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Abstract

Existing literature sees opportunistic behaviour of contractual partners as the main reason why rational agents underinvest in relationship-specific assets. We look beyond this well-know holdup problem and argue that financial vulnerability and short-term planning horizon can also lead to such underinvestment. Subsequently, banks can stimulate growth-enhancing investment in relationship-specific assets by signalling creditworthiness and long-term planning horizon of their borrowers. We empirically confirm this hypothesis by showing that industries dependent on relationship-specific investment from their suppliers grow disproportionately faster in countries with a strong banking sector.

JEL-Code: G210, O160, O400.

Keywords: financial development, relationship-specific investment, growth.

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The distinguishing feature of relationship-specific assets is the fact that their value is greater within a relationship than outside it. A typical example involves an upstream supplier who makes investments in order to customize her product for the needs of the downstream purchaser. After the investment is sunk, the buyer can refuse to meet her commitment and trigger ex post renegotiation. The seller is in a weaker position as she already adjusted the product for the needs of one specific purchaser and would thus not be able to achieve the original price with a different customer. Existing literature going back to the Nobel prize winning work of Oliver Williamson (1971, 1975, 1979) sees this well-known holdup problem as the ultimate reason why agents underinvest in relationship-specific assets.[1] In the above example forward-looking sellers would be reluctant to adjust their products to the specific needs of their customers, hurting the downstream firms with negative ramifications for aggregate growth. Consequently, the standard way for the government to stimulate relationship-specific investment would be a well-functioning legal enforcement of written contracts.

This paper looks beyond the holdup problem and stresses two other reasons behind suppliers' underinvestment in relationship-specific assets: financial vulnerability and short-term planning horizon of buyers. Firstly, even if a detailed contract makes the buyer *willing* to pay for a product at the agreed price, she might be *not able* to do so due to liquidity or solvency problems. The most effective contract enforcement might fail to protect the supplier in tough times when the buyer lacks access to a reliable source of financing. The recent financial crisis made this point painfully clear. Secondly, the probability of buyer's opportunistic behaviour depends on her planning horizon. A long-term oriented downstream firm would arguably prefer to establish permanent business relationships rather than aim for one-shot gains from defaulting on the original commitments.

An upstream firm suspecting a financially unstable or shortsighted contractual partner would be therefore notably reluctant to make specific product adjustments. By implication, a buyer dependent on the willingness of her supplier to undertake relationship-specific investment would particularly benefit from being creditworthy and shunning myopic behaviour. However, a firm usually cannot disclose such qualities in an easy and credible way. Contrary to the standard holdup problem, a well-functioning legal system is here of little avail. It is rather the banking sector that can overcome this information asymmetry and help the buyer to convince a supplier hesitating to undertake relationship-specific investment. In a seminal paper, Fama (1985) argues that obtaining a bank loan is

[1] See also the seminal paper of Klein et al. (1978). Hart (1995) and Royal Swedish Academy of Science (2009) provide an intuitive introduction to this literature.

a particularly suitable way to signal creditworthiness to business partners. Similarly, von Thadden (1995) shows how a monitoring contract closely resembling a standard bank-firm lending relationship can lengthen the firms' planning horizon.

Consequently, a well-developed financial (especially banking) system should disproportionately boost industries dependent on the willingness of their business partners to undertake relationship-specific investments. We confirm this theoretical prediction by attesting that industries requiring a high share of relationship-specific inputs grow faster in countries with a well developed financial system. Furthermore, we provide evidence that this effect comes from a more developed banking sector rather than from a deeper stock market.

Consistent with the theoretical arguments of Fama (1985) and von Thadden (1995), our channel works mostly via increased entry of new firms (extensive margin) and higher capital accumulation. New firms especially need to signal their creditworthiness in order to stimulate relationship-specific investment from their business partners. Existing firms have already established a reputation with the suppliers and depend less on the signals from third parties like banks. Similarly, the increased planning horizon should affect sectoral output growth primarily via higher capital accumulation.

This paper contributes to two strands of literature. First, it provides evidence for a novel channel through which finance affects the real economy. Since the seminal work of Rajan and Zingales (1998), the finance-growth literature has placed special emphasis on the role of financial development in relaxing credit constraints. In our story a well-developed banking sector reassures the suppliers that hesitate to undertake irreversible relationship-specific investments.

Second, our paper complements the existing literature on economic specificity that has focused on the holdup problem and thus implied comprehensive and enforceable contracts as a standard way to promote investment in relationship-specific assets. This paper shows that the domestic financial system plays an autonomous and equally important role in stimulating relationship-specific investment by the upstream suppliers, thus promoting the growth of their downstream customers.

The rest of the paper is structured as follows. The next section provides theoretical background for our hypothesis. Section II explains the methodology and describes the data. Section III presents evidence from a broad cross-section of countries. Section IV concludes.

I Theoretical Motivation

An influential body of theoretical literature (Klein et al. 1978, Williamson 1979, Grossman and Hart 1986, Hart and Moore 1990, Caballero and Hammour 1998) argues that rational agents underinvest in assets whose value is higher inside relationship than outside it. According to these authors the reason lies in possible opportunistic behaviour of the contractual partner. A supplier investing into adjustment of her product to the specific needs of one particular buyer is creating an appropriable specialized quasi rent. After such relationship-specific investment is sunk, an opportunistic buyer can renege on the original contract and try to appropriate the quasi rent during a renegotiating process. The supplier will not be able to prevent such development unless she can use legal means to enforce the original contract.

The recent literature on trade and incomplete contracts builds upon this insight and identifies a prominent role for institutional quality in reassuring a supplier undertaking relationship-specific investment. Levchenko (2007) develops a theoretical model suggesting institutional quality as a source of comparative advantage in industries requiring relationship-specific investment from their suppliers. Levchenko (2007) and Nunn (2007) empirically confirm this prediction by showing that these industries perform better in the export markets if their home country possesses superior judicial quality and contract enforcement.

The existing literature on economic specificity thus focuses on the holdup problem - a deliberate abuse of power from the buyer after the supplier has sunk the relationship-specific investment. However, there are two aspects to the relationship-specific investment that in our opinion have not received adequate attention. First is the possibility of financial problems of the downstream customer. A detailed written contract is of little help for the supplier, if the buyer turns out to be unable to pay the bill. The financial consequences for the party undertaking relationship-specific investment might be even more severe in this case. Now the buyer does not just try to renegotiate the original contract, she is objectively not able to meet her financial commitment. The supplier will thus definitely have to find a new buyer for a product adjusted for the needs of the original customer. Second aspect involves the length of the buyer's planning horizon. The holdup literature emphasizes the immediate monetary gain for a firm that defaults on the original contract. In a real corporate world, the buyer would also consider the costs of such action in terms of alienating her business partner. The planning horizon of the downstream firm is a crucial factor in this costs-benefits analysis. A shortsighted

buyer would be much more willing to endanger a long-term business relationship in order to achieve a short-term gain from renegotiating the original contract.

