042**	0.050**
		(0.042)	(0.096)		(0.044)	(0.023)
Household Credit to GDP		-0.009	0.005		-0.006	-0.042**
		(0.212)	(0.685)		(0.738)	(0.031)
Constant	0.028	0.042	0.144	-0.061	-0.056	-0.132
	(0.766)	(0.692)	(0.173)	(0.613)	(0.566)	(0.144)
Observations	33	33	33	33	33	33
R-squared	0.428	0.445		0.540	0.611	
F-test 1st stage (p-value) Enterprise Credit			0.043			0.021
F-test 1st stage (p-value) Household Credit			0.001			0.001
Sargan test (p-value)			0.421			0.362

4. Enterprise vs. Household Lending – Who Gets the Credit?

While Section 3 has established a significant relationship between credit composition and GDP per capita growth and changes in income inequality, we now turn to country characteristics and policies that explain this variation across countries. This section first discusses the explanatory variables that we will be utilizing in our analysis before turning to the results.

4.1. Explanatory variables

While the theoretical literature does not provide us with any direct guidance to which variables should explain best the composition of credit, we can use the basic intuition of models of endogenous financial intermediation.[20] Financial markets and institutions arise to overcome market frictions, such as transaction costs and information asymmetries. The efficiency of financial institutions and markets, however, is also impacted by the severity of these same market frictions. Transaction costs include a high fixed cost element as processing a loan entails certain costs that are independent of the loan size of transaction, which in turn makes loans to borrowers with small borrowing needs prohibitively expensive. Similarly, high information barriers make loans to more opaque borrowers more difficult. Households typically want to borrow small amounts of loans and limited information is available about their repayment prospects. While durable consumer goods such as cars or houses in the case of mortgages are often provided as collateral, it is costly to enforce their recovery in case of default or political pressures make it impossible.

What does the severity of market frictions imply for the composition of credit? To which extent can lenders use the recent technological advances to expand lending to households? First, we expect a higher share of consumer lending if there is sufficient clientele in order to overcome scale diseconomies of lending to borrowers with small financing needs. Second, the risk environment in which lenders work has to be conducive. In the following, we will discuss different variables, organized into groups, associated with transaction costs and information asymmetries. Specifically, we will consider (i) elements of economic structure related to supply and demand of firm and household credit, (ii) elements of the contractual, information and macroeconomic environments shown to be important for banking sector development, (iii) banking market structure, and (iv) bank regulatory policies. We will test the relationship between credit composition and different groups of country traits before performing a horserace among these

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[20] See Levine (2005) for an overview.

different groups. Appendix Table A3 provides descriptive statistics of the different variables.[21]

   We include several country traits that proxy for supply and demand factors associated with household vs. firm credit. A large number of similar loans can help lenders overcome diseconomies of scale, as can geographic concentration of borrowers and we therefore conjecture that the **share of urban population** in a country is a trait that is positively associated with a higher share of household credit in total credit. A higher share of the population working in the **informal economy**, on the other hand, is likely to be negatively associated with household credit, as households working in the informal sector lack the necessary formal documentation to access formal banking services. A higher **share of manufacturing** is also expected to be negatively associated with the share of household credit in total bank credit, as it might indicate a higher demand from enterprises. Finally, as capital markets gain in importance and thus the enterprises can access alternative external finance sources rather than being limited to bank finance (Demirguc-Kunt and Levine, 2001), banks are forced to look for alternative lending opportunities. We therefore conjecture that the share of household credit in total bank lending increases as markets gain in importance vis-à-vis banks, as measured by **financial structure**, the log ratio of value traded to bank credit**,** using data from Beck, Demirguc-Kunt and Levine (2010).

   While the literature has established a robust relationship between macroeconomic stability, the efficiency of the contractual and information framework and bank lending, this framework might have a differential impact on firm and household credit with repercussions for the composition of overall bank credit. A priori, the relationship between the contractual framework and the share of household credit is ambiguous. On the one hand, lenders might have to rely more on the contractual framework for "small" borrowers than in the case of large business borrowers. On the other hand, the sums at play in household credit might be too small for the lender to engage the legal system in the first place. Similarly, it is a priori not clear whether there is any differential effect of inflation on the composition of total private sector lending. On the one hand, most consumer lending is short-term and might therefore be less affected by monetary instability than firm credit. On the other hand, household credit in many countries is dominated by mortgage lending, which is mostly at the long-end of the yield curve. When it comes to systems of credit information sharing, we would expect a

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[21] While we have already shown a positive relationship between the share of household credit and economic development, we will not include GDP per capita in our regression analysis because of multicollinearity concerns. First, GDP per capita is highly correlated with many other country characteristics; however, we are interested which of these country traits explain the composition of credit. Second, once controlling for other country traits, GDP per capita often does not enter significantly any more.

stronger effect on household credit, as households are typically more informationally opaque than medium-size and large enterprises. Consumer lending in both advanced and emerging markets has increasingly relied on historic information about borrowers and credit scoring models, both of which rely on effective credit registries and bureaus (Berger, Frame and Miller, 2005).

