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# The intertwined role of social and financial remittances in new firms' creation

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ABSTRACT

The paper investigates the role of financial and social remittances in promoting new business creation in migrants' home countries. By considering a panel of 143 countries during the period 2006–2018, we propose a way to operationalize the complex definition of social remittances and show that both financial and social remittances are positively correlated with the decision to create new firms, even though the effects of financial remittances crucially depend on the level of social remittances. This non-linear relationship points to the fact that countries with better institutions are likely to generate more intense flows of social remittances. However, they also allow for faster socio-economic integration of migrants and may weaken diasporas' interest and direct financial engagement in entrepreneurial projects in the country of origin. Results obtained on the entire sample are confirmed when looking at the two subsamples of developing and non-OECD countries, respectively.

## 1. Introduction

Over the last decades, the international business and economic literature have extensively discussed different aspects regarding the impact of financial remittances on receiving countries. Researchers have paid attention to less advanced and developing economies where financial remittances can provide resources that stimulate productive investments and business decisions, in addition to loosening family budget constraints (Yang, 2011; Vaaler, 2011; Naudé et al., 2017). Financial remittances have two main advantages compared to other funding sources: they represent stable flows over time and are suitable for smaller-scale investments and arrive at their destination with a substantial social component (Vaaler, 2011). Migrants, together with financial remittances, are likely to transfer ideas and behaviors that can potentially affect the entrepreneurial environment in migrant-sending countries. These intangible assets, which converge in the ample definition of "social remittances" first coined by Levitt (1998), can strengthen the impact of financial remittances because they help to stimulate new initiatives in the home country and, potentially, to bring entrepreneurship-related institutional changes too.

This last point deserves particular attention because it is part of a broader debate concerning the distinctive roles of financial and social remittances and their interaction effects. Unfortunately, a lot of grey areas emerge in this debate. Since its first coining, the notion of social remittances has covered a wide range of phenomena that make any attempt at operationalization difficult (Boccagni and Decimo, 2013). Therefore, apart from the discursive and anecdotal levels, the mechanisms by which social remittances affect home

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societies and interrelate with financial remittances are virtually unexplored, thereby generating uncertainty about the extent and sign of this interaction and about the most appropriate policies to adopt. In terms of the remittances-entrepreneurship nexus, this lack of empirical evidence means that there is no direct support for the distinctive impact of social remittances on the decision to create new businesses or on their interaction with financial remittances.

In this paper, we aim to fill this gap by implementing a model of entrepreneurship determinants where financial and social remittances are two distinct but also interrelated factors in new firms' creation. Besides social and financial remittances, the choice of the other determinants of new business creation is based on what the main literature suggests. We focus on the role of the institutional environment, which is attracting increasing interest among researchers, and suggests an extensive set of possible entrepreneurship determinants. In particular, we integrate our model with the five categories of variables suggested by Gnyawali and Fogel (1994).

Our analysis addresses four main objectives to which we connect four research hypotheses extensively discussed in the following Section. Given the gap in the current literature, our main objective is to explore the role of social remittances in the creation of new firms in migrants' countries of origin. We also want to understand if this type of remittance interacts with the financial resources that migrants send home. We assume that both financial and social remittances have a positive impact on new business creation (hypotheses H2 and H3, respectively, in the Literature section) and that the two types of remittances interact in the creation of new businesses. This implies that the effect of financial remittances might be fostered or moderated by increasing flows of social remittances (hypothesis H4 in the Literature section). As written above, one of our objectives is also to investigate if the quality of local institutions affects the birth of new businesses. We assume that higher institutional quality corresponds to greater entrepreneurial initiatives (hypothesis H1 in the Literature section).

The main challenge for this type of investigation is to obtain a reliable measure of social remittances, an obstacle that has prevented the empirical literature from dealing with this issue so far. We propose to focus on some specific dimensions of social remittances, given that taking into consideration the broad concept would be technically unfeasible. Our methodology to build the social remittances proxies relies on two main theoretical assumptions. The first comes from the literature on social remittances, which highlights how the quality of the host country's institutions and the degree of contamination with the local population can considerably impact the quality of ideas and norms that migrants send back home (Tuccio and Wahba, 2020). The second is related to the role of geographic communities. In this regard, Webb et al. (2009) have highlighted the potential of informal relationships that arise from belonging to ethnic or cultural groups, often referred to as clans.[1] What emerges is that collective migrant characteristics can have opposite effects on the impact of financial remittances on investment. On the one hand, geographically proximate migrant communities can amplify the effect of financial remittances because they benefit from reduced transaction costs and help spread the acquaintances related to their potential use more quickly. On the other hand, communities can stimulate the creation of business enclaves and networks in the host countries, thus reducing the interest of migrants in their country of origin (Webb et al., 2009).

Starting from these two assumptions, we built a set of proxies of social remittances that combine the quality of host countries' institutions with the role of migrant communities. We build a weighted average of alternative indicators of institutional quality in migrants' destination countries by assigning different weights to different host countries according to the size of the diaspora community from a specific origin country and living in each specific destination.

The empirical analysis involves a panel of 143 countries during 2006–2018, and it is conducted at both full- and sub-sample levels to check for the results' robustness. First, we split the entire sample into developed and developing countries to compare our results with the dominant literature on the relationship between financial remittances and entrepreneurship. Then, we also consider the distinction between OECD and non-OECD countries, which offers us a different perspective to observe the role of social remittances that is almost neglected in the literature. To conclude, we split financial remittances into their two components - personal transfers and compensation of employees - and run separate regressions at the full-sample level.