A supplier usually cannot observe the true financial situation or planning horizon of the buyer. However, theoretical work on financial intermediaries suggests that a buyer can signal both creditworthiness and a long-term planning horizon via obtaining a loan or a line of credit from her bank.

Fama and Jensen (1983) noticed that most agents in organizations have contracts promising them fixed payoffs or incentive payoffs tied to specific measures of performance. This first group of agents is rather heterogenous and includes both suppliers and outside debtholders like banks. A second group of agents called residual claimants (owners of the company) then receives the difference between stochastic inflows of resources and fixed payments promised to the first group. Fama and Jensen (1985) point out that the conflicts of interest between suppliers and residual claimants are similar to those between debtholders and residual claimants. It would be therefore inefficient if both suppliers and debtholders independently monitored the actions of residual claimants. According to Fama (1985) bank loans are particularly suitable to avoid duplication of information and monitoring costs. In case of a default, bank loans have usually low priority among the contracts promising fixed payoffs. The renewal process of short-term bank loans thus implies a regular assessment of the borrower's ability to meet such contracts and signals the reliability of the borrower. Suppliers and other agents with fixed payoffs consider those signals to be credible, as the bank backs them with its own resources. The value of such signals can be seen in the fact that many firms pay monitoring fees for lines of credit without effectively taking the offered resources (Fama 1985, p. 37).

There is a closely related strand of literature explaining the existence of financial intermediaries as a natural response to asymmetric information between borrowers and lenders (Leland and Pyle 1977). According to Diamond (1984) the lenders delegate the costly task of monitoring the loan contracts to an intermediary in order to avoid the alternative of either effort duplication or a free-rider problem. Von Thadden (1995) provides a dynamic interpretation of this framework. In his model a firm dependent on external finance may undertake short-term investments which yield lower long-run returns, but minimize the risk of early termination by outside investors. Von Thadden (1995) shows how a monitoring contract closely resembling a standard credit-line agreement can help to overcome this myopia problem. A standard bank-firm lending relationship can thus eliminate the short-term bias in investment and lengthen the firms' planning horizon.

The presence of relationship-specific assets is in our opinion an important factor de-

termining the economic value of signals associated with the bank loans. A supplier of standardized products can always find another buyer if the original customer is either not able or not willing to fulfil the original contract. A supplier of relationship-specific products has much more to lose if her customer lacks financial robustness or long-term planning horizon. Consequently, a buyer dependent on the willingness of her supplier to undertake a sufficient level of relationship-specific investment would disproportionately benefit from positive signals a bank loan can provide. Combining the insights from the literature on relationship-specific investment with the theoretical literature about monitoring and signalling role of financial intermediaries thus yields a testable empirical implication. A strong banking sector benefits disproportionately those industries that rely on the relationship-specific investment from their suppliers.

It is important to realize that the main hypothesis of the paper relies on unique characteristics of banks that cannot be easily replicated by stock markets or other financial institutions. Firstly, the theoretical mechanisms of Fama (1985) and von Thadden (1995) depend on the monitoring skills of banks in the presence of information asymmetries. Many prominent theories of financial intermediation see this ability to monitor the firms as the main advantage of banks over public markets (Boot 2000, Ongena and Smith 1998). Secondly, a buyer eager to reassure a supplier of relationship-specific products would particularly benefit from another comparative advantage of banks: their capability to support the borrowers in financially difficult times. Ongena and Smith (1998) identify such "leaning against the wind" as one of the historical tasks of banks, citing a source from the early 19th century. Financial intermediaries have retained this insurance role up to the present day. Building upon the work by Kashyap et al. (2002) a recent strand of finance literature (Gatev and Strahan 2006, Gatev et al. 2006, 2009) sees banks as "liquidity provider of last resort" during financial crises. In this line of argument banks enjoy the status of safe haven for investors due to the explicit and implicit government backing. In the time of financial distress banks therefore experience inflow of funds from public markets. Banking system can use these additional resources to meet increased demand for credits by firms hit by the very same financial hardship. As banks gain additional funds at the same time when firms need them most, they are able to offer the insurance against market-wide liquidity shocks at lower costs than other financial institutions.

Due to their missing safe haven status and intrinsically anonymous character, stock markets are at comparative disadvantage when it comes to insuring and monitoring their borrowers. Public markets are therefore less likely to reassure a supplier who demands

credible signals about her customer's financial robustness before adjusting a product to some buyer-specific requirements. Shleifer and Summers (1998) go even one step further and discuss a possible negative impact of stock markets on the relationship-specific investment between a firm and its suppliers. After a hostile takeover the new owners can easier renege on existing implicit contracts of the firm in order to transfer relationship-specific rents from suppliers and other stakeholders to the shareholders. Shleifer and Summers argue that such a transfer is the true rationale behind many takeovers. Consequently, a seller might be more reluctant to invest in relationship-specific inputs if assertive stock markets can expropriate the resulting rents.

II Methodology and Data

A Empirical Model

The question whether financial development promotes growth or merely follows the real economy goes back at least to Schumpeter (1912) and Robinson (1952) and might be the crucial one in the whole finance-growth literature. This endogeneity issue is the main reason why the research focus in the field gradually shifted towards differences-in-differences estimations. These econometric techniques compare the difference in outcome for treated and control groups before and after a treatment and are more suitable to address the endogeneity and omitted variables biases often present in traditional growth regressions. We also rely on this approach in order to establish a causal link from finance to relationship-specific investment and then to economic growth.[2]

In the next section we apply the methodology of Rajan and Zingales (1998) and estimate the following equation:

$$G_{ic} = \alpha + \beta CI_i * FD_c + \gamma X_{ic} + \delta_i + \eta_c + \varepsilon_{ic}, \tag{1}$$

where the subscripts i and c indicate industry and country, respectively. As a dependent variable we use several proxies for industrial growth: growth of output, growth of the number of establishments, growth of output per establishment, growth of employment, growth of the capital stock and growth of total factor productivity (TFP). Our variable of interest is $CI_i * FD_c$, where FD_c is the financial development in country c and CI_i is the

[2]Beck (2008) and Levine (2005) discuss in more detail the application of difference-in-difference estimations in finance-growth literature.

contract intensity measure introduced by Nunn (2007), which quantifies the importance of relationship-specific inputs for different industries. X_{ic} is a vector of controls and δ_i and η_c are industry and country dummies that take care of a wide range of omitted variables. These fixed effects also absorb the direct effects of contract intensity CI_i and financial development FD_c.[3]

A positive estimated coefficient for our variable of interest, $CI_i * FD_c$, indicates that financial development benefits especially the industries dependent on the relationship-specific investment of their suppliers. This would be consistent with the notion that a financial system can reassure suppliers by signalling financial stability and long-term planning horizon of buyers. Our theoretical motivation stresses the decisive role of financial intermediaries in this regard. In our paper the term financial development therefore applies to the strength of banking sector unless specified otherwise.