We will use an indicator of **creditor rights** in and outside of bankruptcy, an indicator of the **cost of contract enforcement** and an indicator of the efficiency and breadth of **credit information sharing,** using data from the World Bank's Doing Business database. We will also include an overall measure of **institutional development**, as developed by Kaufman, Kraay and Mastruzzi (2004) and the **inflation rate**, as measured by the log difference of the Consumer Price Index.

We also assess whether credit composition varies with the development and structure of a country's banking system. A priori it does not seem clear whether private or government-owned banks and domestic or foreign-owned banks should be more inclined towards household or firm credit. On the one hand, foreign banks might be more inclined towards the consumer credit market if they can apply innovative and cost-effective technologies from their home market in the host market. On the other hand, if the cost structure is too high or important institutions, such as credit registries, are not in place, foreign banks might be reluctant to go down-market. Theory has also provided conflicting predictions on the relationship between banking market concentration, competitiveness and access to credit for "small" and opaque borrowers, so that it is a-priori not clear whether we expect a positive or negative relationship.[22]

To measure banking sector development and structure, we use **Bank Credit to GDP**, the market share of **government-owned banks**, the market share of **foreign-owned banks** and the market share of the **largest five banks** to proxy for the market structure of banking systems, using data from Barth, Caprio and Levine (2006).

Finally, regulatory policies might affect the business environment in which banks work and thus the ease with which they can overcome transaction costs and risks related to lending to households. We therefore include several indicators capturing different dimensions of the regulatory framework. We use an indicator of **activity restrictions on banks** that indicates to what extent banks cannot extend their business into insurance and capital market activity and non-

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[22] While theory and some empirical work suggest that market power might entice banks to invest in long-term relationships with small and opaque enterprises as they know that they can regain the initial investment in the relationship at a later stage (Petersen and Rajan, 1995; Bonaccorsi di Patti and Dell'Ariccia, 2004), other empirical papers point to the healthy effect of competition on availability of lending to SMEs (Cetorelli and Strahan, 2006; Beck, Demirguc-Kunt and Maksimovic, 2004). See Berger et al. (2006) for an overview.

financial sector subsidiaries. Further, **entry into banking** indicates restrictions on the licensing of new banks. Both indicators are from Barth, Caprio and Levine (2006). Finally, Heritage Foundation's **banking freedom** indicator is an overall measure of the extent to which government does not interfere into banks' business by limiting foreign bank entry, restricting banks' activities and providing deposit insurance. To the extent that household lending depends on innovation and thus a competitive and contestable banking market, we would expect a higher share of household credit in economies with fewer restrictions. Finally, we consider the relationship between the **deductibility of mortgage interest** from income taxation, conjecturing that this will foster the demand for consumer, especially mortgage credit.

4.2. Results

The results in column 1 of Table 9 suggest that countries with more market-based financial systems, a higher share of manufacturing in GDP and a higher share of urban population have higher shares of household credit in total lending. A higher degree of informality in the economy, on the other hand, is associated with a lower household credit share. Together, these four country traits explain 53% of cross-country variation in the Household Credit Share.

The results in column 2 suggest that countries with less effective contract enforcement have a higher household credit share, while there is a positive association with the overall level of institutional development. These findings suggest that while the importance of credit to households, as opposed to firms, increases as countries develop their overall institutional framework, effective contract enforcement is more relevant for firm credit. The results also suggest that neither creditor rights, nor credit information sharing nor inflation are significantly associated with credit composition, suggesting that these variables influence the provision of enterprise and household credit in similar ways. In unreported robustness tests, we also explored whether public or private credit registries or the depth and efficiency of credit information sharing are significantly correlated with credit composition, but none of these variables entered significantly. The variables that proxy for the institutional and contractual framework explain together 43% of the cross-country variation in the Household Credit Share.

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Table 9: What explains the share of household credit in total credit across countries?