The rest of the paper is organized as follows. After reviewing the literature on financial remittances, social remittances, and entrepreneurship in Section 2, Section 3 sets out the theoretical underpinnings and the empirical strategy. Results are presented in Sections 4 and 5, whereas Section 6 concludes by highlighting limitations and suggestions for further research and offers also some policy implications.

## 2. Literature review

The relationship between financial remittances, social remittances, and entrepreneurship brings together different strands of research. The aim of this section is to explore the main directions of previous studies to highlight the literature gaps and derive our research hypotheses.

### *2.1. Entrepreneurship determinants and the role of institutions*

The first strand pertains to the vast literature about entrepreneurship, which cultivates two broad fields of study (Carlsson et al., 2013; Urbano et al., 2020). The first regards the impact of entrepreneurship on macroeconomic aggregates such as innovation, employment, growth, and development (see, among others, Bjørnskov and Foss, 2013). The second focuses on the determinants of

[1] At the same time, the impact of ethnic diversity on entrepreneurship has also been investigated with inconclusive evidence (see, for instance, Churchill, 2017). Yavuz and Bahadir (2022) in particular look at the moderating role of ethnic diversity on new business creation in developing countries, which anyway leads to a stronger positive impact of migrants' remittances on entrepreneurship. See Section 2 for additional details.

entrepreneurial activities and seeks to determine the conditions that can stimulate individual decisions to create a business (Thornton et al., 2011; Bjørnskov and Foss, 2008; Bjørnskov and Foss, 2016). In this respect, existing comparative studies point great attention to institutional factors[2] and highlight an extensive set of possible entrepreneurship determinants (Gnyawali and Fogel, 1994; Bjørnskov and Foss, 2008; Bedi et al., 2023; Urbano et al., 2020; Thornton et al., 2011; Corradini, 2022). The range of economic and legal institutions that can influence entrepreneurship includes, among others, the government size, the fiscal regime, the enforcement of property rights, the political freedom, the level of trust, corruption, and regulation (see, inter al., Bjørnskov and Foss, 2008, Ardagna and Lusardi, 2010). In a seminal paper, Gnyawali and Fogel (1994) suggest classifying institutional variables into five categories: government policies and procedures, social and economic factors, financial assistance, non-financial assistance, and entrepreneurial and business skills. Recently, Urbano et al. (2020) consider these five categories to study the role of institutional variables in boosting entrepreneurship in developing countries.

Taking into consideration the above literature, the first hypothesis proposed is:

**H1**. There is a positive relationship between the quality of institutions and entrepreneurship.

### 2.2. Financial remittances and entrepreneurship

The second strand of studies regards the extensive and consolidated literature about the economics of migration which looks at its impact on both sending and receiving countries.[3] The link between migration and entrepreneurship is a debated issue within this literature. Regarding countries of origin, even though some attention has been paid to returning migrants and diasporas (Bedi et al., 2023; Kenney et al., 2013; Kotabe et al., 2013; Liu et al., 2010; Mreji and Barnard, 2021; Naudé et al., 2017; Wang et al., 2011), empirical studies mainly focus on the role of financial remittances in stimulating new businesses.

Indeed, the role of financial remittances in funding entrepreneurial activities reached the top of many national and international agendas and represents a crucial issue in countries where remittances can relax credit and liquidity constraints and help the development of the private sector (Vaaler, 2011; Hanusch and Vaaler, 2015; Laniran and Olakunle, 2019; Ajide and Osinubi, 2022). However, empirical studies on the relationship between financial remittances and entrepreneurship have not provided unanimous evidence.

Most of the micro-level literature on development and migration argues that remittances are primarily used for consumption purposes to help households move out of poverty (Adams and Cuecuecha, 2013; Bertoli and Marchetta, 2014), to improve health conditions (Amuedo-Dorantes and Pozo, 2011), and to increase educational attainments (Ambler et al., 2015), whereas little is left to business investments. It is also argued that when financial remittances are channeled to finance entrepreneurship, their effectiveness strictly depends on the general environment at the destination and the types of business activities (Naudé et al., 2017; Brown, 1994; López-Córdova and Olmedo, 2006; Yang, 2011). Naudé et al. (2017) explicitly discuss the context-dependent nature of the relationship between financial remittances and entrepreneurship. Lianos and Pseiridis (2009) show that in the case of several Eastern European countries, the amount of financial remittances sent back while working abroad increases the propensity of returnees to become an employer rather than a self-employed person without employees.

A broader perspective has instead been adopted in studies correlating financial remittances with macroeconomic indicators, which support the existence of a channel through which remittances, by spurring investment, can promote growth (Lartey, 2013). In particular, Giuliano and Ruiz (2009), Bjuggren et al. (2010), and Lartey (2013) find that remittances positively impact investment. All these contributions also examine the interaction between remittances and financial development. Bjuggren et al. (2010) additionally consider the role of institutional quality stemming from the literature on growth-remittances nexus (Catrinescu et al., 2009; Bettin and Zazzaro, 2011; Piteli et al., 2019).

In what follows, we discuss a selection of empirical studies to outline the most relevant literature on the link between financial remittances and entrepreneurship at both single country and panel data levels.

At a single country level, the evidence is mixed. Earlier studies that support a positive correlation between financial remittances and entrepreneurial activities include Massey and Parado (1998) and Woodruff and Zenteno (2007) for Mexico, Funkhouser (1992) for Nicaragua, Acosta (2007) for El Salvador, Yang (2008) for The Philippines. Conversely, Amuedo-Dorantes and Pozo (2004), Vasco (2013), and Ang et al. (2009) do not find evidence supporting such a relationship for Dominican Republic, Ecuador, and The Philippines, respectively. More recently, empirical support to the link between financial remittances and entrepreneurship is provided by Devkota (2016) for Nepal, Kakhkharov (2018) for Uzbekistan, Kotorri et al. (2020) for Kosovo, Asiedu and Chimbar (2020) for Ghana.