In order to account for alternative channels that might be correlated with our mechanism, we include several interaction terms between various country and industry characteristics into our set of control variables X_{ic}. Specifically, we interact financial development with dependence on external finance ($ExF_i * FD_c$) to confirm that our results are not driven by the fact that finance helps industries dependent on external finance (Rajan and Zingales 1998). Similarly, we include into vector X_{ic} an interaction between rule of law and contract intensity measure ($CI_i * RL_c$). This controls for the traditional argument from the holdup literature that efficient legal enforcement stimulates relationship-specific investment. Similarly to $CI_i * FD_c$, we expect a positive coefficient sign for the interaction terms controlling for these two alternative theories. We also put the initial share of the sector in total output into all regressions. We expect a negative coefficient for this control variable, as more mature industries have usually less scope for future growth.

It is important to emphasize that the industry characteristic CI_i is computed solely from U.S. industrial data. This approach is based on two assumptions. First, assuming that U.S. markets are well functioning and (relatively) frictionless, equilibrium variables in the United States can be taken as good proxies for exogenous technological characteristics of the production process in a given industry. Second, as long as the relative ranking of industry characteristics is the same across countries, the technological characteristics of the U.S. industries are representative of technologies used in other countries. Under these

[3]Thompson (2011) proposes clustered standard errors as an alternative to the use of dummies when controlling for fixed effects. Clustering undoubtedly possess some advantages over dummies inclusion, especially in panel data where time dimension and autocorrelation issues play an important role. However, dummies explicitly entering the regression are an indispensable part of the Rajan-Zingales methodology applied in a broad cross-section of countries and industries.

assumptions we can interpret the estimated coefficients for the interactions of country and industry characteristics in a causal way. Following Rajan and Zingales (1998) we also drop the United States from our sample to further assure the exogeneity of US based industrial characteristics in our regressions.

Another crucial point in this econometric approach is the potential endogeneity of country characteristics like financial development. Here we follow the finance-growth literature and use countries' legal origins to address this issue. We instrument the interaction terms of country characteristics (financial development, rule of law) and industry characteristics (importance of relationship-specific inputs, dependence on external finance) by the interaction terms of the latter variables with legal origin dummies.

Our database has a complex structure with both country and industry dimensions where heteroskedasticity might be present. If this is the case, the GMM estimator is more efficient than the simple 2SLS estimator. In the absence of heteroskedasticity the GMM estimator is asymptotically equivalent to the 2SLS estimator.[4] However, the optimal weighting matrix that is used in the efficient GMM procedure is a function of fourth moments. Obtaining reasonable estimate of fourth moments requires large sample size. As a result, the efficient GMM estimator can have poor small sample properties. If in fact the error is homoskedastic, 2SLS would be preferable to efficient GMM in small sample. In our main specification we perform the heteroskedasticity test proposed by Pagan and Hall (1983) and reject the null hypothesis of no heteroskedasticity at 1% level. Therefore we rely on GMM estimation for our analysis.

B Data

The international industry-level data come from the Trade, Production, and Protection Database by Nicita and Olarreaga (2007) that covers up to 100 countries over the period 1976 to 2004. It uses production data from the United Nations Industrial Development Organization (UNIDO) that are reported according to the 3-digit ISIC Revision 2 classification. We transform data from current U.S. dollars into constant international dollars using capital and GDP deflator from Penn World Table (Heston, Summers, and Aten, 2002). We drop the observations from the United States, as the industry characteristics in our analysis are computed from the US data. The resulting sample includes data for 28 manufacturing industries in 90 countries for the period between 1980 and 2004. The

[4] Baum et al. (2003) discuss the advantages of using GMM over 2SLS in the presence of heteroskedasticity in the error term.

list of the countries used in our sample is reported in Appendix A.

We construct a country-industry dataset by averaging variables over the period 1980-2004. Similarly to the paper of Rajan and Zingales (1998), eliminating the time dimension allows us to use legal origins as instruments for endogenous country characteristics like financial development. We use the earliest available data for industry share to construct the initial industry share. In this way we avoid losing too many observations, as not all countries report the data for 1980.

In order to test our main hypothesis on the differentiated impact of financial development across industries, we borrow the notion of contract-intensive (institutionally intensive) sectors from the recent trade literature on incomplete contracts and comparative advantage (Nunn 2007, Levchenko 2007). Following Nunn (2007), we rely on the variable contract intensity that measures for every industry the proportion of intermediate inputs requiring relationship-specific investment. Based on the classification by Rauch (1999), these inputs cannot be sold on an organized exchange, nor are they reference-priced in trade publications.[5] The non-existence of an organized exchange or reference price suggests some non-standard feature of the product. If a producer requires a non-standardized intermediate good for production, the supplier has to undertake ex ante investment in order to customize it. The value of such specific input is higher inside a buyer-seller relationship than outside it. Moreover, in the absence of organized exchange or reference price the supplier might have a hard time selling her product at the original price if the initial buyer is unable or unwilling to pay. Given that the original measure in Nunn (2007) is reported in the US input-otput classification, we use the measure of contract intensity from Levchenko (2008) who recomputes it for the 3-digit ISIC Revision 2 classification.

The second industry characteristics we use is the measure of external finance dependence introduced by Rajan and Zingales (1998). It is defined as capital expenditure minus cash flow divided by capital expenditure. The original variable from Rajan and Zingales (1998) is calculated for a mix of three-digit and four-digit ISIC industries. The version of the measure used in our paper comes from Laeven et al. (2002) and follows the 3-digit ISIC Revision 2 classification.

The data for financial development is taken from Beck, Demirguc-Kunt, and Levine (2000), which contains various indicators of financial development across countries and

[5]Rauch (1999) classifies SITC Rev. 2 industries according to three possible types of its final good: differentiated, reference-priced, and homogeneous. Naturally, the final good of an industry can serve as intermediate input for other industries.

over time. In our analysis, we use two proxies for financial development: private credit by banks to GDP and stock market capitalization to GDP, the standard proxies for financial development in the empirical literature. Due to possible endogeneity concerns we use the initial level of financial development, measured in 1980 or earliest year available.

The data for quality of legal institutions, the "rule of law", is taken from the database constructed by Kaufmann, Kraay, and Mastruzzi (2005). This is the weighted average of several variables that measure perceived effectiveness and predictability of the judicial system and contract enforcement in each country. For our analysis we use data for 1996 which is the earliest available estimate for this variable.

For instrumental variable regressions, we rely on the data of legal origin from Glaeser et al. (2004). Legal origins are essentially indicator variables. For example, the common law variable equals one for countries whose legal origin is the British common law and zero otherwise. The remaining legal origins include French civil law, German civil law and Socialist law. The omitted variable is Scandinavian civil law.

III Empirical Evidence

A OLS Estimation: Banks, Law and Stock Markets

Table I reports the results of estimating equation (1) using OLS. The dependent variable is the average output growth in industry i and country c. The first column of Table I reports the estimation results of our baseline specification which includes the industry's share in country's GDP at the beginning of the sample period and the interaction term of contract intensity and financial development. Following our theoretical motivation we use the ratio of private credit by banks to GDP as proxy for financial development. The estimated coefficient for the interaction term $CI_i * FD_c$ is positive and statistically significant at the one percent level. This corroborates the hypothesis that a strong banking sector promotes especially industries dependent on the relationship-specific investment of their suppliers. The initial industry share has the expected negative sign, confirming the idea that more mature industries with a high share in country's GDP have less scope for further growth.