The dependent is the share of household credit in total credit. Column (1)-(5) regressions are run with OLS. P-values are reported. *,**,*** indicate significance at the 10%, 5% and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)
Financial Structure	0.046				0.067
	(0.050)**				(0.011)**
Urbanization	0.220				0.176
	(0.000)***				(0.008)***
Manufacturing	-0.135				-0.190
	(0.036)**				(0.012)**
Informal economy	-0.131				0.011
	(0.015)***				(0.874)
Institutional development		0.158			0.143
		(0.000)***			(0.011)**
Creditor rights		-0.008			
		(0.439)			
Enforcement costs		0.002			0.003
		(0.013)***			(0.014)**
Credit information sharing		0.006			
		(0.698)			
Inflation		-0.094			
		(0.730)			
Bank credit to GDP			0.078		
			(0.130)		
Concentration			0.069		
			(0.692)		
Govt. bank share			-0.002		
			(0.247)		
Foreign bank share			-0.000		
			(0.916)		
Banking freedom				0.003	-0.001
				(0.082)*	(0.444)
Mortgage deductibility				0.138	-0.003
				(0.093)*	(0.966)
Activity Restrictions				-0.009	
				(0.504)	
Entry restrictions				0.001	
				(0.960)	
Constant	0.311	0.308	0.493	0.277	0.109
	(0.304)	(0.000)***	(0.001)***	(0.178)	(0.966)
Countries	42	45	38	38	42
R-squared	0.526	0.429	0.262	0.278	0.619

The results in column 3 show that there is no correlation of the banking market structure with the composition of bank credit. The overall level of banking sector development, the concentration of the banking market, the share of government and foreign-owned banks are not statistically significantly at the 10% level. The low R square of 26% is further testimony to the little relevance that banking market structure has for the composition of credit.

Finally, the results in column 4 suggest that bank regulatory and tax variables can explain little of the cross-country variation in the composition of credit. While banking freedom and the deductibility of mortgage interest enter positively and significantly (though the latter only at the 10% level), none of the other regulatory variables enters significantly. The low R square of 28% further underlines the limited extent to which regulatory and tax variables can explain cross-country variation in credit composition.

The column 5 regression presents a horse race of the variables that are significant at least at the 10% level in columns 1 through 4. We find that the relative importance of capital markets vis-à-vis banks, a higher degree of urbanization, a lower share of manufacturing, better developed institutions and less effective contractual systems continue to predict a higher share of household credit, while the importance of the informal economy, banking freedom and the deductibility of mortgage interest lose their significance in this horse race. Altogether, these variables can explain 62%, thus almost two thirds, of cross-country variation in the Household Credit Share.

Of these variables, financial structure, urbanization, and the share of manufacturing are the strongest country correlates explaining credit composition. We establish this conclusion by measuring the economic significance of the different country characteristics as follows. We multiply the coefficients in column 5 with the respective standard deviations. Institutional development has the strongest economic effect with one standard deviation leading to a 12 percentage point increase in the share of household credit in total bank lending, or almost two thirds of one standard deviation in Household Credit Share. A change of one standard deviation in financial structure and enforcement costs is associated with a change in the share of household credit of 5.2 and 5.8 percentage points, respectively. For the other two statistically significant variables in column 5, urbanization and manufacturing, a one standard deviation change can explain a change in the share of household credit of 3.2 and one percentage points, respectively.

All in all, these findings suggest that the variation in institutional development is the most important country trait explaining cross-country variation in credit composition, while more specific elements of the contractual and informational frameworks either have a smaller prediction power or are insignificant. Second, socio-economic country traits, both demand and supply-

related, as well as financial structure can explain cross-country variation in credit composition. Regulatory policies and the banking market structure that have been found significant for the overall development of the financial system, do not seem relevant for the relevant importance of enterprise and household credit.

5. Concluding Remarks

This paper is the first attempt to decompose bank credit to the private sector into household and firm credit for a large sample of countries and test various theoretical hypotheses about their effects on the real economy. The data show that household credit is an important part of the lending activities of banks. In fact, in many countries, banks lend more to households than to firms. This observation puts into perspective the large theoretical and empirical literature that has studied the determinants and effects of private credit from the standpoint of firm credit only.

We find that it is bank lending to enterprises, not to households that drives the positive impact of financial development on economic growth. Our findings justify the focus of the existing finance and growth literature on enterprise as opposed to household credit. They add further evidence that financial systems foster economic growth by alleviating firms' financing constraints. Further, the insignificant relationship between household lending and growth together with the increasing share of bank lending to households in economically more developed countries go some way towards explaining the non-linear finance-growth relationship. Specifically, while total bank lending to GDP is not robustly linked to GDP per capita growth in high-income countries, the relationship between enterprise lending to GDP and economic growth is much more precisely estimated across our sample, with even many high-income countries showing a significant relationship.

