

Acknowledgements

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Here in Africa, if you do not have a family, you have to know that you will suffer.

(Rasmané (45), tailor, Ouagadougou, 2009)¹

In Africa, you do not even tell your wife, if you have cash.

(Dramane (42), accountant, Ouagadougou, 2010)²

1. Introduction

The prevalence of self-employment and small undercapitalised firms in the informal sector of many poor countries is often explained by the existence of ‘poverty traps’ (see, e.g., Banerjee and Newman [1993]). Poverty trap models assume that returns in this informal subsistence sector are very low at low levels of capital, but much higher once a certain threshold of capital is surpassed. Entrepreneurs are hence constrained on the capital market, cannot overcome this threshold and are caught in a ‘poverty-trap’, that is face persistently low returns or simply exit the market.

A number of recent studies have rigorously analysed this hypothesis; however, none of them has found strong support for it. The evidence rather points to very high (marginal) rates of return to capital at low levels of invested capital. Very convincing evidence comes from a randomized controlled trial with Sri Lankan micro and small enterprises by de Mel et al. (2008). They randomly allocated in-kind and cash transfers to micro and small enterprises and found returns to capital of about 80 percent per year. Similar experiments with similar results were undertaken in Mexico (McKenzie and Woodruff 2008) and Ghana (Fafchamps et al. 2011). Further evidence for high returns at low levels of capital can be found in Banerjee and Duflo (2004), McKenzie and Woodruff (2006), Kremer et al. (2010) and in a study by some of us (Grimm et al. 2011) using the same data set that will be used in this paper. In addition,

¹ Quote taken from Pasquier-Doumer (2010) (translated).

² Own interview, conducted in Ouagadougou in March 2010 (translated).

entry barriers into entrepreneurial activities are typically found to be moderate (McKenzie and Woodruff 2006; Grimm et al. 2011).

The high returns at low levels of capital are not consistent with poverty traps. Even if capital markets did not function smoothly and if entry barriers were largely absent, a ‘rational’ entrepreneur would simply accumulate profits and re-invest. Yet, the empirical evidence suggests that re-investment rates are fairly low. An obvious question is why this is the case, despite the high returns? A straightforward answer could be that entrepreneurs are risk averse or have inconsistent preferences, i.e. are somehow irrational. It might also be that they are recurrently hit by shocks that require liquidity to cope. This would be particularly relevant if investment was largely irreversible (Fafchamps and Pender 1997). Another possibility could be the lack of savings institutions or at least the lack of knowledge about how these institutions function. Finally, entrepreneurs may have problems to save because of high consumption demands by their family and kin; or that incentives to invest are low because the entrepreneur anticipates that a large part of the benefits will have to be shared with others. In the sociological literature, these phenomena are often referred to as ‘forced solidarity’ or the ‘dark side of social capital’ (Portes and Sensenbrenner 1993).

This paper examines the effects of ‘forced solidarity’ or ‘forced redistribution’ on entrepreneurial activity. Do family and kin ties have negative incentive effects for potentially successful entrepreneurs? We analyse this question first theoretically and then explore it empirically using a large sample of informal household firms covering seven economic capitals in West-Africa. We abstract from other constraints that have been shown to be relevant such as capital market imperfections or poor quality of public services. However, we also explicitly consider positive effects associated with kinship ties.

2. Key Concepts and a Brief Review of the Related Literature

2.1 Family and Kinship Ties vs. Social Networks

This paper deals with the possible effects of ‘family and kinship ties’. In line with La Ferrara (2007), family and kinship ties refer to any form of blood relationship. Within these blood relationships, we situate family ties as the most proximate type of relationship. Kinship ties are then regarded as a rather distant type that is characterised by socially recognised relationships based on genealogical ties (i.e. a collection of unilineal groups of relatives each living in one locality).³ These ‘family and kinship ties’ need to be clearly distinguished from ‘social networks’ although there may be important overlaps between the groups identified by these concepts. As we will show in our empirical analysis we also have to deviate slightly from a very strict definition. But, in principle, social networks are constituted by a generic set of interacting individuals. The main difference between social networks and family and kinship ties is that the latter can be seen as largely exogenous and cannot be freely changed, except through marriage for instance, but otherwise at a high psychological cost (La Ferrara 2007). The participation in a social network is in turn much more the outcome of an individual’s choice. This particularity of family and kinship ties is nicely illustrated by Comola and Fafchamps (2010). They show based on data for Tanzania that if one household wishes to enter a reciprocal relationship with another household, it can unilaterally do so if this other household is sufficiently close socially and also geographically. This is possible because in this case inter-personal norms of reciprocity can be activated unilaterally by giving to someone a gift for instance to obligate him or her to reciprocate in the future.

To the contrary, there is consensus in the literature on social networks that they provide a wide range of benefits by reducing transaction costs, facilitating the access to information, helping to overcome the dilemmas of collective action and generating learning spin-offs (see, e.g., Coleman [1990]; Fafchamps [1996, 2001, 2002]; Kranton [1996]; Woolcock [1998, 2001]; Minten and Fafchamps [1999]; Platteau [2000]; Knorringa and van Staveren [2006]).

³ As a referee correctly pointed out, family and kinship ties are often interchangeably used especially in urban contexts where the scope of relationship becomes broadly defined due to the psychological and social needs for bonding and solidarity.

Our distinction between family and kinship ties, on the one hand, and such social networks, on the other, corresponds to the distinction made in the fields of economic sociology and social network analysis between ‘weak ties’ and ‘strong ties’ (Granovetter 1973, 1983). Here, strong ties describe links to the immediate family and kin and refer to rather closed networks, while weak ties go beyond this closed circle. Weak ties play for instance a central role in the circulation of and access to information, such as information on factor and product markets. In contrast, strong ties may be important for risk sharing or social insurance and to access the capital required to start a business. Yet, there may also be costs associated to family and kinship, i.e. strong ties.

2.2 The Effect of Family and Kinship Ties on Incentives

The idea that family and kinship ties may also imply adverse incentive effects on economic activity is relatively old. It is quite often mentioned in the anthropological literature (see, e.g., Barth [1967]) and has later been emphasised by modernization theorists but with very different nuances and clearly distinguished conclusions (see, e.g., Lewis [1955]; Meier and Baldwin [1957]; Bauer and Yamey [1957]; Hirschman [1958]; Rostow [1960]). It is also discussed in the field of economic sociology and social network analysis as the downside of strong ties, which are also often referred to as ‘bonding ties’ (Granovetter 1973, 1983; Barr 2002). More recently, this downside of family and kinship ties has been taken up again by a few economists (see, e.g., Platteau [2000]; Hoff and Sen [2006]; Luke and Munshi [2006]; Alger and Weibull [2008, 2010]). Although acknowledging that family and kinship ties can be a vehicle for social contracts of mutual insurance in a context where markets for these goods and services fail, these authors argue that these ties may become an important obstacle in the process of economic transition. Members of the kin system who achieve economic success in the modern sector may be confronted with sharing obligations by less successful fellows. This may imply to remit money, to find urban jobs for them or to host them in the

city home (see, e.g., Hoff and Sen [2006]). The hypothesis is then that the need to meet such demands can adversely affect the incentives of kin members to pursue and develop their economic activity in the modern sector. Opting out of such kin systems and refusing to comply with these obligations may be possible but may result in strong sanctions and high psychological costs and the kin group may want to prevent this ex ante by manipulating (as in Hoff and Sen's (2006) model) the relevant exit-barriers.

Platteau, for instance, states – very drastically – that in tribal societies, in particular in those characterised by strong traditions, “the economic success of an individual [may] breed[s] parasitic behaviour, which [...] does not stop until the rich individual is ruined and brought back to the fold” (Platteau 2000, 208). He continues by emphasizing that “the negative effects of traditional norms of generosity and redistribution in terms of incentives to savings and innovations are not confined to the countryside but may also affect modern cities where many proprietors are unable to resist kinship demands to any great extent, especially so in Sub-Saharan Africa” (Platteau 2000, 209). If ‘forced redistribution’ of this type is widespread it may partly explain the failure of many African micro and small enterprises to grow. As pointed out by Platteau (2000), it might also explain why minority entrepreneurs like the Indians in East Africa and the Lebanese and Syrians in West Africa are often very successful. In fact, so the argument, these minorities are not directly exposed to requests of relatives and stand outside the complex web of social obligations.