The evidence is also mixed at the cross-country level, but most studies support the positive impact of financial remittances on business. Shapiro and Mandelman (2016) propose a small open economy business cycle model and show that financial remittances countercyclically moderate a reduction in households' consumption and are used to finance start-up costs of self-employment. Gautam (2017) demonstrates an association between financial remittances and lower regulatory requirements that becomes stronger in developing countries. Zheng and Musteen (2018) find that remittances' impact on necessity entrepreneurship is positive, whereas they negatively affect opportunity-driven entrepreneurship. Conversely, Bedi et al. (2023) demonstrate that financial remittances affect

[2] Besides entrepreneurship and growth (Acemoglu et al., 2001, 2002), the quality of institutions and political risk have been shown to affect several other non-strictly economic outcomes, such as energy efficiency (Khan et al., 2023) or $CO_2$ emissions (Khan et al., 2021).

[3] For a recent overview, see Koczan et al. (2021).

early-stage and opportunity-driven entrepreneurship but do not appear to influence necessity-driven entrepreneurs.

A further noteworthy contribution to this strand of literature comes from Vaaler and his co-authors (Vaaler, 2011; Vaaler, 2013; Hanusch and Vaaler, 2015; Martinez et al., 2015; Cummings et al., 2021). In general, they find that financial remittances positively impact entrepreneurship by stimulating the creation of new businesses or by facilitating venture funding access. They also look at the role of moderating terms, i.e., factors that can either magnify or diminish the impact of financial remittances on the outcome of interest. In this regard, the evidence is mixed. According to their results, the entrepreneurial use of financial remittances increases in the presence of the following circumstances: public sector constitutes a small share of the origin country's economy, migrants have low educational attainment (Vaaler, 2011), diasporas are geographically concentrated (Vaaler, 2013), access to capital declines (Hanusch and Vaaler, 2015), the informal sector is high (Martinez et al., 2015), countries share a Common law system (Cummings et al., 2021), and integration in the host country is complex (Cummings et al., 2021). Moreover, the entrepreneurial use of financial remittances is stronger for personal transfers rather than compensation of employees. This could be because "Established residents overseas may be in a better position to generate capital to fund new ventures back home" (Vaaler, 2011, p. 1145).

Additional evidence has been provided to support complementarities between financial remittances and other entrepreneurship determinants such as information and communication technologies (Asongu et al., 2019), foreign aid (Ajide and Osinubi, 2022), ethnic diversity (Yavuz and Bahadir, 2022) and economic complexity (Piras, 2023).

Ethnic diversity, in particular, has been found to increase the dependence on financial transfers from abroad for new business creation in migrants' home countries. According to Yavuz and Bahadir (2022), costs and risks associated with transactions across ethnic groups are higher in more diverse societies, as well as the likelihood of social conflicts, and all these factors make the reliance on migrants' remittances, which occur within the same ethnic group, more effective in stimulating new firm creation.

All in all, these results seem to support the triggering role of financial remittances in entrepreneurship but simultaneously highlight how contextual factors can strongly influence their effectiveness (Yang, 2011). In particular, the institutional environment appears to be of fundamental importance for developing countries to channel financial transfers into productive investments. In this regard, most attention is paid to the institutional environment of remittance recipient countries, whereas the role of migrants' host countries is nearly neglected.

In connection with the above discussion, the second hypothesis predicts that:

**H2.** Financial remittances positively impact entrepreneurship.

### *2.3. Financial remittances, social remittances, and entrepreneurship*

The third strand of literature deals with the impact of social remittances on migrant-sending countries. Migrants, together with financial remittances, are likely to transfer ideas and behaviors that can potentially affect the entrepreneurial environment of the home society (Vaaler, 2011). However, as anticipated in the Introduction, the influence of host country characteristics on the use of remittances in migrants' home countries has been overlooked by the empirical literature on the relationship between financial remittances and entrepreneurship. It follows that the mechanisms by which social remittances affect home countries and interrelate with financial transfers are virtually unexplored.

This gap conflicts with the importance that policymakers and scholars of various disciplines attach to this issue. According to Levitt (1998), for instance, host countries might be very important in explaining the types of attitudes and knowledge that migrants, in addition to money, can transfer to their home countries (Lacroix et al., 2016; Levitt and Lamba-Nieves, 2013). These intangible transfers are called social remittances, meaning "the ideas, behaviours, identities, and social capital that flow from receiving to sending country communities" (Levitt, 1998, p. 927). Social remittance exchanges take place not only when migrants return to live permanently in their home countries, but also when they pay a short visit to their family members back home and when non-migrants visit or meet migrants residing abroad. Communications between people also facilitate the transmission of social remittances thanks to the diffusion of ICT technologies and social networks. This broad concept of social remittances implies that migrants can share information at any time while staying in the destination country or when they are back home, irrespective of whether they are temporary or long-term migrants. Thanks to their exposure to a different institutional setting, they become conscious and unconscious vectors of knowledge, customs, and norms for the benefit of their community of origin. If migrants bear a personal interest, such as in the case of potential returnees, the transmission could be faster and more effective. However, the dissemination of social remittances cannot be limited to opportunistic motivations alone. Once knowledge is shared, its diffusion is an even more complex mechanism that encompasses migrants' family members, relatives, and friends up to involving the whole community.

Several studies lead support to Levitt's theory by providing a clear theoretical background for the assumption that migration facilitates the flows of economic knowledge, political and social norms from hosting to sending countries (Tuccio and Wahba, 2020). These studies also argue that the flow of social remittances inevitably affects the dissemination of ideas in migrants' home countries, the relationships between people, and the quality of local institutions.