We also find that it is enterprise rather than household lending that drives the dampening effect that financial sector development has on income inequality. This provides tentative evidence that it is rather through improved capital allocation and economic transformation that finance reduces inequality than through expanding access to credit, and is consistent with previous work looking at specific countries, such as Thailand and the U.S. and the ambiguous evidence that the empirical literature has found on the effect of microcredit (see World Bank, 2007).

Our preliminary analysis of cross-country variation in credit composition allows us to draw three broad conclusions: (1) The socio-economic structure of the economy is important as evidenced by the statistically significant effects of manufacturing and urbanization; (2) demand as well as supply factors are at play as revealed by, for example, the significant effect of financial structure (a demand

side factor) and institutions (a supply side factor); and (3) regulations and the structure of the banking market are not important, i.e. they influence enterprise and household credit in similar ways. The limited variation of credit composition with policy variables also puts the results of the growth regressions in a certain light, as policy makers seemingly have limited options to influence the share of credit that goes to either enterprises or households.

This exploration of enterprise versus household credit across countries is an initial assessment of the factors that drive credit composition and its effects. As longer time-series data become available, allowing the construction of longer panel data sets, more rigorous hypothesis testing will be possible.

Appendix Table A1. Enterprise credit definitions

Country	Variable definitions
Argentina	Financing by activities: credit to production, industry, construction, services, electricity, and commerce.
Australia	Bank lending classified by sector: commercial lending
Austria	Financial liabilities of non-financial corporations: short-term and long-term loans.
Belgium	Loans originally granted by credit institutions to Belgian non-financial corporation
Bulgaria	Commercial banks credit: credit to private enterprises, total
Canada	Business loans from chartered banks
Costa Rica	Credit from deposit money banks: credit to production, industry, construction, services, electricity, and commerce.
Czech Republic	Banking statistics: loans: sectoral breakdown, commercial banks, non-financial corporations
Denmark	Bank lending to non-financial corporations.
Egypt	Banks lending by private sector: private businesses: local and foreign currency
Estonia	Loans granted by groups of customers: commercial undertakings
Finland	Finnish MFIs' euro-denominated loans, non-financial corporations, stock
France	Lending by credit institutions to non-financial corporations: total
Germany	Lending to domestic enterprises and self-employed persons/total/commercial banks
Greece	Domestic MFI credit to domestic enterprises
Hungary	Credits to enterprises and small entrepreneurs
Iceland	Deposit money banks credit to industries
India	Distribution of outstanding credit of scheduled commercial banks according to occupation: everything but personal and miscellaneous.

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Indonesia	Outstanding credit by commercial banks by group of debtor: Rupiah and foreign currency by private enterprises
Ireland	Sectoral distribution of advances: All financial institutions
Jamaica	Commercial banks analysis of loans and advances: everything but government and personal credit
Japan	Loans and discounts outstanding by sector (by Type of Major Industries):domestically licensed banks
Kenya	Commercial banks: distribution of credit facilities: private sector credit to industry, trade and business services
Korea	Financial assets and liabilities outstanding: bank Loans: business Sector
Latvia	Banking and monetary statistics: loans granted by credit institutions: loans to domestic enterprises and private persons: private enterprises
Lithuania	Loads to Non-financial Corporations and Households: Non-financial Corporations
Macedonia	Deposit Money Banks : Total Claims to Enterprises
Malaysia	Loans by Sector: Commercial Banks: Industry, Construction, Business Services (Everything but Consumption Credit)
Mexico	Credit granted by the commercial bank: Enterprises and persons with enterprise activity
Netherlands	Monetary Financial Institutions Loans to the Private Sector: non-financial Corporations
New Zealand	Sector Credit: Resident NZ Claims of registered banks: Agriculture and Business Credit
Pakistan	Classification of Scheduled Banks Advances by Borrower: Industry, Commerce, Construction (Everything but Personal and Other Credit)
Poland	Commercial banks credit to non-financial corporations
Portugal	Domestic credit to non-financial Corporations
Russia	Bulletin of Banking Statistics: Credit extended to Enterprises
Slovak Republic	Analytical Accounts of the Banking Sector: Domestic Credit: Credit to Enterprises
Slovenia	Deposit Money Banks Claims on Domestics Non-Monetary sectors: Claims on Enterprises
South Africa	Total Credit Extended by All Monetary Institutions Net of Household Credit
Sweden	Lending to non-financial enterprises: banks
Switzerland	Lending to companies by company size and type of loan:total
Thailand	Commercial Bank Credit to Industry, construction, Trade and Services
Turkey	Deposit Money Banks Credit to Enterprises
UK	UK resident banks lending to private sector, net of lending to individuals
USA	Commercial Banks Credit: Commercial and Industrial Loans
Uruguay	Commercial Bank Credit to Agriculture, Industry, Commerce and Services