2.3 Empirical Evidence of Adverse Incentive Effects

To date, there is very little empirical backup for the existence of negative effects of family and kinship ties on entrepreneurial activities. Some related evidence however indicates that the composition and structure of the households matter for capital accumulation, for example that larger polygamous households find it more difficult to save and accumulate (Morrisson 2006). Duflo et al. (2009) put forward a similar argument, when showing that impatient Kenyan farmers forgo highly profitable investments in fertiliser. The authors argue that the

impatience is partly rooted in the difficulty of protecting savings from consumption demands of the kin. Di Falco and Bulte (2011) find evidence that kinship size is associated with higher budget shares of non-sharable goods and lower savings Baland, Guirkinger and Mali (2007) analyse borrowing behaviour and find that some people take up credits even without liquidity constraint – just to signal to their kin that they are unable to provide financial assistance.

Anderson and Baland (2002) provide some evidence that women in Kenya participate in ROSCAs (Rotating Savings and and Credit Associations) to protect savings against claims by their husbands for immediate consumption. Curry (2005) shows for the case of Papua Guinea that many businesses are established primarily for facilitating gift exchange and enhancing the social status of their proprietors and investors, with the profit motive subordinated to these objectives. The important role of village enterprises in meeting indigenous socio-economic objectives means they are rarely profitable. Fafchamps (2002) finds a negative association between perceived ‘fear of predation by relatives’ and value added among agricultural traders in Madagascar.⁴ Berrou and Combarous (2011, 2012) also explicitly distinguish between family and kinship ties, on the one hand, and business and sociability ties, on the other. In a sample of informal entrepreneurs in Bobo-Dioulasso (Burkina Faso), they find family and kinship ties to represent only a quarter of all ties entrepreneurs rely on. They detect positive effects for both types of ties on value added and earnings and emphasises the role of kinship ties for start-up resources. However, they state that more educated entrepreneurs appear to rely on weaker ties. This may be an indication of their capacity to put themselves outside community constraints and to develop more flexible ties.

Lastly, Jakiela and Ozier (2010) studied the problem of forced solidarity by conducting lab-experiments in rural Kenyan villages. In these experiments, they randomly vary the observability of investment returns to test whether subjects reduce their income in order to keep it hidden. They find that participants who know that the outcome of their investment will

⁴ However, this is not the focus of his paper and he does not further discuss this result.

be made public, choose decisions that are less profitable in expectation. They conclude that the risk pooling arrangements operating in the village and family are inefficient.

3. Theoretical framework

3.1 Basic Setup

The following model is a simple static model of an urban household who engages in a non-agricultural production activity.⁵ This model takes into account the interdependence of household production and consumption. Hence, inspired by the literature on agricultural households (see, e.g., Singh, Squire and Strauss [1986]; Sadoulet and De Janvry [1995]), we assume that urban households can be represented by a model that combines the household and the firm, i.e. consumption and production activities.

For any production cycle, the household is assumed to maximise an increasing and quasi-concave utility function:

$$\text{Max } U = U(X, l), \quad (1)$$

where X denotes consumption of market goods and l stands for leisure, a non-market good.

Utility is maximised subject to the following cash income constraint:

$$p(X - Q) + R + wL^h + rK^h + p_v V \leq pF(L, K, V, Z^h) + wL^m + S \quad (2)$$

$$\text{with } K^h \geq 0$$

where p is the price and $(X - Q)$ the quantity of the market good that the household firm also produces in quantity Q . Hence, if $(X - Q)$ is positive the household is a net buyer of the good. R stands for transfers paid to other households. R is assumed to be endogenous and is specified below. The household has to pay for hired labour L^h at the wage rate w , for rented

⁵ In reality, the household may be engaged in a variety of such activities, run by different individual household members. In our theoretical model, we nonetheless assume that the household only operates a single activity. We return to this issue in our empirical analyses below.

capital goods K^h at the rental rate r and for intermediate inputs V (such as raw materials, energy or water) at the unit price p_v . On the right hand side of Equation (2), we have income that is generated through production F and sold at the market price p_i , labour offered on the market, L^m , at the wage rate w and an exogenous cash endowment S . The cash endowment can result from past savings, transfers received ahead of production from other households or from loans (from formal or informal money lenders). We assume that it is not possible to rent out capital goods. Note that all prices in the model (p, p_v, w, r) are exogenously given and not affected by the actions of the household. Thus, the household behaves like a price taker in the four markets.

We assume that expenditures on rented capital and intermediate inputs have to be incurred before production and this requires financial liquidity (or working capital):

$$S \geq rK^h + p_v V. \quad (3)$$

The cash endowment of the household may suffice to cover these costs or not. Hence, this credit constraint may or may not be binding. The household also faces a time-constraint, i.e. it cannot allocate more time to work outside the household, production and leisure than is available in the household:

$$E^l = L^o + L^m + l, \quad (4)$$

where L^o stands for informal labour supplied to the own firm and E^l is the total stock of household time. Moreover, the following resource constraints must be satisfied:

$$L = L^o + L^h \quad \text{and} \quad (5)$$

$$K = K^o + K^h. \quad (6)$$

At this stage it is assumed that own labour L^o and hired labour L^h are perfect substitutes. The same applies to own, K^o , and hired capital, K^h . We further assume that the household operates with the following increasing and concave production technology:

$$Q = F(L, K, V, Z^h), \quad (7)$$

where Z^h are exogenous household characteristics including those of the owner, such as education and experience. Z^h is assumed to affect total factor productivity. L , K , and V were defined above. We make standard assumptions on the marginal products of capital and labour, i.e.

$$\frac{\partial F}{\partial L} > 0, \quad \frac{\partial^2 F}{(\partial L)^2} < 0, \quad \frac{\partial F}{\partial K} > 0, \quad \text{and} \quad \frac{\partial^2 F}{(\partial K)^2} < 0.$$

In this basic set-up we ignore any risk related to production. Transfers R to be paid to other households are assumed to be a share of the firm's value added, VA (turnover minus the costs for intermediate inputs), i.e. transfers are treated like a tax:

$$R = s VA, \quad \text{with} \quad 0 \leq s \leq 1 \quad (8)$$

with

$$VA = p F(L, K, V, Z^h) - p_v V. \quad (9)$$

We assume that failing to pay R , implies prohibitive social sanctions. In the most general case, the share s that has to be paid (the 'redistribution tax' or 'solidarity tax') depends on egalitarian norms prevailing in the entrepreneur's family and kin, N , on the size of the kin, T , and on the costs to observe the household firm's profits, C , thus

$$s = f(N, T, C) \quad (10)$$

with

$$\frac{\partial s}{\partial N} > 0, \quad \frac{\partial s}{\partial T} > 0, \quad \text{and} \quad \frac{\partial s}{\partial C} < 0.$$

Our idea is that it is easier for the kin to observe the firm's value added than labour income from the market. In particular, this should be true if firms exceed a certain size and thus operate from of a fixed location, exceed a certain level of capital stock and employ non-family labour. Earnings from jobs outside the household are hence assumed to be more difficult to observe for the kin. This assumption of non-observability of market incomes might appear strong. However, the largest share of employment (77 percent) in the economies we study is in informal firms, typically without any written labour contract, any payment

statements and any agreement regarding the terms of the employment (Brilleau, Roubaud and Torelli 2005).