As such, the flow of social remittances is also likely to affect recipient countries' entrepreneurial activities (Vaaler, 2011; Levitt, 1998). The literature highlights both direct and indirect mechanisms (cf., *inter al.*, Kshetri et al., 2015). Direct effects regard the dissemination of entrepreneurial skills, experience, ideas, technology, and knowledge migrants develop abroad. Indirect effects concern the potential of non-economic remittances to affect the entrepreneurship environment of recipient countries by strengthening formal and informal institutions and helping to bring entrepreneurship-related institutional changes. Based on the above definition of social remittances, both short- and long-term migrants can participate in this transfer of entrepreneurial knowledge and skills. Short-term workers, especially if they intend to open their own business at home, might have specific self-interested objectives in

assimilating new knowledge quickly and exploiting it once they return home. According to agency theory, shorter-term migrants are those who carry financial remittances with "more specific and self-interested terms to guide use in the home country" (Cummings et al., 2021: p. 11). However, compared to long-term migrants, they have less time to accumulate knowledge and skills. Conversely, long-term migrants, who are probably more altruistic when remitting, may have stronger interactions with local communities and institutions that can facilitate the accumulation of entrepreneurial knowledge and ideas to transfer home.

No empirical analysis has yet investigated the effects of non-economic remittances on entrepreneurship in migrants' home countries. The main obstacle is represented by the broadness of a concept that includes highly diversified phenomena (Boccagni and Decimo, 2013). Kshetri et al. (2015), for example, investigate the determinants of non-economic remittances and their contribution to entrepreneurship in Latin America and the Caribbean countries. However, they do not provide any empirical evidence but support their analysis with theories, observations, anecdotes, and best practices. Their conclusion is that non-economic remittances have a positive impact on entrepreneurship development. In particular, they claim that the level of exposure of migrants to entrepreneurship-related institutions, the degree of their assimilation in the host society, and the political orientation of destination countries towards immigrants may strengthen the diffusion of non-economic remittances and their impact.

With reference to this discussion, we posit that:

**H3**. Social remittances positively impact entrepreneurship.

Once the influence of non-economic remittances on doing business has been assessed, the interaction between social and financial remittances becomes a crucial issue. In this respect, Boccagni and Decimo (2013) maintain that, from a strictly economic perspective, it is reasonable to assume that the impact of financial inflows on local development depends on the relational circuits into which these flows are embedded. It means that all ideas and practices migrants transfer to their country of origin are likely to influence the impact of the financial resources they send back home (Boccagni and Decimo, 2013). At the same time, the diffusion of social remittances can be fostered by the material resources that migrants transfer to their families (Vari-Lavoisier, 2016). Furthermore, the interaction between financial and social remittances may depend on migrants' motivations to transfer financial resources. If migrants are mostly altruistic and not self-interest-motivated, then the impact of social remittances on entrepreneurship may be less significant. Conversely, when migrants have a direct (own business) or indirect interest (family business) in creating new businesses in their home country, social remittances easily interact with the financial ones and are more likely to impact the entrepreneurial sector. Anyway, as written above, the transmission of social remittances and their interaction with financial ones cannot be limited to self-interested motivations alone. Again, no direct empirical evidence exists to support these statements.

To sum up, the theoretical literature recognizes the impact of social remittances on entrepreneurship and their interaction with financial remittances. However, there is no empirical evidence that can confirm these hypotheses, and, above all, that can help to understand how the two types of remittances interact in business creation. Noteworthy exceptions are Vaaler (2011) and Cummings et al. (2021), discussed in the previous section, who offer some interesting insights. Vaaler (2011) estimates that the effect of financial remittances on venture funding is magnified when migrants live in highly concentrated communities abroad, but it is diminished when they have a high level of education. Cummings et al. (2021) find that only short-term migrants significantly contribute to creating new businesses in their home country via remittances, and this happens because they have strong ties and direct interests at home, where they often plan to return. Long-term migrants, on the other hand, are more likely to integrate into the host society, which becomes the main centre of their interests. Therefore, the venture founding effects of remittances decrease as the host country's receptiveness and inclusiveness let migrants assimilate more quickly. Concerning these issues, the next hypothesis is:

**H4**. Financial and social remittances interact in business creation.

**Table 1**
Literature's main findings, existing gaps and research hypotheses.

| Direction of previous studies | Literature gap | Research hypotheses |
|---|---|---|
| Institutional factors can affect the type and quantity of entrepreneurship (North, 1990; Thornton et al., 2011). Gnyawali and Fogel (1994) have suggested a conceptual framework to explore the role of the institutional environment. | Empirical explorations on Gnyawali and Fogel's (1994) institutional dimensions that influence entrepreneurship are still missing (Urbano et al., 2020). | H1: There is a positive relationship between the quality of institutions and entrepreneurship. |
| Financial remittances are likely to spur entrepreneurship, but contextual factors may amplify or moderate this impact ( Yang, 2011). | Empirical studies on the relationship between financial remittances and entrepreneurship have not provided unanimous evidence. | H2: Financial remittances positively impact entrepreneurship. |
| Migrants transfer "ideas, behaviors, identities, and social capital that flow from receiving to sending country communities" (Levitt, 1998). This flow of social remittances is likely to affect entrepreneurial activities in their home countries (Vaaler, 2011). | No empirical analysis has yet investigated the effects of non-economic remittances on entrepreneurship in migrants' home countries. | H3: Social remittances positively impact entrepreneurship. |
| All ideas and practices migrants transfer to their country of origin are likely to influence the impact of the financial resources they send back home (Boccagni and Decimo, 2013). | There is no empirical evidence that helps to understand how the two types of remittances interact in business creation. | H4: Financial and social remittances interact in business creation. |

### 2.4. Summary of the literature's main findings and existing gaps

The previous literature review explored the main lines of research driving our analysis. The aim of this short subsection is to summarise the overall picture and help highlight the main contributions of the present study. At this scope, Table 1 highlights the connections between our four research hypotheses, the direction of previous studies, and the literature's gaps.