[Table I about here]

The estimated relation between financial development and output growth is not only statistically significant but also economically relevant. The industrial sector most dependent on relationship-specific inputs is "transport equipment". According to the estimate

from the first column of Table I, a catch-up in Mexico's financial development with the average OECD level would give the growth rate of this sector an additional boost of 5.3%.[6]

The subsequent columns present the regression results with an augmented set of explanatory variables. Columns (2) and (3) control for alternative economic channels which already found considerable empirical support and might be correlated with our mechanism. Recent trade literature (Nunn 2007, Levchenko 2007) has shown that the industries with a high share of relationship-specific inputs benefit disproportionately from a good contracting environment. Financial development FD_c might be correlated with legal and contracting institutions in country c. In such case the variable of interest $CI_i * FD_c$ would also capture the effect of superior institutions on the contract-intensive industries. We control for this possibility by adding an interaction term of the contract intensity measure with institutional quality proxied by the rule of law ($CI_i * RL_c$) in the second column of Table I. Another omitted variable bias can arise from the industry characteristic CI_i. Contract-intensive industries might well be the industries that require larger external funds to support their operations. If so, then our main interaction $CI_i * FD_c$ would also capture the beneficial effect of financial development on the industries dependent on external finance (Rajan and Zingales 1998). In the third column we therefore include an interaction term of industry's dependence on external finance and country's financial development ($ExF_i * FD_c$). In both augmented specifications the variable of interest $CI_i * FD_c$ maintains a positive and statistically significant coefficient. The coefficients for the two other interactions, while positive, fail to have statistically significant effect.[7]

In the last three columns we test the hypothesis about the singular role of banks as promoters of industries requiring relationship-specific investment from their suppliers. Country level studies document a positive effect of both bank and stock market development on long run economic growth (Levine and Zervos 1998). Our mechanism, however, depends crucially on the unique capacity of banks to reassure the sellers of relationship-specific inputs via signalling the financial robustness and long-term planning horizon of the buyers. The regressions in columns (4) to (6) mirror the estimation of

[6] This is calculated as follows. Mexico's ratio of private credit to GDP is 0.16 and OECD average is 0.532. The coefficient of the interaction term is 0.167. If Mexico's financial development reached the level of OECD average, then the growth rate in the "transport equipment" industry would increase by: $\beta * CI * \triangle FD = 0.167 * 0.859 * (0.532 - 0.16) \approx 5.3\%$

[7] The insignificance of the two controls arises not due to some peculiar features of our sample, but is indeed the consequence of controlling for our main channel. When we repeat the estimation in the second and third column without our main variable $CI_i * FD_c$ (not reported), both $CI_i * RL_c$ and $ExF_i * FD_c$ are statistically significant at the 5% level.

the previous three columns, but add the interaction terms of stock market capitalization over GDP with contract intensity ($CI_i * StM_c$) and with dependence on external finance ($ExF_i * StM_c$) into the set of explanatory variables. The main interaction capturing the strength of banking sector $CI_i * FD_c$ remains positive and statistically significant at 1% level. The interaction term of the stock market capitalization to GDP with the contract intensity measure $CI_i * StM_c$ is never significant and even enters the regressions with a negative sign. The results confirm the dominance of banks over anonymous stock markets in fostering the industries requiring relationship-specific investment from their suppliers. The econometric horse-race thus verifies our theoretical motivation and we focus on the banking sector (FD_c) in the rest of the paper.

B Instrumental Variables Estimation

The results of the OLS estimation cannot be taken as conclusive evidence for our main hypothesis due to the possibility of reverse causality affecting both country characteristics (financial development FD_c and rule of law RL_c) used in previous regressions. If industries requiring a high share of relationship-specific inputs contribute disproportionately to overall economic growth, the country might have stronger incentives to invest in financial and institutional development. To take care of this potential endogeneity problem, we use countries' legal origins to construct our instrumental variables, following the existing literature.[8] Specifically, we interact the contract intensity CI_i with four variables: $BRIT_c$, FR_c, GER_c, and SOC_c. These are dummy variables equal to one if country c has British, French, German, or Socialist legal origin, respectively. The omitted category is the Scandinavian legal origin $SCAN_c$. We use the resulting interaction terms $CI_i * BRIT_c$, $CI_i * FR_c$, $CI_i * GER_c$, and $CI_i * SOC_c$ as instruments for the endogenous interaction terms $CI_i * FD_c$ and $CI_i * RL_c$. We also multiply the dependence on external finance ExF_i with legal origins variables. This yields four more interactions ($ExF_i * BRIT_c$, $ExF_i * FR_c$, $ExF_i * GER_c$, and $ExF_i * SOC_c$) which we use as *additional* instruments in estimations containing the endogenous variable $ExF_i * FD_c$. In this way we instrument every endogenous interaction term by appropriate interactions of industry characteristics and legal origins dummies. Such approach enables to combine the instrumentation with a proper control for theoretical mechanisms different from ours.

Table II presents results of the instrumental variable (GMM) estimation of equation

[8] La Porta et al. (1997, 1998) show that the origin of the legal system affects investor protection and financial development. Djankov et al. (2003) find that legal origin has an impact on judicial quality and contract enforcement.

(1). The first three columns are the GMM analogue for the first three columns from Table I. The coefficient for the interaction term of the contract intensity measure and bank credit to GDP remains positive and significant at least at 5% level in all three specifications. The coefficient for the rule of law interaction becomes significant at 5% level as well, suggesting that contract-intensive industries benefits from both legal and financial development. The interaction term of external finance dependence and bank credit remains positive but insignificant after instrumentation.

[Table II about here]

At the bottom of Table II, we report the weak instrument test suggested by Stock and Yogo (2002), the partial R-squared measure suggested by Shea (1997) and the Sargan/Hansen test of overindentifying restrictions. The first stage statistics confirm that our excluded instruments are highly correlated with the endogenous variables. The F statistics from the first stage regressions are mostly above 26. The somewhat lower value for the third specification is probably due to the higher number of instruments.[9] However, it is still above the rule of thumb value of 10 proposed by Stock and Yogo. We also report the Cragg-Donald statistic suggested by Stock and Yogo in the presence of several endogenous regressors.[10] Both tests reject the null hypothesis of weak instruments. The Sargan/Hansen test of overidentifying restrictions checks the validity of the instruments: the instruments are uncorrelated with the error term under the null hypothesis. The test rejects this null hypothesis at 10% level of significance in two out of three specifications, implying that our set of instruments does not satisfy the required orthogonality condition. Some of the instruments might be either not truly exogenous or incorrectly excluded from the regression.