3.2 Solution under Perfect Markets

Although the model described above implies one market imperfection – physical capital cannot be rented out – a household can still behave like a profit maximiser. If the credit constraint is not binding, the model is recursive and separability holds. The household then uses capital and labour such that marginal returns are equal to marginal costs. Note that the marginal returns to capital and labour are net of the remittances that have to be paid to other households. Additional labour and capital is hired at the respective market rates. If family labour endowments exceed the optimal level of labour necessary for production, informal labour is rented out (or additional labour is hired in if more labour is optimal).

Hence, under complete markets, we get the following first-order conditions:

$$(1-s) \frac{\partial Q}{\partial L} = \frac{w}{p} \quad (11)$$

$$(1-s) \frac{\partial Q}{\partial K} = \frac{r}{p} \quad (12)$$

$$\frac{\partial Q^n}{\partial V} = \frac{p_v}{p} \quad (13)$$

$$\frac{\partial U}{\partial l} / \frac{\partial U}{\partial X} = \frac{w}{p} \quad (14)$$

It is straightforward to see that the choice variables X and l do not affect the demand for the production factors L and K (provided second order conditions are also met). The maximisation problem is recursive and the maximised value of profits can be substituted in Equation (2), which yields:

$$Y^* = \Pi + S + w(L^m + l), \quad (15)$$

where Y^* is the value of full income associated with profit-maximising behaviour and Π are profits from the household firm, i.e. value added minus all costs for labour, capital, inputs and transfers made, R . Conditional on full income, households maximise utility, hence the problem is separable. From Equation (14) one can derive the demand equations for X and l as functions of prices (p, w) and full income (Y^*) . We now examine first the role of family and kinship ties represented by the solidarity tax in quasi competitive markets. We then consider the case of imperfect markets for capital and labour, which we use to introduce positive effects associated with family and kinship ties.

3.3 The Role of Transfers and the Solidarity Tax

From Equations (11) and (12) we see that the solidarity tax on value added drives a wedge between the marginal factor products and real factor prices. *Ceteris paribus*, households allocate less labour and capital to production the higher the tax rate s . In the case of labour, this implies that with higher s less labour is hired or more family labour is offered to dependent wage work outside the household. Value added of the household firm will hence be lower at higher solidarity taxes and under the assumed neoclassical production technology with decreasing marginal returns this implies that marginal factor products will be higher. Subsequently, we will thus test the following hypotheses: For two otherwise similar households 1 and 2, facing different tax rates s_1 and s_2 , where $s_1 > s_2$, we expect $L_1 < L_2$, $K_1 < K_2$ and $VA_1 < VA_2$.

3.4 Imperfect Markets for Capital and Labour and Positive Effects of Family and Kinship Ties

So far we have neglected the potentially positive effects that might be associated with family and kinship ties. From the literature review above, it is apparent that these positive effects may be observed in the presence of market imperfections. Such imperfections may arise if, for

instance, access to capital is limited because money lenders require exorbitant interest rates and high collaterals. Alternatively, labour markets may not function well due to shortages of labour with certain skills, moral hazard and high monitoring costs – relative to value added of these small firms. Finally, individuals employed in household firms are typically not covered by any form of formal insurance mechanism. We therefore assume that such positive effects could affect the use of capital and labour at least through three different channels: (i) family and kinship ties may act as insurance against the effects of shocks that could diminish the stock of physical and human capital; (ii) family and kinship ties may help entrepreneurs to obtain information about investment opportunities and where to hire reliable labour; and (iii) within families and kin groups both factors, capital and labour, may be rotated according to individual needs.

Under these assumptions the costs of hired labour, L^h , w' and of hired capital, K^h , r' do not only depend on the market wage and interest rate but for example also on the size of the network, T , i.e. $w'=f(w,T)$ and $r'=f(r,T)$, with $\frac{\partial w'}{\partial T} < 0$ and $\frac{\partial r'}{\partial T} < 0$. The first order conditions (11) and (12) would imply that in case of market imperfections of the type just described, the effect of family and kinship ties on factor costs may partly or even fully offset the adverse effects that arise from the redistribution tax.

4. Data

4.1 The 1-2-3 Surveys

For our empirical analysis we use a set of survey data stemming from the so-called 1-2-3 surveys or in its French synonym ‘Enquêtes 1-2-3’. The data have been collected in 2001 and 2002 in seven urban centres in West Africa: Abidjan (Côte d’Ivoire), Bamako (Mali), Cotonou

(Benin), Dakar (Senegal), Niamey (Niger), Lomé (Togo) and Ouagadougou (Burkina Faso).⁶ A 1-2-3 survey is a multi-layer survey organised in three phases and specifically designed to study the informal sector (see Brilleau, Ouedraogo and Roubaud [2005]) for a presentation of data and methodology). Phase 1 is a representative labour force survey collecting detailed information about individual socio-demographic characteristics and employment. Phase 2 is a survey which interviews a sub-sample of informal production units identified in Phase 1. The focus of this phase is on the characteristics of the entrepreneurs and their production unit, including the characteristics of employed workers. It also contains detailed information on costs, input use, investment, sales and the unit's forward and backward linkages. Phase 3 is a household expenditure survey interviewing (again) a representative sub-sample of Phase 1 and hence part of the Phase 2 households. The data of all three phases are organised such that it can be linked. Hence, for a representative sub-sample of informal entrepreneurs we have information from Phase 1 and Phase 2 (n=6,580) and, again for a subsample, information from all three phases (n=1,511). Phase 3 is not available for Abidjan, given the onset of violent actions in the country in 2001.

We focus on internal migrants, i.e. entrepreneurs who migrated from rural areas or secondary cities to the economic capital and started an informal business. Analyzing urban migrants has the advantage of looking at entrepreneurs who usually have two different types of family and kinship ties; one located at their destination and one located at their point of departure. The latter is likely to be characterised by traditional norms and values and the effect of these is our main interest. In some steps of our analysis we will even limit the sample to recent migrants. Those already in the city for a long time may resemble non-migrants and may thus bias the results for migrants.

⁶ The surveys were carried out by AFRISTAT and the National Statistical Institutes with the support of DIAL as part of the Regional Program of Statistical Support for Multilateral Surveillance (PARSTAT).

In line with our theoretical model, we use the household as the observation unit. Hence, we aggregate all enterprises in a given household into one single enterprise. This is necessary as pressure to remit can only be measured at the household level. This aggregation is done as follows: We define the main firm in the household as the firm that generates the highest value added. Then we aggregate within each household total labour, total capital and total value added. Regarding all other characteristics, such as the sector of the firm and characteristics of the owner, we keep the characteristics of the main firm.⁷

4.2 Context and Descriptive Statistics

In the seven West-African capitals we consider almost 80 percent of the urban labour force works in unregistered small and micro enterprises mostly in self-employment. This sector covers all sorts of activities, from light manufacturing, repair services, the preparation of food to trade activities. Firm size rarely exceeds two and the capital stock is typically quite small. Most of these firms are excluded from formal banking and good quality public services. However, given the size of this sector, the contribution of these firms to total GDP is relatively important.

Table 1 presents descriptive statistics of the migrant entrepreneurs, their enterprises and the households they belong to. On average, the households in the sample have 1.3 enterprises. We see that about half of all entrepreneurs in our sample are men, they are on average 38 years old, about 43 percent of them speak French, 72 percent do not have any diploma, 18 percent have completed primary school and only 10 percent have a diploma from a general or vocational secondary school or higher. We also coded a variable for ethnicity. In ethnic group

⁷ There may be various reasons why a household owns several enterprises. Diversifying entrepreneurial activities may represent an optimal portfolio choice in the presence of activities with different expected returns and associated risks. Enterprises may also belong to different household members that do not necessarily pool their resources.

‘1’ are those entrepreneurs who belong to the largest ethnic group in their country. Ethnic group ‘2’ are those who belong to the second largest group and so on. One can see that about 80 percent of all entrepreneurs fall into one of the three largest groups in their country.