## 3. Theoretical underpinnings and empirical strategy

### 3.1. Aim and general setting

This paper investigates the relationship between financial and social remittances and entrepreneurship in the form of new firms' creation in a panel of 143 countries for the 2006–2018 period. At this scope, given that no comprehensive proxies for social remittances have been proposed in the literature so far, we built a set of alternative indicators to capture the different dimensions of social remittances discussed in the literature (Tuccio and Wahba, 2020). Section 3.3.3 provides details on these proxies. Besides remittances, other determinants of starting new businesses are included in the empirical model based on the existing literature.

The analysis is conducted by considering the full sample of countries at our disposal and various sub-samples. First, we distinguish between developed and developing countries, to compare our results with the literature mentioned above regarding the link between financial remittances and (different aspects of) economic activity in developing countries. Then, we separate OECD and non-OECD countries. We believe that this distinction may convey additional insights compared to the distinction between developed and developing countries largely adopted by the literature. Indeed, there are non-OECD countries classified as developed economies where remittances still represent a large share of GDP such as Moldova, Albania, Montenegro, and Ukraine, where remittances are, on average, 22.89, 13.35, 10.12, and 5.37 % of GDP, respectively. In line with most of the evidence provided so far, we expect financial and social remittances to play a significant role in terms of new business creation in developing and non-OECD countries; conversely, we expect little or no contribution in developed and OECD countries.

Finally, based on the definition provided in the IMF Balance of Payment Statistics (International Monetary Fund, 2009), we split financial remittances into their two main components and run regressions at full-sample level. We separately consider *personal transfers* (current transfers in cash or in-kind between resident and non-resident households) and *compensation of employees* (the income of border, seasonal, and other short-term workers, who are employed in an economy where they are not resident, and of residents employed by non-resident entities). This distinction is rarely highlighted when working with remittance data, but it can become relevant with respect to our research objectives. According to the general framework presented in Section 2.3, these two components might have different effects on entrepreneurship and show different interaction strengths with social remittances. If so, alternative scenarios would emerge. On the one hand, personal transfers might be more important in spurring new firms' creation and may also have a stronger interaction with social remittances since they are mostly transferred by migrant workers who intend to reside abroad for a long period of time. As previously argued, by residing abroad migrant workers assimilate the host country's economic knowledge, political and social norms that can be transferred back to their origin countries. An opposite scenario based on agency theory would imply compensation of employees showing a higher impact on entrepreneurship and stronger interaction with social remittances. In this case, the personal interest of temporary workers would prevail over the time effect.

### 3.2. Methodological approach and empirical specification

Selecting the most appropriate empirical methodology is closely related to the nature of our dependent variable given by the new limited liability corporations registered in the calendar year. It is a discrete, non-negative variable whose distribution is extremely skewed to the left, with very high frequencies of small values. In this case, standard linear regression techniques would not be the appropriate method: even with a logarithmic transformation, the neglected heteroskedasticity is likely to induce a strong bias in the estimated elasticities (Santos Silva and Tenreyro, 2006). For this reason, we need to switch to count data models, and the most appropriate in our case is the negative binomial, which, differently from Poisson, allows for overdispersion in the data (Cameron and Trivedi, 1986, 2013).

A negative binomial parametrization is therefore applied to the following equation:

$$NF_{it} = exp(\alpha + \beta_1 FR_{it-1} + \beta_2 SR_{it-1} + \beta_3 (FR_{it-1} * SR_{it-1}) + \boldsymbol{x}'_{it-1}\gamma + \boldsymbol{z}'_{it-1}\delta + \mu_i + \tau_t + \varepsilon_{it}) \quad (1)$$

where the number of new firms in country $i$ and year $t$ ($NF_{it}$) is related to financial ($FR_{it-1}$) and social remittances ($SR_{it-1}$) received in country $i$ and year $t$-1 from country $i$'s diaspora abroad, to their interaction term ($FR_{it-1} * SR_{it-1}$), and two set of control variables, $\boldsymbol{x}'_{it-1}$ and $\boldsymbol{z}'_{it-1}$ (see below). Since we are dealing with panel data, both country ($\mu_i$) and time ($\tau_t$) fixed effects are included in our specification. Finally, $\alpha$ is a constant, and $\varepsilon_{it}$ represents the residual error term. We consider lagged values for the explanatory variables to cope with possible reverse causality issues regarding the decision to establish new firms.

As for the expected signs of estimated coefficients of the financial and social remittances, we need to specify two situations. First, ignoring the interaction term, on the basis of the prediction provided by investment decision theory (Laopodis, 2020) we expect $\beta_1 > 0$ and this is exactly what most cross-country studies showed. Briefly, the availability of additional financial resources in the form of financial remittances is likely to boost entrepreneurial activities in receiving countries. However, as previously discussed, the extant empirical literature has also provided contrasting evidence, with either a negative or a non-significant relationship ($\beta_1 \leq 0$) between

financial remittances and business creation, and this is what happens if migrant transfers are mainly used for consumption purposes. As far as social remittances are concerned, the theoretical literature reviewed in Section 2.3 argues that the flows of economic knowledge, and political and social norms can positively affect entrepreneurial attitudes in migrants' home countries, therefore, we expect that $\beta_2 > 0$. In this respect, as said above, the available empirical evidence is almost nil, and this is why one of the main aims of this paper is to verify this theoretical prediction empirically. Second, once the interaction term is considered, things become more ambiguous because the effect of financial remittances can be amplified or moderated by the level of social remittances. As a matter of fact, the sign on the interaction term between the two types of remittances ($\beta_3$) is, in principle, uncertain. On the one hand, we might think that social remittances are conducive to more effective financial remittances. The transfer of norms embedded in social remittances may entail entrepreneurial skills and/or better awareness of the importance of the economic initiative. On the other hand, as discussed in the Introduction, a negative sign may prevail if host countries with better social, political, and economic institutions are more receptive and inclusive with migrants and allow quicker integration. In this latter case, migrants' interests in home countries and entrepreneurial projects involving relatives and/or friends left behind are likely to weaken rapidly.