Legal origin can influence different spheres of economic and political life of the country which might pose problems when using it as instrument. In our case the financial and institutional development are highly correlated with overall economic progress. For example, sectors with a high share of relationship-specific inputs might also require a disproportionate share of skilled labour or modern technologies. These sectors might then grow faster in developed countries that happen to be rich in human capital and operate

[9] Four interaction terms of external finance dependence related to the Rajan and Zingales (1998) channel ($ExF_i * BRIT_c$, $ExF_i * FR_c$, $ExF_i * GER_c$, and $ExF_i * SOC_c$) add up to four instruments ($CI_i * BRIT_c$, $CI_i * FR_c$, $CI_i * GER_c$, and $CI_i * SOC_c$) affiliated to our main endogenous term $CI_i * FD_c$.

[10] The critical values of the Cragg-Donald statistics are tabulated in Stock and Yogo (2002).

on the technological frontier. To take care of this problem, we add the interaction terms of the industry dummies with the log of real GDP per worker into regression equation.[11] The overall economic development can now affect each sector in an unrestricted way via those interactions. We thus explicitly control for the possibility that developed countries have some (possibly unobservable) features that facilitate growth in contract-intensive industries.[12]

We report the results of the GMM estimation with industry dummies interactions in columns (4), (5) and (6) of Table II. Comparing these last three columns with columns (1)-(3) documents the robustness of our mechanism to this more stringent specification. The coefficient for the variable of interest $CI_i * FD_c$ slightly decreases in the presence of industry dummies interactions, but remains positive and significant. Columns (2) and (5) offer probably the most interesting comparison. Controlling for differentiated impact of economic development across industries in the fifth column decreases the significance for both $CI_i * FD_c$ and $CI_i * RL_c$, but to a very different degree. The main interaction term of contract intensity with bank credit misses the 5% significance level by the narrowest of the margins, with p-value reaching 5.1%. In contrast, the interaction term of rule of law and contract intensity $CI_i * RL_c$ becomes insignificant. In the sixth column the external finance dependence interaction $ExF_i * FD_c$ remains insignificant and has now even a negative sign. The Sargan/Hansen statistics clearly improves: now we cannot reject the null hypothesis of instruments validity at a 10 % level of significance in two out of three specifications. The negative result for Sargan/Hansen test in the last column suggests problems with the set of additional instruments controlling for the channel of dependence on external finance (see footnote 9).

C Decomposing Banks' Pro-Growth Effect

So far we have provided evidence that a well-developed banking system plays an important role in promoting the sectors requiring relationship-specific investments from their

[11] Levchenko (2007) uses the interaction terms of industry dummies and economic development while refraining from the use of instrumental variables. Nunn (2007) relies on legal origins as instruments for institutional quality, but does not include the industry dummies interactions in the IV regressions. Here we combine both approaches.

[12] An alternative way would be to include additional interactions of country and industry characteristics in our instrumental variable estimation, but it would be extremely difficult to control for all possible channels. There might always be some other unobserved feature of developed countries generating a higher growth in the sectors relying on relationship-specific investments from their suppliers. Interaction terms of real income per worker with industry dummies control for all such unobservables. Econometrically, we include 28 additional regressors (number of industries in our sample) in our regression.

suppliers. In this section we study in more detail the specific channels through which this link between banks and the real economy operates. We implement two decompositions of the overall output growth. First, we examine whether our mechanism works on the extensive margin (via increased entry of new firms) or on the intensive margin (via accelerated growth of existing firms). Then we carry out a standard growth accounting exercise testing whether overall growth comes from higher capital accumulation, increased employment or faster technological progress (TFP growth).

Tables III and IV isolate the extensive and the intensive margin of output growth. The dependent variables are average growth in number of establishments (Table III) and average growth per establishment (Table IV). The first three columns correspond to the OLS regressions from the first three columns of Table I, the following six columns mirror the instrumental variable (GMM) estimation of Table II. Columns (4) to (6) present the baseline GMM estimation and the last three columns include the interaction terms of industry dummies with GDP per worker. The results provide clear evidence that the extensive margin is the driving force behind the positive effect of a strong banking system on the sectors with a high share of relationship-specific inputs. In Table III, the variable of interest $CI_i * FD_c$ is always positive and statistically significant. In the case of the intensive margin (Table IV), the disproportionate positive impact of bank credit over GDP on the growth of contract-intensive industries is statistically significant only in two out of nine specifications. Especially, there is no significant effect once we control for the endogeneity of financial development and rule of law (columns three to nine).

[Table III about here]
[Table IV about here]

These results suggest that banks facilitate the creation of new firms in contract-intensive industries rather than helping the existing companies to expand. This is in line with the signalling channel by Fama (1985). A new buyer with no existing record of fulfilling her commitment faces more wariness from the suppliers of relationship-specific inputs. Consequently, she is heavily dependent on credible signals about her financial stability that arise from a successfully obtained bank loan. In contrast, an existing firm has usually already built up a stable network of business partners. An established buyer can thus rely more on her own reputation and familiarity with suppliers and less on reputational signals from third parties like banks.

The prevalence of the extensive margin in our channel also complements the previous findings of Fisman and Love (2003). These authors argue that after a long-term successful business relationship a supplier can assess the true financial situation of the buyer better than a financial intermediary. In accordance with this conjecture they show that in poorly developed financial markets trade credit from suppliers can substitute for standard bank loans. Crucially, their result holds only at intensive and not at extensive margin. Taken together, the evidence from Fisman and Love (2003) and our paper suggests that banks [suppliers] have superior information about the financial health of new [established] firms.

Next, we analyze the effect of financial development on sectors with a high share of relationship-specific inputs within the growth accounting framework. In order to do so, we reconstruct capital stock using the methodology of Hall and Jones (1999) and TFP using the methodology of Solow (1957). Appendix B provides details of the procedure. Tables V to VII summarize the outcome of this second channel decomposition. The dependent variables are average growth of capital (Table V), average growth in employment (Table VI) and average TFP growth (Table VII). Again, the first three columns report the OLS estimations, the following three present the results of the baseline GMM estimation and the last three columns report the results of the GMM estimation augmented with the interactions of industry dummies and GDP per worker.

The growth accounting suggests a higher capital accumulation as the most important source of the banking sector's beneficial impact on the industries relying on relationship-specific investment from their suppliers. After correcting for the endogeneity of financial and institutional development in columns (4) to (9) of Table V, the variable of interest $CI_i * FD_c$ becomes highly statistically significant. This positive effect of bank credit on capital growth in the contract-intensive industries provides empirical support for the theoretical channel proposed by von Thadden (1995). A higher capital accumulation would be a first-order implication of a theoretical mechanism working through bank loans attenuating the short-term investment bias and increasing the firms' planning horizon.

[Table V about here]

We have less clear-cut evidence for a positive role of the banking system in boosting employment in industries with a high share of relationship-specific inputs. In Table VI the estimated coefficient for the main interaction $CI_i * FD_c$ is always positive and mostly significant. Still, the relationship between financial development and employment

growth in the contract-intensive industries appears less robust than in the case of capital accumulation.

[Table VI about here]

There is no evidence that the banking system promotes productivity growth in the sectors dependent on relationship-specific investment from their suppliers. Table VII presents the estimation results with TFP growth as a dependent variable. The results in the first three columns show the interaction term of bank credit and contract intensity entering the OLS regressions at the 10% level of significance. Once we control for endogeneity (last six columns), this significance disappears and sometimes the main variable $CI_i * FD_c$ enters with a negative sign.