[Table 1 about here]

The next block in Table 1 reports the activity portfolio of the entrepreneur’s household. These portfolios consider all primary and secondary activities of all household members. About 79.5 percent of all entrepreneurs live in households that rely only on informal firms. In some of these households, one or several household members are additionally engaged in some dependent informal wage work. Only 19.8 percent of all entrepreneurs live in households that have in addition to their enterprise at least one wage worker in the public sector (9.7 percent) or in the formal private sector (10 percent). The activity portfolio is a potential important factor of firm performance, as it may influence the capacity to save, to take a loan and to invest in the context of incomplete capital markets. It may also determine the business’ network size and shape the relation to the public sector and hence affect access to public services and exposure to corruption.

The mean age of these enterprises – aggregated at the household level as explained above – is about 8.6 years. The largest sector is ‘petty trading’ (about 27 percent of all enterprises). The smallest sectors are ‘transport’ and ‘repair services’, which are both rather capital intensive. The sample is uniformly distributed across countries given that the surveys all had similar sample sizes, except for Niger, which is a little bit smaller. The average annual value added is about 5,600 Intl. 2005 \$ PPP. Entrepreneurs work on average 225 hours per month in their enterprise. In total, they use about 381 hours of labour per month. Mean employment is about 1.9 including the owner and, on average, only one out of four enterprises hires a paid employee. 12.6 percent of all enterprises do not report any invested physical capital. Hence, it is not surprising to see that the mean capital stock for the lower third in the distribution of capital is just about 10 Intl. 2005 \$ PPP. The capital stock of the middle third is

about 125 Intl. 2005 \$ PPP and the capital stock of the top third is about 3,000 Intl. 2005 \$ PPP.

4.3 Measures of the Potential Intensity of Family and Kinship Ties

From our dataset we have derived the following proxies of the potential intensity of family and kinship ties, which in turn should determine the size of the solidarity tax, s . First, the share of the population from the same ethnic group in the cluster in which a household resides. This share is computed from Phase 1 using population weights such that it exactly reflects the true share in the total population. Clusters correspond to neighbourhoods in each of the agglomerations represented in our sample. There are about 125 per city and they cover a population from about 300 up to 35,000. This measure of ethnic concentration is an obvious measure of the potential intensity of family and kinship ties, although ethnic affiliation is obviously a bit broader than just family and kinship. However, the higher the concentration of the own ethnic-group in the neighbourhood, the higher might be, we argue, the probability that family members or relatives live in the neighbourhood, and hence the higher the pressure to share earnings. However, as noted above, a higher concentration of the own-kin group may also mean more support for own entrepreneurial activities. Both effects might be at work, probably off-setting each other to some extent. This, in turn, implies that we will assess the sign and the strength of the ‘net effect’ of family and kinship ties in our empirical analysis. We have to be aware that this first proxy for the intensity of family and kin ties cannot be considered as fully exogenous given that location is a choice.

Our second proxy is the share of the population in a cluster that grew up in the same area as the enterprise owner – i.e. in the same district of the country. Again we assume that the higher the share the higher the probability that family members or relatives live in the neighbourhood, and hence the higher the pressure to share earnings. As the first proxy, this measure will pick up both the potential negative and positive effects of family and kinship

ties. Third, we use the geographical distance to the entrepreneur's district of origin (district capital). We compute this distance for every entrepreneur using geographical maps. We assume that a longer distance makes it more difficult and costly to observe the entrepreneur's activities and productivity; hence redistributive pressure should decline with increasing distance. Empirical support for this assumption comes from Comola and Fafchamps (2010) who show redistributive pressure, measured by the amount of actual transfers and gifts, to decline with higher geographical distance (an exception might be international migration, where expectations are again different). Moreover, in the absence of a formal banking system the costs of making transfers may also increase with distance. These particular costs should, however, not affect the amount that is transferred but rather the decision to transfer and the frequency of transfers. Obviously, positive effects of family and kinship ties should also decline with distance.⁸ Fourth, we use the number of years a migrant has already been living in the capital. The idea behind is that family and kinship ties may not only erode with distance but also with time – an 'out of sight, out of mind' effect. Table 2 shows the descriptive statistics of all proxies.

[Table 2 about here]

4.4 Consistency of Model Assumptions and the Data

Before we proceed to look for supportive evidence for the main predictions of our theoretical model, we first shall verify two of its assumptions: First, that labour and capital are indeed relevant production factors in our context, and, second, that transfers made are related to a household firm's value added and that the propensity to make transfers out of wage income is lower than the propensity to make transfers out of income from entrepreneurship. Tests of the

⁸ Ideally of course one would like to have the travel time or the travel costs. However this would need to be collected in the field. We collected such data for Burkina Faso and found a rank correlation coefficient of more than 75% between distance and travel time and distance and travel costs.

first assumption are shown in Table A1. Assuming a neo-classical production technology and estimating a log-linear transformation using OLS, we find a reasonable order of magnitude for the estimated partial production elasticities. An increase in physical capital by one percent leads, depending on the specification, to an increase of value added by about 12 percent. The production elasticity of total hours of labour is about 58 percent. In these estimations, we control for gender and age of the owner of the firm, household size, ethnicity, the activity portfolio of the household, as well as sector and country effects. For reasons detailed below we run the estimations over two different samples; all entrepreneurs and those that came to the economic capital only recently (recent migrants). The second assumption is tested by relating transfers given (including in-kind transfers) to value added (Table A2). We use two specifications, a simple OLS model (col. (1)) and a tobit model (col. (2)), the latter because some entrepreneurs report no transfers at all. The OLS model yields a highly significant coefficient, suggesting that an increase of value added by one percent leads to an increase in transfers made by 0.18 percent. The tobit model yields a somewhat smaller and insignificant coefficient ($p=0.139$). In these regressions we control for gender and age of the owner of the firm, household size, ethnicity, the activity portfolio of the household and country effects. In columns (3) and (4) we use – instead of value added – total household income as reported in Phase 3 and add the share of earnings from dependent informal work and dependent formal work to the list of control variables. As expected, the propensity to transfer out of household income is again positive. The coefficient is even a bit higher than the one associated with value added, probably because value added is affected by higher measurement error than total household income.⁹ The coefficient associated with the share of earnings from an activity as a wage worker is negative, i.e., as predicted by our theoretical model, the higher the share of

⁹ Remember also that the sample used for these estimations is relatively small, because transfers were recorded in Phase 3 of the 1-2-3 surveys, which covers only a (representative) sub-sample of all entrepreneurs surveyed in Phase 1 and 2. Moreover and as already mentioned above, Phase 3 was not conducted in Côte d'Ivoire.

these earnings in total earnings the less is transferred. This is consistent with the idea that it is easier to hide earnings that come from an activity outside the household where it is difficult to observe for others how much income has been generated. The results from the OLS model in column (3) suggest, for example, that an increase of the share of informal earnings in total earnings by 10 percentage points is associated with a decline of transfers made by 23.8 percent holding constant total earnings.

5. Redistributive Pressure, Capital Accumulation, Labour Demand and the Owner's Effort Level

5.1 General Results

We now examine whether the potential – not actual – intensity of family and kinship ties has any adverse incentive effects. We focus on three different production inputs of the (informal) household firm: physical capital, K , total number of employed working hours (including those provided by the owner), L_i^T , and working hours provided by the owner alone, L_i^O . Hence, we run the following three regressions:

$$\log K_i = \beta_{K0} + \beta_{K1}P_i + X'_{ji}\beta_{K2} + Z'_i\beta_{K3} + S'_i\beta_{K4} + C'_i\beta_{K5} + \mathcal{G}_{Ki}, \quad (16)$$

$$\log L_i^T = \beta_{LT0} + \beta_{LT1}P_i + \beta_{LT2} \log K_i + X'_{ji}\beta_{LT3} + Z'_i\beta_{LT4} + S'_i\beta_{LT5} + C'_i\beta_{LT6} + \mathcal{G}_{LTi}, \quad (17)$$

$$\log L_i^O = \beta_{LO0} + \beta_{LO1}P_i + \beta_{LO2} \log K_i + X'_{ji}\beta_{LO3} + Z'_i\beta_{LO4} + S'_i\beta_{LO5} + C'_i\beta_{LO6} + \mathcal{G}_{LOi}, \quad (18)$$