The estimation strategy is to estimate first a set of regressions where only financial and social remittances are included and then a second set of regressions, where the interaction term is also considered (Table 3). Then we move further by controlling for $\boldsymbol{x}'_{it-1}$ (Table 4) and, finally, we estimate the full model that comprises both $\boldsymbol{x}'_{it-1}$ and $\boldsymbol{z}'_{it-1}$ (Table 5).

Let us briefly explain and clarify the theoretical underpinnings behind the selection of the two sets of control variables $\boldsymbol{x}'_{it-1}$ and $\boldsymbol{z}'_{it-1}$. The choice has been driven by entrepreneurial, managerial, and economic theories.

As regards $\boldsymbol{x}'_{it-1}$, we include both GDP per capita (GDP) and GDP per capita growth rate (GDPGR). These are two macroeconomic variables: the former accounts for country i's economic development, the latter for its growth potential. The theoretical literature regarding the role of economic development in the creation of new firms has recently been summarised by Wennekers et al. (2010). Up to the 1970s, theoretical models predicted a linear inverse relationship between economic development and new firms' creation. Starting from the 1980s, new theoretical paradigms emerged, according to which the relationship between economic development and new firms' creation was U- or L-shaped, rather than negative. Based on these theoretical premises, there is not a unique role of economic development on entrepreneurship and new firms' creation, and we let our data speaking. Conversely, the role of GDP per capita growth in new firms' creation is undisputed. Different theories of economic growth, from the traditional neoclassical model to the more recent endogenous growth models, predict unanimously that higher growth is conductive of higher investments and new firms. In addition, also the business cycle theory confirms that in booming conditions, namely when GDP growth is high, business creation is stimulated due to good markets prospects (Sedláček and Sterk, 2017).

In addition, inside $\boldsymbol{x}'_{it-1}$ we consider two proxies for international openness: the intensity of trade (TRADE), measured as the sum of imports and exports over GDP, and the net inflows of foreign direct investments (FDI) over total population. As for the former, both traditional and new trade theories suggest that openness to trade benefits countries participating to trade (Grossman and Helpman, 1990; Romer, 1990; Young, 1991) and we expect new firms to increase with a country's degree of trade integration in the global economy. The role of FDI on new firms' birth is expected to be positive as long as FDI spur local entrepreneurs to start new businesses to supply intermediate goods and services to large multinational enterprises set up through investment from abroad (Lee et al., 2014; De Clercq et al., 2008). Yet, FDI might also have crowding out effects and impact negatively on new business creation. High-skilled individuals, who may found new ventures, are often hired by foreign firms that offer high wages, thus preventing them from becoming entrepreneurs (De Backer and Sleuwaegen, 2003). Based on these arguments and on previous empirical research (Pathack et al., 2015), we do not have any a priori hypothesis regarding the effect of FDI on new firms' creation.

Finally, to capture the cost of investing in entrepreneurial activity and thus its convenience, we include the real interest rate (RIR) into $\boldsymbol{x}'_{it-1}$. RIR[4] measure the cost of capital and higher real interest rates are unanimously expected to deter potential entrepreneurs from investing in new businesses (Laopodis, 2020).

As far as $\boldsymbol{z}'_{it-1}$ is concerned, we follow the pioneering work of Gnyawali and Fogel (1994) who develop a theoretical approach to the venture creation process and set up "a conceptual framework to integrate existing literature on entrepreneurship environment" (Gnyawali and Fogel, 1994, p. 44). These authors grouped the environmental conditions that drive entrepreneurial propensity into five categories: government policies and procedures, socioeconomic conditions, entrepreneurial and business skills, financial support, and non-financial support to create new businesses.[5] In this respect, North (1990, p. 6) claims that the main role of institutions "is to reduce uncertainty by establishing a stable structure to human interaction. The overall stability of an institutional framework makes complex exchange possible across both time and space". Institutional stability lowers transaction costs and, indirectly, increases the expected value of investment projects and new venture investments. The theoretical approach that stresses the paramount role of institutions on entrepreneurship has recently been applied by Urbano et al. (2020) to developing countries. Quite importantly, these authors observe that the "extant literature still lacks empirical explorations on Gnyawali and Fogel's (1994) dimensions that influence entrepreneurial activity" (Urbano et al., 2020, p. 1069).

We apply the taxonomy suggested by Gnyawali and Fogel's (1994) by including one proxy for each dimension. To account for government policies and procedures, we employ a score that measures how difficult it is to start a business in a country through the gap between its performance and the regulatory best practices worldwide (EDB). Socio-economic factors are captured by the human development index (HDI), a synthetic indicator of average achievements in three critical dimensions of human development: being

[4] The real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator.
[5] For further details, see the original work of Gnyawali and Fogel (1994).

knowledgeable, having a long and healthy life, and a decent standard of living. Entrepreneurial and business skills are proxied by the government expenditure in education (GEE) expressed as a share of GDP, which should represent an aggregate measure of each country's public investment in human capital. Financial assistance is measured by domestic credit to the private sector over GDP (CREDIT), whereas non-financial assistance is captured by an indicator for the control of corruption (CC).