Appendix Table A2. Variables - definitions and sources

Variable	Definition	Source
Bank Credit to GDP	Total outstanding claims of deposit money banks on private sector as ratio to GDP	Beck, Demirgüç-Kunt and Levine (2010)
Enterprise Credit to GDP	Total outstanding claims of deposit money banks on enterprise sector as ratio to GDP	See Appendix Table A1
Household Credit to GDP	Total outstanding claims of deposit money banks on households as ratio to GDP	See Appendix Table A1
GDP per capita growth	Annual average real GDP per capita growth, 1995 to 2005	World Development Indicators (WDI)
Growth of Gini	Annual log change in Gini, averaged over country-specific periods between 1992 and 2005	Beck, Demirguc-Kunt and Levine (2007)
Growth of Lowest Income Share	Annual log change in the income share of poorest quintile, averaged over country-specific periods between 1992 and 2005	Beck, Demirguc-Kunt and Levine (2007)
GDP per capita		WDI
Secondary enrolment	Share of the respective age cohort enrolled in secondary schools	WDI
Government consumption	Total govt. expenditures relative to GDP	WDI
Trade	Ratio of exports and imports to GDP	WDI
Inflation	Average log difference in the Consumer Price Index over the sample period	WDI
Legal origin dummies	Origin country of each country's legal system	La Porta, Lopez-de-Silanes, Shleifer and Vishny (1999)
Catholic, Protestant and Muslim population shares	Share of population with the respective religious belief in total population	La Porta, Lopez-de-Silanes, Shleifer and Vishny (1999)

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Appendix Table A3: Country characteristics - descriptive statistics

Financial Structure is the log ratio of stock market value traded to bank credit to private sector. Urbanization is the share of population living in urban areas. Informal economy is the ratio of informal output relative to GDP. Manufacturing is the share of manufacturing value added in GDP. Institutional development is the average of six principal component indicators measuring voice and accountability, political stability, absence of corruption, rule of law, regulatory quality and government effectiveness. Creditor rights is the rights of secured creditors inside and outside corporate bankruptcy. Credit information sharing is an index of the existence and efficiency of credit information sharing systems. Contract enforcement costs are the average costs of enforcing a claim relative to a typical contract value. Inflation is the average annual log difference of the Consumer Price Index over the sample period. Bank Credit to GDP is total claims of deposit money banks on private domestic non-financial sector as ratio to GDP. Concentration is the five-bank concentration ratio. Government and foreign bank shares are the share of majority government or foreign-owned banks in total banking assets. Activity restrictions is an indicator of the extent to which bank activities in the securities, insurance, and real estate markets and ownership and control of nonfinancial firms are restricted. Bank entry restrictions are the regulatory requirements for new banks. Mortgage deductibility is a dummy that takes value one if mortgage interest payments can be deducted from taxable income. Banking freedom indicates the absence of government interference in the banking system, such as regulatory restrictions, restrictions on foreign bank entry and deposit insurance.

Variable	Mean	Standard deviation	Maximum	Minimum
Financial Structure	0.61	0.77	4.17	0.00
Urbanization	65.71	17.96	97.15	20.02
Informal economy	24.93	10.97	52.6	8.8
Manufacturing	19.88	4.88	31.17	11.43
Institutional development	0.76	0.82	1.91	-0.87
Creditor rights	5.61	2.17	10	1
Credit information sharing	4.41	1.56	6	0
Contract enforcement cost	17.75	19.37	126.5	4.8
Inflation	0.06	0.08	0.44	0.00
Bank Credit to GDP	0.60	0.38	1.6	0.14
Concentration	0.67	0.18	1	0.30
Government bank share	19.41	23.07	80	0
Foreign bank share	15.60	24.01	99	0
Activity restrictions	8.68	2.44	14	4
Bank entry restrictions	7.13	1.28	8	2
Mortgage deductibility	0.14	0.35	1	0
Banking freedom	63.00	16.63	90	30

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