where P_i is the vector of variables used to measure the potential intensity of family and kinship ties faced by household i . X_{ji} is a vector of characteristics specific to the entrepreneur j residing in household i , such as age, gender, education and migrant status. Z_i is a vector of household characteristics such as ethnicity and the activity portfolio of the household. The vectors S_i and C_i control for sector and country effects, respectively. Controlling for sector effects is important, since production technologies are likely to differ between sectors. For instance, petty trade is less capital intensive than most transport services. Moreover, sector

choice may, in turn, be correlated with (perceived) redistributive pressure. In Equation (16) we do not control for L_i^T and L_i^O since we assume that labour (hours) can be used more flexibly than capital, in particular in the context of the informal economy where hardly any labour contracts exist. In other words, in the short term we treat capital as a fixed factor and labour as a variable factor, that is labour is adjusted to capital but not the other way around. Therefore including labour in Equation (16) would lead to an endogeneity problem. The terms \mathcal{G} are the respective error terms. When running the regressions (16) to (18), we always correct standard errors for intra-cluster correlations. The sample of the seven countries has 558 clusters in Phase 2. Moreover, to reduce a bias due to measurement and reporting errors, we trim the data and drop influential outliers from our sample that we identify by the DFITS-statistic.¹⁰

We now discuss the results of the estimation of Equation (16), that is the association between family and kinship ties and the total stock of physical capital used. Given that household firms may accumulate physical capital in particular in the beginning of their activity, we estimate the model for those migrants who reside in the economic capital for less than 5 years (col. (1) and (2)) and less than 15 years (cols. (3) and (4)). This sample reduction should reduce the problem of measurement error and increase the homogeneity of the sampled migrants. The results are shown in Table 3. The first specification uses a simple linear regression model (cols. (1) and (3)). The second specification uses a tobit model (cols. (2) and (4)) to account for the fact that 13.6 percent of all entrepreneurs do not use any physical capital.

[Table 3 about here]

¹⁰ As suggested by Belsley, Kuh, and Welsch (1980), we use a cutoff-value $|DFITS|_{ihj} > 2\sqrt{k/N}$ with k , the degrees of freedom (plus 1) and N the number of observations. Depending on the estimation, this procedure removes between 25 and 100 observations from our sample.

The proxies for family and kinship ties – our main variables of interest – are partly significant in the smaller sample of recent migrants. In this sample, the effects associated with distance (cols. (1) and (2)), our measure of the potential intensity of the ties to the village of origin, turn out significant. In contrast, we cannot detect any significant effects of local family ties, i.e. kinship density in the neighbourhood, using either sample. The significant positive coefficient of the distance variable is consistent with the idea that redistributive pressure and the related adverse incentive effects get diluted with distance. The further away an entrepreneur is from the family, the higher investment in the household firm. This effect is economically important; the estimates (cols. (1) and (2)) suggest for instance that an increase of the distance from 100km to 200km implies an increase in the size of the capital stock by about 30 percent. Using the larger sample that includes migrants who have been living in the city for a maximum of 15 years (cols. (3) and (4)), we find a positive effect of ‘years since migration’ on capital use. This is consistent with the effect of distance and may imply that family ties may become weaker over time and hence increase the incentives to invest. Note that we control for the owner’s age and firm age in these regressions.

To put these findings into perspective, it is instructive to consider the study on the long term effects of migration by Beegle et al. (2011). These authors find a positive effect of distance on consumption growth, i.e. migrants that are further away from their village of origin experience higher long-term consumption growth than those that stay closer. They interpret this effect as the result of a positive correlation between favourable work and business opportunities and distance. In other words, the larger the migration radius the higher the potential returns from migration. They also show that migrants share less of their income than their non-migrant counterparts, controlling for household fixed effects. Hence, migrants transfer less than their brothers and sisters who stayed at home. This finding would also be consistent with a situation in which the perceived obligation to remit declines with distance helping to protect savings for profitable investments. Our analysis only considers migrants

who went to the economic capital, so the potential pool of business opportunities is held constant for a given country only distance varies across migrants. However, our results may be partially driven by a correlation of distance with unobserved characteristics of entrepreneurs: high ability entrepreneurs may be willing to migrate further. If these (unobserved) abilities also drive investment in physical capital, then the positive effect of distance may just pick up this ability effect. In addition, distance may be correlated with household wealth, because richer households can more easily bear the costs of migration over longer distance. However, these differences in the fixed costs of migration are likely to be minor in the sample of countries we look at, in particular in relation to annual earnings of a migrant. Below we undertake some robustness checks in order to rule out these potential biases.

With respect to the control variables we find that the total capital stock is higher for enterprises owned by men than for women and that it increases with age. Education is not significant in most cases. Knowledge of French enters significantly only in the larger sample. There are no significant effects associated with other activities in the household, i.e. the capital stock is not significantly higher in households that also earn income from dependent wage work in the public or private formal sector. This may be unexpected, but the informal firm in these households is very frequently just a secondary activity and is often managed by the spouse of the household head or by one of his (or her) children. Investment is then kept at a relatively low level. Sector effects are highly significant (coefficients not reported). Country effects are also included but not reported. Overall, the OLS regressions explain about 20 percent of the total variance in observed capital stocks.

Next, we turn to the regressions that explore the effects of redistributive pressure on labour input into the household firm (Table 4). Again, we use two different samples. A sample that is limited to entrepreneurs that reside in the capital for less than 15 years (col. (1) and (3)) and a sample with all migrant entrepreneurs (col. (2) and (4)). We do not need to

limit the sample to very recent migrants, as we now look at a flow and not a stock measure. In this case, recall bias regarding the assessment of the replacement value of assets that have been bought a long time ago should not be a problem. We first examine the total amount of working hours employed in the enterprise (cols. (1) and (2)). For labour inputs, quite a number of the four measures of the potential intensity of family and kinship ties exert significant effects. The share of people in the neighbourhood that belongs to the same ethnic group as the entrepreneur has a significant positive effect. Likewise has the share of the population in the neighbourhood that grew up in the same area of origin. However, being closer to the area of origin again has a significant negative effect, i.e. the coefficient associated with distance is positive. Finally, the number of years since migration is also positively correlated with the use of total labour hours. The effects do not differ much between the two samples. As above, the effects are economically important: An increase by 10 percentage points of the share of people in the neighbourhood belonging to the same ethnic group increases the amount of labour hours used by 2.8 percent. Evaluated at the sample mean this implies approximately 10.7 hours per month. If the proportion of people that share the same origin is increased by 1 percentage point (sample mean is about 3.8 percent) labour hours employed increases by 1.4 percent. An increase of distance by 100 percent is associated with an increase of employed labour hours by about 6 to 9 percent. Hence, family and kinship ties linked to the city – or local ties – are associated with positive effects, whereas ties to the village of origin have negative effects. With respect to the control variables, we note that firms owned by men employ more labour and that the use of labour increases with the size of the capital stock. Age, knowledge of French, education and the household's activity portfolio are not significant.

[Table 4 about here]

To exclude the possibility that the positive effects of local ties on total hours are not the result of redistributive pressure that translates into the recruitment of workers from the family

and kin, we now also explore the effects of family and kinship ties on working hours provided by the owner alone (cols. (3) and (4)). Again we find that local ties within the city are positively correlated with working hours. For instance, an increase by 10 percentage points of the share of people in the neighbourhood belonging to the same ethnic group increases the owner's labour hours by about 1 to 2 percent, which corresponds at the sample mean to about 3 to 5.5 hours per month. Similarly, if the share of the population from the same area of origin increases by 1 percentage point, working hours increase by about 0.7 percent or about 2 hours at the sample mean. We also find positive effects of the distance to the area of origin, but not for years since migration. More distant migrant entrepreneurs use more of their time for their production activity. Here, a decrease in the distance by 100 percent, decreases labour hours provided by the owner by about 4 percent or 11.5 hours at the sample mean. As the estimated coefficients for total labour are higher than those for the owner's labour alone, adverse incentives affect both own and hired labour.