### 3.3. Data description

We have an unbalanced panel that covers 13 years, from 2006 to 2018, and 143 countries: 99 are developing countries and 109 are non-OECD.[6] Both the length of the time period and the selection of countries are determined by the contemporaneous availability of data on the dependent variable and on our variables of interest, namely financial and social remittances. Sources and descriptive statistics of all the variables are reported in Table 2. In what follows, more details are provided for the dependent variable (Sections 3.3.1), financial remittances (Section 3.3.2), and social remittances (Section 3.3.3).

#### 3.3.1. Dependent variable

As anticipated, the dependent variable is given by the new limited liability companies registered in the private, formal sector calendar year.[7] It is collected directly from national-level company registrars by the World Bank. This is a discrete, non-negative variable whose distribution is extremely skewed to the left, with very high frequencies of small values, as depicted in Fig. 1.

For most countries, data are available for the period 2006–2018; for others, observations are missing for various years.[8]

#### 3.3.2. Financial remittances

Data on financial remittances come from the World Bank's World Development Indicators and are available for the entire period of analysis. The World Bank reports *personal remittances*, expressed in current US dollars, taking them from International Monetary Fund Balance of Payment (BoP) statistics. Personal remittances are the sum of two different items from the BoP: *personal transfers*, which are current transfers in cash or in-kind between resident and non-resident households, and *compensation of employees*, defined as the income of border, seasonal, and other short-term workers who are employed in an economy where they are not resident and of residents employed by non-resident entities.[9] We standardize financial remittances by country population and express them in real terms by dividing the variable by the GDP deflator to get real per capita financial remittances.

#### 3.3.3. Social remittances

As discussed above, no comprehensive proxy for social remittances is readily available. This gap was the main challenge for our research purposes. To address it, we build on two main assumptions. The first comes from the sociological literature on social remittances, according to which the flow of ideas and norms that migrants send back home depends on their exposure to high-quality institutions and the degree of their assimilation to the local population (Tuccio and Wahba, 2020). The second relates to the theory on geographic communities, which highlights the potential of concentrated ethnic groups to transfer ideas that can influence the entrepreneurial environment in the home countries and the impact of financial remittances on investment decisions (Webb et al., 2009). Starting from these assumptions, we build a set of indicators that combine the quality of institutions of host countries with the role of migrant communities; our measures of social remittances are weighted averages of alternative indicators of institutional quality in migrants' destination countries.

We start by focusing directly on the transfer of economic norms that may play the most relevant role in our analysis of the determinants of entrepreneurial activities. To this end, we consider the Economic Freedom Index (EFI), which the Heritage Foundation builds by considering ten specific freedoms: business freedom, trade freedom, fiscal freedom, freedom from government, monetary freedom, investment freedom, financial freedom, property rights, freedom from corruption and labor freedom. The overall index is built by weighting all these freedoms equally and ranges from 0 to 100, where 100 corresponds to the maximum economic freedom.

Then, we consider the Kof Globalisation Index (KGI) built by the Swiss Economic Institute, which includes the three dimensions of social remittances identified by Tuccio and Wahba (2020) in their recent review: economic, social, and political. The economic dimension of globalization refers to de facto trade and capital movements and includes customs duties, taxes, and restrictions on trade. The social dimension refers to interpersonal contacts, flows of information and freedom of the press, civil rights, and gender equality.

[6] See Table A1 in the Appendix for the list of countries and their classification.

[7] Though relevant for the growth and development processes, the exclusion of the informal sector is dictated by the difficulties of collecting data regarding the number of firms that operate informally. See Bennett (2010) for the theoretical analysis of the informal sector as a steppingstone to subsequent formal entrepreneurship and Laing et al. (2022) for the first empirical investigation on this issue.

[8] When no information on the dependent variable is available in a given year, the specific country-time observation is treated as missing and excluded from the estimation sample.

[9] According to BPM6 (International Monetary Fund, 2009), residency is defined as being in a country for more than one year; therefore, individuals (workers) going abroad for more than one year are considered residents in the host country. When these workers send remittances back home, such flows are recorded as personal transfers. Conversely, income received by nonresident individuals, such as border and seasonal workers, is classified as compensation of employees. Income received by workers who work for nonresident employers is also classified as compensation of employees. This is the case, for example, for workers employed in embassies and other international organizations who are residents and work in their home country and do not cross any border to go working. In some circumstances, these flows could substantially impact remittance data.