[Table VII about here]

Overall, the two decompositions performed in this subsection suggest that a strong banking system promotes industries with a high share of relationship-specific inputs mainly via increased entry of new firms and higher capital accumulation. These results confirm the empirical relevance of the theoretical channels emphasizing bank loans as a signalling device for financial stability (Fama 1985) and as a source of long-term investment planning horizon for the firms (von Thadden 1995).

IV Conclusion

Several prominent papers (Williamson 1971, 1979, Klein et al. 1978, Grossman and Hart 1986, Hart and Moore 1990) argue that a rational agent (e.g. upstream supplier) tends to underinvest in relationship-specific assets as she will eventually face opportunistic actions from her contractual partner (downstream purchaser). A legally binding contract between the two parties is the standard proposal to alleviate the adverse economic consequences of this holdup problem. The recent trade literature (Nunn 2007, Levchenko 2007) builds upon this insight and demonstrates the beneficial impact of contract-enforcing institutions on sectors with a high share of relationship-specific inputs.

This paper looks beyond the holdup problem and proposes a different way to stimulate relationship-specific investment. The presented empirical results suggest that financial

development might be at least as vital as legal enforcement for the economic performance of industries dependent on suppliers' willingness to invest in relationship-specific assets.[13] A well-developed banking sector seems especially important in this regard.

This is not to say that institutions do not play a potentially important role in the development of industries requiring relationship-specific investments from their suppliers. An influential strand of literature (e.g. Levine et al. 2000) argues that good institutions including contract enforcement can boost financial development. Thus, one possible interpretation of our results would be that superior institutions promote investments into relationship-specific assets indirectly via their positive impact on the level of financial development.

Needless to say, much more work is needed to disentangle the effects of finance and institutions on industries using relationship-specific inputs. For one thing, there is an issue of a possible non-monotonicity between contract enforcement and finance, briefly raised by Levine et al. (2000). The theoretical literature explains the very existence of financial intermediaries as the consequence of market imperfections (e.g. Boyd and Prescott 1985). In a world with perfect contract enforcement, there would be less reasons to have financial intermediaries in the first place. Moreover, various deep determinants of economic growth like culture or human capital can drive both financial and institutional development. We leave those issues for further research.

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Appendix A: Country List

Argentina; Armenia; Australia; Austria; Bangladesh; Benin; Bolivia; Botswana; Brazil; Bulgaria; Cameroon; Canada; Chile; Colombia; Costa Rica; Cote d'Ivoire; Cyprus; Czech Republic; Denmark; Ecuador; Egypt; El Salvador; Ethiopia; Finland; France; Gabon; Ghana; Greece; Guatemala; Honduras; Hong Kong; Hungary; Iceland; India; Indonesia; Iran; Ireland; Israel; Italy; Japan; Jordan; Kenya; Korea (Republic of); Kuwait; Kyrgyzstan; Latvia; Lithuania; Macao; Malawi; Malaysia; Malta; Mauritius; Mexico; Moldova; Mongolia; Morocco; Mozambique; Nepal; Netherlands; New Zealand; Nigeria; Norway; Oman; Pakistan; Panama; Peru; Philippines; Poland; Portugal; Qatar; Romania; Russia; Senegal; Singapore; Slovak Republic; Slovenia; South Africa; Spain; Sri Lanka; Sweden; Switzerland; Tanzania; Thailand; Trinidad &Tobago; Tunisia; Turkey; United Kingdom; Uruguay; Venezuela; Yemen

Appendix B: Reconstructing Capital Stock and Total Factor Productivity

The capital stock in industry i, country c and year t is given by:

$$K_{ict} = (1 - \delta)K_{ict-1} + I_{ict}$$

We use a depreciation rate $\delta = 0.08$, and use the standard assumption that initial level of capital stock is equal to:

$$K_{ic0} = \frac{I_{ic0}}{\delta}$$

We compute total factor productivity at the industry level using the following formula:

$$\ln TFP_{ict} = \ln Y_{ict} - (1 - \alpha_{ic}) \ln K_{ict} - \alpha_{ic} \ln L_{ict}$$

where Y_{ict} is the total output, K_{ict} is the capital stock and L_{ict} is the total employment in the sector.

The α_{ic} is computed as the average of the total wage bill divided by value added for sector i for the US data,[14] this will allow us to avoid unduly reduction in our sample to the countries that have available data for value added and wage payment.

[14] Levchenko, Ranciere and Thoening (2008) who use similiar database to analyze the effect of financial liberalization on industry growth show that results do not change if a country's average labour share of sector i is used instead.

Table I: Industry Growth - OLS

The dependent variable is the output growth in industry i and country c. All regressions are estimated by the OLS and include country and industry fixed effects. Our main variable of interest is (CI_i*FD_c): interaction between contract intensity of industry i (measure of importance of relationship-specific inputs computed from US data) and financial development in country c (ratio of bank credit to GDP). In all regressions we control for Initial industry share: the share of industry i in manufacturing output of country c at the beginning of the sample period. Other control variables are (CI_i*RL_c): interaction between contract intensity of industry i and rule of law in country c (quality of legal institutions); (ExF_i*FD_c): interaction between external finance dependence of industry i (capital expenditure minus cash flow divided by capital expenditure computed from US data) and financial development in country c; (CI_i*StM_c): interaction between contract intensity of industry i and stock market strength in country c (ratio of stock market capitalization to GDP); (ExF_i*StM_c): interaction between external finance dependence of industry i and stock market strength in country c. Robust standard errors are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Initial industry share	-0.428*	-0.461**	-0.430*	-0.180**	-0.181**	-0.183**
	(0.223)	(0.234)	(0.223)	(0.073)	(0.074)	(0.073)
Contract intensity	0.167***	0.140***	0.152***	0.166***	0.157***	0.165***
x Bank credit (CI_i*FD_c)	(0.051)	(0.049)	(0.051)	(0.060)	(0.059)	(0.062)
Contract intensity		0.077			0.040	
x Rule of law (CI_i*RL_c)		(0.083)			(0.092)	
External finance dependence			0.023			0.002
x Bank credit (ExF_i*FD_c)			(0.021)			(0.025)
Contract intensity				-0.018	-0.027	-0.029
x Stock market (CI_i*StM_c)				(0.041)	(0.042)	(0.042)
External finance dependence						0.018
x Stock market (ExF_i*StM_c)						(0.018)
Constant	0.083*	0.080*	0.084*	0.031**	0.025	0.032**
	(0.045)	(0.046)	(0.046)	(0.015)	(0.019)	(0.015)
Observations	2,313	2,290	2,313	2,136	2,136	2,136
R^2	0.259	0.262	0.259	0.260	0.260	0.260