5.2 Differences by Gender

The results above have shown that – controlling for sector effects – firms managed by men employ systematically more labour and physical capital than enterprises managed by women. We now test whether our proxies for redistributive pressure have a different effect if we estimate the Equations (16) to (18) separately for men and women each group managing half of the sampled firms.¹¹ One may expect that women are more likely than men to spend on household public goods and children's health and education. The potential pressure to spend each additional dollar earned on these goods may discourage women from expanding their businesses. Fafchamps et al. (2011) analyse this question in the context of randomized cash

¹¹ Note that this share is higher, if individual firms are considered, that is if firms are not aggregated at the household level and coded as being managed by the manager of the largest firm in the households (in terms of value added).

and in-kind transfers to female entrepreneurs in Ghana. The authors indeed find a lower impact of cash transfers on profits compared to in-kind transfers as cash transfers seem to end up going to household expenses and transfers. However, they interpret their findings as being mainly driven by a lack of self-control and not so much external pressure.

Our results are presented in Table 5. Regarding the use of physical capital, we find that the positive local effects of family and kin ties associated with the share of people of the same village of origin and the same ethnic group are more pronounced for men than for women. The effect of distance to the village of origin on capital use is insignificant for both, men and women, but has at least the same sign as in the joint sample. With respect to the use of labour, men seem to rely more on persons from the same village of origin, whereas women rely more on persons from the same ethnic group. This could signify that women interact or have to interact with a smaller circle of people and thus be another constraining factor. The distance effect on labour (cols. (2) – (6)) is also larger for women and is significant at the 5% level. This might be the case because women that are closer to their village of origin, have closer links with the family there and thus are involved more intensively in activities unrelated to their business (including more frequent visits to the family). In general we note that the estimated effects associated with kinship ties are bit higher for women than for men implying that these ties matter more for women. With the data at hand it is hard to examine whether women perceive sharing as an obligation which is imposed on them or engage in it purely for altruistic reasons. However, in another data set collected among male and female tailors in Ouagadougou in 2011 and 2012 we asked whether they agree with the statement “every time I have money, my spouse or other members of the family in or outside the household ask for a fraction”. Among male tailors 68 percent either fully agreed or agreed with hesitation. Among female tailors this share was 74 percent. If the questions were formulated more neutral in a sense whether sharing obligations in general hinder entrepreneurs to develop their business we found however no difference. If both were asked what they would do with a lottery prize

of CFA F 30,000, significantly fewer women than men answered that they would share it with the family. This suggest that difference in perceived sharing obligations is not primary a result of a lack of self-control but rather a sign that women are indeed under higher pressure.

[Table 5 about here]

5.3 The Effects of Splitting up Enterprises

As explained above, our analysis aggregates all enterprises of a household into one single enterprise. There are several reasons why a household may own several enterprises, such as diversification to reduce risk and the absence of income pooling among household members. However, splitting up enterprises may also be a strategy to avoid or reduce ‘taxes’ and demands from the extended family, because it is easier to hide several smaller enterprises than one large enterprise. Camilleri (1996), for instance, reports anecdotic evidence that successful entrepreneurs employ their kin in peripheral firms to keep them away from the main and productive activity. Therefore, this subsection looks at the correlation between the number of firms and transfers given to other households. We estimate a simple regression of the following form:

$$\log R_i = \beta_{T0} + \beta_{T1}VA_i + F_i' \beta_{T2} + X_{ji}' \beta_{T3} + Z_i' \beta_{T4} + \beta_{T5}C_i + \mathcal{G}_{Ti}, \quad (19)$$

where R_i stands for transfers given in household i , VA_i for value added, F_i for the number of firms in household i , X_{ji} for characteristics specific to the entrepreneur j residing in household i , such as age, gender, education and migrant status, Z_i is a vector of household characteristics such as ethnicity and the activity portfolio of the household and C_i stands for country-specific effects.

[Table 6 about here]

Table 6 shows the results. Having two firms instead of one is associated with lower transfers controlling for the firms’ aggregated value added. The effect of three firms in the same household is not statistically different from having only one firm, but this may be due to

the fact that many households have two firms (17.2 percent) but only few have more than two firms (3.5 percent). The results are thus consistent with the idea that splitting up enterprises is an effective way to reduce transfers to other households. It would also partly explain the prevalence of small firms in the countries studied, implying that profits are invested in new firms rather than in existing ones.

5.4 Robustness Checks

5.4.1 Distance to the Village and the Role of Unobservables

To rule out the possibility that a correlation between distance and unobserved characteristics of entrepreneurs biases our results, we re-estimate equations (16) to (18) for various subsamples that are limited to entrepreneurs that migrated *at least* a certain distance away from their area of origin. The idea is that a migrant who stays relatively close to his origin, say 5km, may indeed differ substantially in observable and unobservable characteristics from someone who has migrated over considerably larger distances, say 100km. In contrast, the latter migrant may not be very different from a migrant who moved 150km. In other words, the relationship between distance and unobserved characteristics is likely to be non-linear. It turned out that the estimated effects are very robust hence, we are confident that distance does not just capture systematic differences in effort-related unobservables between internal migrants with different distance to their area of origin. Another aspect should be kept in mind. We only consider migrants who decided to migrate to the economic capital of their country. We may assume that this decision is often taken whatever the distance to the capital is. In other words, migrants do not so much choose between places of different distance to their home, but rather whether they migrate to one of the secondary cities or to the economic capital. In particular in our sample of West-African countries, most of which have one major large urban centre and only smaller secondary cities and towns, the differences between both types of destinations are quite pronounced. Hence, we may argue that all those who opted for

the economic capital share similar unobservable characteristics implying a relatively small potential bias associated with our distance measure.

5.4.2 Predicted Excess Transfers as Measure of 'Forced Redistribution'

To provide further support for our findings and to examine specifically the role of 'forced remittances', we compute an alternative measure of redistributive pressure using the information on actual transfers. More precisely, we regress 'transfers given' on total household consumption expenditures. The residual of this regression can be interpreted as an indicator to whether a given household pays higher or lower transfers than the average household – conditional on its consumption level. In this regression we control for age, gender and education of the household head as well as the activity portfolio of the household and country effects. The consumption aggregate also includes self-consumption and received transfers and is thus an adequate measure of the resources available in the household. The residual that we label 'excess transfers' is then used as a regressor in our equations of physical capital, employed total hours of labour and supplied labour hours by the owner of the firm. The results show (Table not shown) that predicted excess transfers are significantly negatively associated with the amount of physical capital used. A 10% increase in excess transfers, reduces the amount of physical capital used by about 0.5%. The effects associated with labour input are also negative, but only borderline significant. However, actual transfers are only available for a small – though representative – sub-sample of households, which makes it somewhat more difficult to obtain precise estimates.

6. Conclusion

On the one hand our findings confirm the positive aspects that are often associated with social capital in particular in contexts where market mechanisms fail. Local family and kinship-ties within the city enhance the use of labour inputs. This may happen because local ties help to

overcome labour market imperfections. However, we also find some support for the hypothesis that redistributive pressure tied to the village leads to adverse incentive effects and that these adverse incentive effects seem to get diluted with distance. We find that looser ties are correlated with a higher capital and labour inputs, in particular for women. Greater distance from home may hence make it easier to protect savings from abusive demands. We can rule out that this result is driven by unobservables that would determine both the willingness and ability to migrate far and the ability to run an enterprise. We also find weak evidence that the migration duration – controlling for the enterprise age – is positively correlated with the use of capital and labour. We also show that migrants with several enterprises transfer less to their families than those with only one firm. This is consistent with the hypothesis that some entrepreneurs prefer to invest in several small activities instead of expanding an existing firm; an expansion that would probably send a signal of entrepreneurial success to the entrepreneur's kin. Such behaviour would also partly explain why we see so many micro firms.

Our analysis takes a relatively static perspective and ignores that remittances from urban migrants to the village may be part of the migration contract and serve to pay back the costs of migration. This limitation, however, should not invalidate our conclusions. Even with such a contract, we would expect migrants to just maximise their profits, i.e. use their resources optimally, and then redistribute part of their profits to the family. If such a contract implied adverse incentive effects on entrepreneurial activities, the contract would be inefficient.

We think this paper sheds new light on the debate about the 'dark side of social capital'. However, the intention is definitely not to deny the substantial evidence for all the positive aspects associated with social capital in particular in contexts in which market mechanisms fail. However, social capital can take many forms and its accumulation can only partly be controlled by the entrepreneur. As we argued in this paper, family ties as one special form of

social capital are at least to some extent exogenous and may imply conflicting interests. How can policy take this into account? We think two dimensions of sharing have to be distinguished: sharing that is mainly motivated by insurance considerations and sharing that is mainly motivated by egalitarian norms. Sharing that serves as an insurance device and which sends out adverse incentives because it is excessive or at least not “fair”, can be addressed through the provision of formal insurance. One of the most important types of shocks rural households are exposed to is a health shock, both in terms of frequency and financial burden. Hence, if for example health insurance becomes available the need for informal insurance may decline. This is thus a further argument for the roll out of social health insurance with which some African countries have recently started to experiment (e.g. Ghana, Rwanda, Ethiopia). Obviously, implementing insurance comes with its own problems, but these problems need to be solved anyway if health insurance is the primary objective. Further benefits might be achieved to offer in addition other types of insurance together with health insurance as well as credit and savings devices as then several often interdependent constraints can be addressed simultaneously.

Sharing that is based on pure egalitarian norms is more difficult to tackle. It would neither be desirable nor possible to change norms by force, i.e. without changing the environment that conditions the same. However, as with many other traditions it is quite likely that such norms change as an economy develops. The strong positive effects related to family and kinship ties in the city we find suggest that such ties have the potential to enhance entrepreneurial activity. They are also an indication of factor market failures that policies may be able to address, possibly by mimicking such support networks.

More generally, we have shown elsewhere (Grimm, Knorringa and Lay 2012), that in the sector of small and micro enterprises there is a substantial share of firms that have the potential to grow if constraining factors are removed. This study points to one particular

constraint which so far has received a lot of attention in the anthropological literature but only little in private sector development approaches.

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Appendix A1. The Partial Production Elasticities of Capital and Labour

	Value added and factor use (OLS)			
	(1) Migrants, 15 years and less in the capital	(2) All migrants	(3) Migrants, 15 years and less in the capital	(4) All migrants
Ln total labour hours	0.582*** (0.050)	0.572*** (0.043)		
Ln total hours owner			0.349*** (0.058)	0.376*** (0.046)
Ln physical capital	0.110*** (0.025)	0.116*** (0.018)	0.161*** (0.025)	0.188*** (0.017)
No capital	0.338** (0.157)	0.287** (0.119)	0.402** (0.157)	0.430*** (0.121)
Control variables	<i>See notes</i>	<i>See notes</i>	<i>See notes</i>	<i>See notes</i>
R-squared	0.386	0.415	0.342	0.359
N	1065	2178	1061	2174

Notes: Robust standard errors in parentheses (clustered at the segment level). All regressions control for gender, age and education of the owner, the age of the firm, household size, ethnicity, the activity portfolio of the household as well as sector and country effects. * p<0.10, ** p<0.05, *** p<0.01.

Source: 1-2-3 surveys, WAEMU, 2001/02.

Appendix A2. Firm's Performance, Sources of Household Income and Transfers Given

	(1)	(2)	(3)	(4)
	OLS	Tobit	OLS	Tobit
Ln value added	0.175*** (0.065)	0.139 (0.097)		
Ln total household income			0.334** (0.146)	0.499* (0.261)
Share of income from dep. inf. work			-2.378*** (0.831)	-3.771** (1.483)
Share of income from dep formal work			0.579 (0.754)	0.866 (1.108)
Control variables	<i>See notes</i>	<i>See notes</i>	<i>See notes</i>	<i>See notes</i>
R-squared	0.123		0.078	
N	562	580	393	393

Notes: Robust standard errors in parentheses (clustered at the segment level). All regressions control for gender, age and education of the owner, household size, ethnicity, the activity portfolio of the household and country effects. * p<0.10, ** p<0.05, *** p<0.01

Source: 1-2-3 surveys, WAEMU, 2001/02.

Table 1
Descriptive statistics

	Mean	S.D.
<i>Owner characteristics</i>		
Male	0.509	
Age owner	38.4	11.4
Speaks French	0.434	
No diploma	0.718	
Primary completed	0.179	
Some secondary	0.048	
Other post primary	0.055	
Ethnic group 1	0.420	
Ethnic group 2	0.184	
Ethnic group 3	0.195	
<i>Household characteristics</i>		
Household size	6.3	4.2
Only informal firm	0.795	
Public wage earner	0.097	
Private formal wage earner	0.100	
Other combination	0.008	
<i>Firm characteristics</i>		
Age of firm	8.6	8.6
Clothing and apparel	0.096	
Other manufact. and food	0.143	
Construction	0.087	
Wholesale/retail shops	0.114	
Petty trading	0.272	
Hotels and restaurants	0.073	
Repair services	0.053	
Transport	0.052	
Other services	0.110	
Ann. VA in intl.\$ PPP	5556	28459
Monthly hours owner	225	127
Total monthly hours	381	379
Total staff incl. owner	1.891	1.566
Hired paid staff	0.241	0.864
No physical capital (=1)	0.126	0.332
Physical. cap. in intl. \$ PPP	1029	3647
Physical cap. (lowest 33%)	11	12
Physical cap. (middle 33%)	127	75
Physical cap. (highest 33%)	2953	5865
No. of firms	1.3	0.6
<i>Country</i>		
Benin	0.159	
Burkina Faso	0.141	
Cote d'Ivoire	0.162	
Mali	0.178	
Niger	0.062	
Senegal	0.128	
Togo	0.169	
N	2369	

Source: 1-2-3 surveys, WAEMU, 2001/02.

Table 2

Proxies of the potential intensity of family and kinship ties

	Mean	S.D.
Share same ethnic group	0.373	0.266
Share same origin	0.038	0.043
Distance to origin	188.5	169.4
Time since migration	17.7	11.7
N		2369

Source: 1-2-3 surveys, WAEMU, 2001/02.

Table 3
Family and kinship ties and household firm's use of physical capital

	(1)	(2)	(3)	(4)
	Migrants, 5 years and less in the capital		Migrants, 15 years and less in the capital	
	OLS	Tobit	OLS	Tobit
Share same ethnic group	0.310 (0.549)	0.291 (0.581)	0.158 (0.347)	0.170 (0.359)
Share same origin	0.464 (3.105)	0.370 (3.085)	0.271 (1.972)	0.062 (1.803)
Ln distance to origin	0.263* (0.152)	0.316* (0.161)	0.002 (0.089)	0.009 (0.098)
Years since migration	0.032 (0.067)	0.042 (0.083)	0.033** (0.016)	0.036** (0.017)
Male (=1)	1.061*** (0.316)	1.118*** (0.337)	0.878*** (0.178)	0.917*** (0.197)
Age owner	0.041*** (0.014)	0.047*** (0.015)	0.032*** (0.008)	0.036*** (0.010)
Speaks French (=1)	0.297 (0.345)	0.384 (0.388)	0.341* (0.182)	0.364* (0.219)
No diploma	(Ref.)	(Ref.)	(Ref.)	(Ref.)
Primary completed	-0.529 (0.391)	-0.753* (0.443)	-0.212 (0.220)	-0.300 (0.241)
Some secondary	-0.218 (0.743)	-0.355 (0.770)	-0.282 (0.347)	-0.357 (0.383)
Other post primary	-0.718 (0.710)	-1.051 (0.678)	-0.328 (0.369)	-0.485 (0.377)
Ethnic group 1	(Ref.)	(Ref.)	(Ref.)	(Ref.)
Ethnic group 2	-0.700* (0.399)	-0.868* (0.503)	-0.524** (0.215)	-0.586** (0.249)
Ethnic group 3	0.030 (0.311)	0.068 (0.353)	-0.084 (0.180)	-0.086 (0.211)
Age of firm	-0.011 (0.023)	-0.019 (0.027)	0.001 (0.013)	0.001 (0.016)
Only informal firm				
Public wage earner	0.416 (0.438)	0.489 (0.489)	0.345 (0.235)	0.397 (0.268)
Private formal wage earner	0.550 (0.400)	0.556 (0.439)	0.222 (0.235)	0.252 (0.264)
Other combination	-0.849 (1.515)	-1.093 (1.353)	-0.972 (0.891)	-1.158 (0.788)
Sector effects	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes
Constant	1.972* (1.034)	1.592 (1.140)	3.714*** (0.589)	3.512*** (0.664)
R-squared	0.215		0.185	
N	370	370	1117	1117