Table II: Industry Growth - IV

The dependent variable is the output growth in industry i and country c. All regressions include country and industry fixed effects. The variables are defined in Table I. The regressions are instrumental variable (GMM) estimations. We use countries' legal origins to construct instrumental variables in order to control for the possible endogeneity of country characteristics (financial development FD_c and rule of law RL_c). Specifically, we interact the contract intensity CI_i with four variables: $BRIT_c$, FR_c, GER_c, and SOC_c. These are dummy variables equal to one if country c has British, French, German, or Socialist legal origin, respectively. The omitted category is the Scandinavian legal origin $SCAN_c$. The resulting interaction terms CI_i*$BRIT_c$, CI_i*FR_c, CI_i*GER_c, and CI_i*SOC_c are instruments for the endogenous interaction terms (CI_i*FD_c and CI_i*RL_c). We also multiply the dependence on external finance ExF_i with legal origins variables. This yields four more interactions (ExF_i*$BRIT_c$, ExF_i*FR_c, ExF_i*GER_c, and ExF_i*SOC_c) used as additional instruments in estimations containing the endogenous variable ExF_i*FD_c (columns three and six). In this way we instrument every endogenous interaction term by appropriate interactions of industry characteristics and legal origins dummies. The regressions in the columns (4) to (6) include interaction terms of the industry dummies with the log of real GDP per worker. The overall economic development can affect each sector in an unrestricted way via those interactions. Robust standard errors are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Initial industry share	-0.378*	-0.570***	-0.211	-0.468**	-0.600***	-0.307
	(0.196)	(0.220)	(0.188)	(0.198)	(0.216)	(0.188)
Contract intensity	0.171***	0.140**	0.142**	0.147**	0.127*	0.135**
x Bank credit (CI_i*FD_c)	(0.065)	(0.064)	(0.067)	(0.066)	(0.065)	(0.066)
Contract intensity		0.144**			0.161	
x Rule of law (CI_i*RL_c)		(0.068)			(0.104)	
External finance dependence			0.012			-0.013
x Bank credit (ExF_i*FD_c)			(0.034)			(0.034)
Constant	0.006	0.064	-0.037	0.220*	0.271*	0.145
	(0.093)	(0.098)	(0.091)	(0.134)	(0.139)	(0.130)
GDP per worker x Industry dummies				Yes	Yes	Yes
Observations	2,313	2,290	2,313	2,313	2,290	2,313
R^2	0.253	0.257	0.247	0.273	0.277	0.268
Cragg-Donald F statistic	103.5	92.44	46.51	119.1	98.77	56.52
F stat of excl instr	26.05	26.46	13.06	34.83	34.71	17.41
Partial R2 Shea	0.159	0.148	0.153	0.180	0.156	0.176
p value of Hansen test	0.054	0.161	0.005	0.123	0.174	0.031

Table III: Growth in Number of Establishments

The dependent variable is the growth of number of establishments (growth at extensive margin) in industry i and country c. All regressions include country and industry fixed effects. The variables are defined in Table I. The first three columns correspond to the OLS regressions from the first three columns of Table I, the following six columns mirror the instrumental variable (GMM) estimation of Table II. Columns (4) to (6) present the baseline GMM estimation and columns (7) to (9) include the interaction terms of industry dummies with GDP per worker. Robust standard errors are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	OLS	OLS	OLS	GMM	GMM	GMM	GMM	GMM	GMM
Initial industry share	-0.198*	-0.212*	-0.199*	-0.213**	-0.222**	-0.194**	-0.223**	-0.237**	-0.200**
	(0.104)	(0.109)	(0.104)	(0.101)	(0.106)	(0.094)	(0.105)	(0.111)	(0.098)
Contract intensity	0.107***	0.087*	0.097**	0.176***	0.181***	0.138**	0.139**	0.139**	0.111**
x Bank credit (CI_i*FD_c)	(0.039)	(0.051)	(0.041)	(0.059)	(0.066)	(0.060)	(0.055)	(0.056)	(0.055)
Contract intensity		0.058			-0.008			-0.005	
x Rule of law (CI_i*RL_c)		(0.068)			(0.060)			(0.083)	
External finance dependence			0.016			0.064*			0.056
x Bank credit (ExF_i*FD_c)			(0.019)			(0.038)			(0.041)
Constant	0.053***	0.048**	0.054***	0.113**	0.118**	0.108*	1.012***	1.024***	0.983***
	(0.017)	(0.019)	(0.017)	(0.056)	(0.059)	(0.056)	(0.215)	(0.221)	(0.212)
GDP per worker x Industry dummies							Yes	Yes	Yes
Observations	2,291	2,268	2,291	2,291	2,268	2,291	2,243	2,220	2,243
R^2	0.407	0.407	0.407	0.404	0.404	0.404	0.418	0.418	0.415
Cragg-Donald F statistic				127.8	107.9	60.40	107.0	89.38	52.65
F stat of excl instr				37.70	38.12	18.86	30.94	30.75	15.46
Partial R2 Shea				0.191	0.168	0.190	0.170	0.147	0.169
p value of Hansen test				0.229	0.123	0.315	0.145	0.068	0.300

Table IV: Growth of Output per Establishment

The dependent variable is the growth of output per establishment (growth at intensive margin) in industry i and country c. All regressions include country and industry fixed effects. The variables are defined in Table I. The first three columns correspond to the OLS regressions from the first three columns of Table I, the following six columns mirror the instrumental variable (GMM) estimation of Table II. Columns (4) to (6) present the baseline GMM estimation and columns (7) to (9) include the interaction terms of industry dummies with GDP per worker. Robust standard errors are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	OLS	OLS	OLS	GMM	GMM	GMM	GMM	GMM	GMM
Initial industry share	-0.201	-0.214	-0.203	-0.220*	-0.248*	-0.188	-0.236**	-0.247**	-0.208*
	(0.130)	(0.138)	(0.130)	(0.122)	(0.133)	(0.121)	(0.115)	(0.124)	(0.113)
Contract intensity	0.106*	0.131**	0.096	0.063	0.057	0.066	0.054	0.061	0.063
x Bank credit (CI_i*FD_c)	(0.057)	(0.063)	(0.060)	(0.054)	(0.059)	(0.063)	(0.059)	(0.064)	(0.064)
Contract intensity		-0.054			0.020			-0.041	
x Rule of law (CI_i*RL_c)		(0.083)			(0.076)			(0.111)	
External finance dependence			0.016			-0.007			-0.020
x Bank credit (ExF_i*FD_c)			(0.026)			(0.037)			(0.037)
Constant	0.007	0.017	0.007	-0.056	-0.046	-0.061	-0.327*	-0.318*	-0.346**
	(0.027)	(0.030)	(0.027)	(0.087)	(0.088)	(0.087)	(0.167)	(0.168)	(0.165)
GDP per worker x Industry dummies							Yes	Yes	Yes
Observations	2,196	2,173	2,196	2,196	2,173	2,196	2,196	2,173	2,196
R^2	0.359	0.359	0.359	0.357	0.357	0.357	0.377	0.377	0.376
Cragg-Donald F statistic				91.38	82.15	42.03	109.8	89.97	52.87
F stat of excl instr				23.30	23.74	11.67	31.41	31.29	15.69
Partial R2 Shea				0.150	0.141	0.147	0.176	0.151	0.175
p value of Hansen test				0.214	0.108	0.087	0.275	0.151	0.117