Notes: Robust standard errors in parentheses (clustered at the segment level). * p<0.10, ** p<0.05, *** p<0.01 Source: 1-2-3 surveys, WAEMU, 2001/02.

Table 4
Family and kinship ties and household firm's use of labour (OLS)

	(1)	(2)	(3)	(4)
	Ln total labour hours		Ln total labour hours owner	
	Migrants, 15 years and less in the capital		Migrants, 15 years and less in the capital	
		All migrants		All migrants
Share same ethnic group	0.281** (0.132)	0.248*** (0.096)	0.217** (0.097)	0.117 (0.072)
Share same origin	1.340** (0.532)	1.356*** (0.444)	0.781* (0.428)	0.643* (0.361)
Ln distance to origin	0.087*** (0.033)	0.057** (0.024)	0.048* (0.026)	0.032* (0.019)
Years since migration	0.012* (0.006)	0.005** (0.002)	0.005 (0.005)	0.000 (0.002)
Ln physical capital	0.176*** (0.019)	0.169*** (0.013)	0.069*** (0.014)	0.059*** (0.010)
No capital	0.402*** (0.124)	0.367*** (0.092)	0.118 (0.097)	0.058 (0.069)
Male (=1)	0.334*** (0.073)	0.298*** (0.054)	0.359*** (0.054)	0.284*** (0.039)
Age owner	-0.002 (0.005)	-0.000 (0.003)	-0.003 (0.003)	-0.000 (0.002)
Speaks French (=1)	-0.003 (0.078)	0.044 (0.056)	-0.018 (0.058)	-0.010 (0.042)
No diploma	(Ref.)	(Ref.)	(Ref.)	(Ref.)
Primary completed	-0.062 (0.091)	-0.024 (0.066)	-0.058 (0.065)	-0.008 (0.047)
Some secondary	0.119 (0.144)	0.147 (0.097)	-0.056 (0.105)	0.005 (0.070)
Other post primary	-0.194 (0.150)	-0.147 (0.119)	-0.418*** (0.121)	-0.280*** (0.094)
Ethnic group 1	(Ref.)	(Ref.)	(Ref.)	(Ref.)
Ethnic group 2	-0.208 (0.130)	-0.162** (0.079)	-0.139 (0.092)	-0.104* (0.058)
Ethnic group 3	0.076 (0.073)	0.120** (0.051)	0.028 (0.057)	0.052 (0.038)
Age of firm	0.005 (0.006)	0.004 (0.003)	0.003 (0.004)	-0.000 (0.002)
Only informal firm	(Ref.)	(Ref.)	(Ref.)	(Ref.)
Public wage earner	-0.101 (0.114)	-0.094 (0.071)	0.074 (0.082)	-0.088 (0.060)
Private formal wage earner	-0.105 (0.100)	-0.047 (0.064)	-0.033 (0.080)	-0.015 (0.054)
Other combination	-0.321 (0.244)	-0.567* (0.307)	-0.347** (0.175)	-0.403** (0.184)
Sector effects	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes
Constant	3.865*** (0.289)	3.934*** (0.200)	4.309*** (0.218)	4.428*** (0.147)

Table 4
(... continued)

	(1)	(2)	(3)	(4)
	Ln total labour hours		Ln total labour hours owner	
	Migrants, 15 years and less in the capital	All migrants	Migrants, 15 years and less in the capital	All migrants
R-squared	0.208	0.206	0.136	0.116
N	1116	2288	1116	2288

Notes: Robust standard errors in parentheses (clustered at the segment level).

* p<0.10, ** p<0.05, *** p<0.01

Source: 1-2-3 surveys, WAEMU, 2001/02.

Table 5
Family and kinship ties and household firm's use of physical capital and labour – effects disaggregated by gender

	(1)	(2)	(3)	(4)	(5)	(6)
	Ln total physical capital Migrants, 5 years and less in the capital		Ln total labour hours Migrants, 15 years and less in capital		Ln total hours owner Migrants, 15 years and less in capital	
	OLS	Tobit	OLS	All OLS	OLS	All OLS
Men						
Share same ethnic group	1.703*	1.990**	0.267	0.232*	0.142	0.101
	(0.896)	(0.926)	(0.179)	(0.138)	(0.117)	(0.093)
Share same origin	-6.305	-8.591	1.101	1.805***	1.002*	1.264**
	(5.521)	(5.892)	(0.825)	(0.683)	(0.579)	(0.497)
Ln distance to origin	0.340	0.364	0.052	0.045	0.021	0.014
	(0.238)	(0.240)	(0.044)	(0.035)	(0.034)	(0.026)
Years since migration	-0.075	-0.087	0.009	0.004	-0.002	-0.002
	(0.098)	(0.118)	(0.010)	(0.004)	(0.007)	(0.003)
Control variables	<i>See notes</i>	<i>See notes</i>	<i>See notes</i>	<i>See notes</i>	<i>See notes</i>	<i>See notes</i>
R-squared	0.233		0.183	0.178	0.142	0.119
N	184	184	573	1167	573	1167
Women						
Share same ethnic group	0.042	-0.048	0.362*	0.306**	0.320**	0.136
	(0.633)	(0.731)	(0.202)	(0.126)	(0.159)	(0.104)
Share same origin	3.692	4.315	1.681**	0.888	0.694	0.043
	(3.197)	(3.421)	(0.779)	(0.565)	(0.651)	(0.492)
Ln distance to origin	0.263	0.356*	0.126**	0.071**	0.085**	0.055**
	(0.191)	(0.203)	(0.052)	(0.035)	(0.042)	(0.028)
Years since migration	0.091	0.111	0.015*	0.006**	0.012	0.003
	(0.091)	(0.109)	(0.009)	(0.003)	(0.008)	(0.002)
Control variables	<i>See notes</i>	<i>See notes</i>	<i>See notes</i>	<i>See notes</i>	<i>See notes</i>	<i>See notes</i>
R-squared	0.220		0.156	0.170	0.092	0.079
N	186	186	543	1121	543	1121

Notes next page

Notes: Robust standard errors in parentheses (clustered at the segment level). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The regression controls for gender and age of the owner, the age of the firm, household size, ethnicity, the activity portfolio of the household and sector and country effects.

Source: 1-2-3 surveys, WAEMU, 2001/02.

Table 6
The effect of splitting
enterprises on transfers given (OLS)

	Transfers given
Ln value added	0.110*** (0.041)
Single firm	(Ref.)
Two firms	-0.373* (0.217)
More than two firms	-0.054 (0.493)
Control variables	<i>See notes</i>
<hr/>	
R-squared	0.130
N	1194

Notes: Robust standard errors in parentheses (clustered at the segment level).
 * p<0.10, ** p<0.05, *** p<0.01. The regression controls for gender and age of owner, household size, ethnicity, the activity portfolio of the household and country effects.

Source: 1-2-3 surveys, WAEMU, 2001/02.