Table V: Capital Accumulation

The dependent variable is the growth of capital in industry i and country c. All regressions include country and industry fixed effects. The variables are defined in Table I. The first three columns correspond to the OLS regressions from the first three columns of Table I, the following six columns mirror the instrumental variable (GMM) estimation of Table II. Columns (4) to (6) present the baseline GMM estimation and columns (7) to (9) include the interaction terms of industry dummies with GDP per worker. Robust standard errors are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1) OLS	(2) OLS	(3) OLS	(4) GMM	(5) GMM	(6) GMM	(7) GMM	(8) GMM	(9) GMM
Initial industry share	-0.147***	-0.152***	-0.147***	-0.146***	-0.150***	-0.141***	-0.149***	-0.160***	-0.145***
	(0.041)	(0.044)	(0.041)	(0.040)	(0.043)	(0.040)	(0.038)	(0.042)	(0.038)
Contract intensity	0.050	0.029	0.047	0.141***	0.129***	0.107**	0.143***	0.134***	0.119***
x Bank credit (CI_i*FD_c)	(0.037)	(0.040)	(0.037)	(0.045)	(0.047)	(0.044)	(0.047)	(0.047)	(0.046)
Contract intensity		0.093*			0.019			0.042	
x Rule of law (CI_i*RL_c)		(0.051)			(0.057)			(0.073)	
External finance dependence			0.005			0.041			0.022
x Bank credit (ExF_i*FD_c)			(0.018)			(0.027)			(0.026)
Constant	0.055***	0.042***	0.055***	-0.028**	-0.029**	-0.029**	0.264***	0.244***	0.247***
	(0.009)	(0.011)	(0.009)	(0.013)	(0.015)	(0.013)	(0.089)	(0.091)	(0.089)
GDP per worker x Industry dummies							Yes	Yes	Yes
Observations	1,855	1,833	1,855	1,855	1,833	1,855	1,855	1,833	1,855
R^2	0.335	0.342	0.335	0.331	0.339	0.327	0.348	0.356	0.343
Cragg-Donald F statistic				68.61	63.78	31.21	86.43	71.09	41.22
F stat of excl instr				16.44	16.93	8.236	28.10	28.03	14.03
Partial R2 Shea				0.136	0.133	0.134	0.167	0.143	0.165
p value of Hansen test				0.811	0.789	0.032	0.758	0.847	0.068

Table VI: Employment Growth

The dependent variable is the growth of employment in industry i and country c. All regressions include country and industry fixed effects. The variables are defined in Table I. The first three columns correspond to the OLS regressions from the first three columns of Table I, the following six columns mirror the instrumental variable (GMM) estimation of Table II. Columns (4) to (6) present the baseline GMM estimation and columns (7) to (9) include the interaction terms of industry dummies with GDP per worker. Robust standard errors are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1) OLS	(2) OLS	(3) OLS	(4) GMM	(5) GMM	(6) GMM	(7) GMM	(8) GMM	(9) GMM
Initial industry share	-0.231*	-0.246*	-0.234*	-0.286**	-0.297**	-0.222*	-0.343***	-0.332**	-0.296**
	(0.131)	(0.139)	(0.131)	(0.122)	(0.134)	(0.117)	(0.123)	(0.135)	(0.119)
Contract intensity	0.063*	0.059*	0.042	0.106**	0.113**	0.051	0.085*	0.095*	0.062
x Bank credit (CI_i*FD_c)	(0.034)	(0.034)	(0.034)	(0.046)	(0.050)	(0.047)	(0.047)	(0.049)	(0.052)
Contract intensity		0.012			-0.017			-0.072	
x Rule of law (CI_i*RL_c)		(0.061)			(0.059)			(0.078)	
External finance dependence			0.032*			0.050**			0.010
x Bank credit (ExF_i*FD_c)			(0.017)			(0.025)			(0.029)
Constant	0.057**	0.059**	0.059**	0.164***	0.173***	0.133**	0.264	0.262	0.144
	(0.027)	(0.028)	(0.027)	(0.061)	(0.064)	(0.058)	(0.161)	(0.164)	(0.156)
GDP per worker x Industry dummies							Yes	Yes	Yes
Observations	2,369	2,346	2,369	2,369	2,346	2,369	2,321	2,298	2,321
R^2	0.236	0.239	0.237	0.230	0.233	0.230	0.253	0.256	0.246
Cragg-Donald F statistic				138.8	115.3	64.93	116.8	96.72	56.13
F stat of excl instr				40.37	40.86	20.16	34.11	34.04	17.04
Partial R2 Shea				0.198	0.172	0.195	0.177	0.153	0.174
p value of Hansen test				0.101	0.049	0.000	0.216	0.182	0.004

Table VII: TFP Growth

The dependent variable is the growth of total factor productivity (TFP) in industry i and country c. All regressions include country and industry fixed effects. The variables are defined in Table I. The first three columns correspond to the OLS regressions from the first three columns of Table I, the following six columns mirror the instrumental variable (GMM) estimation of Table II. Columns (4) to (6) present the baseline GMM estimation and columns (7) to (9) include the interaction terms of industry dummies with GDP per worker. Robust standard errors are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	OLS	OLS	OLS	GMM	GMM	GMM	GMM	GMM	GMM
Initial industry share	-0.218	-0.246	-0.219	-0.135	-0.224	-0.138	-0.214	-0.229	-0.209
	(0.213)	(0.228)	(0.213)	(0.179)	(0.222)	(0.177)	(0.186)	(0.211)	(0.183)
Contract intensity	0.091*	0.097*	0.087*	-0.015	-0.011	0.008	-0.004	0.002	0.018
x Bank credit (CI_i*FD_c)	(0.052)	(0.050)	(0.050)	(0.044)	(0.044)	(0.044)	(0.045)	(0.046)	(0.044)
Contract intensity		-0.037			0.053			0.006	
x Rule of law (CI_i*RL_c)		(0.073)			(0.067)			(0.099)	
External finance dependence			0.006			-0.036			-0.039
x Bank credit (ExF_i*FD_c)			(0.019)			(0.028)			(0.030)
Constant	0.022	0.034	0.022	0.071	0.102	0.072	-0.147	-0.138	0.066
	(0.040)	(0.041)	(0.040)	(0.107)	(0.120)	(0.106)	(0.150)	(0.152)	(0.124)
GDP per worker x Industry dummies							Yes	Yes	Yes
Observations	1,813	1,791	1,813	1,813	1,791	1,813	1,813	1,791	1,813
R^2	0.160	0.162	0.160	0.155	0.158	0.152	0.183	0.184	0.182
Cragg-Donald F statistic				66.85	60.97	29.56	82.83	68.17	39.00
F stat of excl instr				16.13	16.70	8.126	27.89	27.85	13.94
Partial R2 Shea				0.135	0.130	0.133	0.165	0.141	0.162
p value of Hansen test				0.802	0.672	0.661	0.786	0.581	0.519