**Table 2**
Summary statistics and data sources.

| Variables | Obs | Mean | Std. dev. | Min | Max | Source |
|---|---|---|---|---|---|---|
| Dependente variable | | | | | | |
| NF | 1521 | 30,197.31 | 70,389.42 | 2 | 664,974 | WDI |
| Financial remittances | | | | | | |
| FR | 2081 | 2.21 | 3.62 | 0 | 40.18 | WDI<br>USDA ERS |
| FR(CE) | 1695 | 0.90 | 3.18 | 0 | 38.82 | WDI<br>USDA ERS |
| FR(PT) | 1695 | 1.66 | 2.24 | 0 | 15.84 | WDI<br>USDA ERS |
| Social remittances | | | | | | |
| SR_EFI | 2236 | 63.37 | 10.35 | 9.85 | 80.96 | HF |
| SR_KGI | 2236 | 70.97 | 11.85 | 12.43 | 87.63 | ETH Zurich |
| SR_KGIe | 2188 | 61.30 | 11.16 | 13.26 | 80.54 | ETH Zurich |
| SR_KGIp | 2188 | 81.55 | 12.54 | 10.45 | 96.66 | ETH Zurich |
| SR_KGIs | 2188 | 69.86 | 14.39 | 14.63 | 88.13 | ETH Zurich |
| Baseline controls | | | | | | |
| GDP | 2150 | 12,623.32 | 18,489.69 | 210.78 | 111,968.30 | WDI |
| GDPGR | 2156 | 2.26 | 4.18 | −47.59 | 38.71 | WDI |
| TRADE | 2019 | 89.70 | 50.51 | 0.17 | 437.33 | WDI |
| FDI | 2173 | 954.37 | 5065.89 | −61,833.04 | 87,507.69 | WDI |
| RIR | 1587 | 6.24 | 8.86 | −58.33 | 61.88 | WDI |
| Additional controls | | | | | | |
| EDB | 2061 | 76.40 | 16.68 | 2.21 | 99.98 | WB |
| HDI | 1998 | 0.69 | 0.15 | 0.29 | 0.95 | HDR |
| GEE | 1309 | 4.53 | 1.61 | 0.75 | 12.90 | WDI |
| CREDIT | 2094 | 50.37 | 41.16 | 0.50 | 308.98 | WDI |
| CC | 2181 | −0.07 | 0.99 | −1.73 | 2.47 | WB |

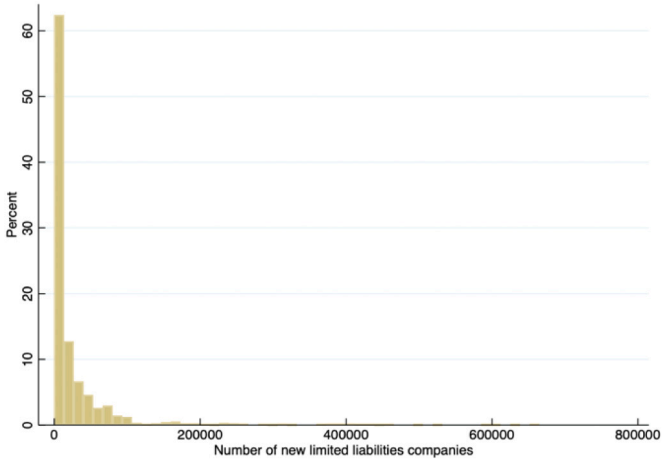


**Fig. 1.** Distribution of the number of new limited liabilities companies.

Political globalization regards membership of international organizations and international treaties. The index ranges from 1 to 100, with 100 corresponding to the highest level of globalization. To test the robustness of the proxy for social remittances based on this index, we alternatively consider the three dimensions included in the Kof Globalization Index separately, namely economic (KGIe), political (KGIp), and social (KPIs) globalization. We then build three alternative indicators for social remittances, which are introduced once at a time into the regressions. This way, we can detect whether a specific dimension may drive estimation results based on the KGI.

The EFI and KGI (and sub-indexes KGIe, KGIp, and KPIs) have been used to compute a weighted indicator of social remittances in country $i$ at time $t$ ($SR\_I_{it}$, where $I$ can be EFI, KGI, KGIe, KGIp or KGIs) according to the following equation:

$$SR\_I_{it} = \sum_{j=1}^{N} \omega_{ijt} I_{jt}$$

where $I_{jt}$ represents either the EFI or the KGI (or the sub-indexes KGIe, KGIp, and KPIs) of the destination country $j$ at time $t$ and the weights $\omega_{ijt}$ are the shares of the total stock of migrants from country $i$ living in country $j$ at time $t$.[10] In this way, we build on the hypotheses put forward by Webb et al. (2009) on the role of geographic communities and assign different weights to different host countries according to the size of the diaspora community living in that specific destination. Bigger migrant communities should have a stronger influence in transferring social remittances. If we take as an example Albania in 2018, its diaspora is highly concentrated: the first ten destinations account for almost 92 % of Albanians residing abroad (Italy 39.37 %, Greece 35.33 %, United States 8.22 %, Germany 4.22 %, Canada 1.36 %, United Kingdom 0.93 %, Belgium 0.91 %, France 0.61 %, Sweden 0.59 %, Turkey 0.37 %). This means that the value of social remittances with respect to the Economic Freedom Index (EFI) for Albania will be a weighted average of the value of the EFI Index for each destination of the Albanian diaspora, where the EFI Index value for Italy accounts for 39.37 %, the EFI Index value for Greece for 35.33 %, the EFI Index value for the US for 8.22 % and so on.

The dynamics of our proxies for social remittances are shown in Fig. 2. All indicators are relatively stable and persistent, with slight variation in sample averages over time. Between 2006 and 2018, the most significant increase is detected for social remittances computed on the KGIs (+11.2 %), whereas social remittances based on the EFI had the lowest growth rate (+2.7 %).

If we consider the three sub-components of the KGI, we can easily see from Fig. 2 that the highest values of social remittances are related to the political dimension (SR_KGIp), followed by the social (SR_KPIs) and the economic dimension (SR_KGIe). The latter, however, is broadly in line with social remittances based on the SR_EFI. Vanuatu and South Sudan are the countries in our sample with the lowest values in social remittances based, respectively, on SR_EFI (23.17 in 2006) and on SR_KGI (23.21 in 2010). On the other hand, Mexico (80.96 in the EFI-based measure in 2007) and Luxembourg (87.63 in the KGI-based measure in 2018) are the countries with the highest values.

## 4. Empirical results

### 4.1. Baseline regressions and regressions with main controls

The empirical analysis begins by estimating the baseline model which corresponds to the reduced form of the model in Eq. (1) where the controls $x'_{it-1}$ and $z'_{it-1}$ are temporarily excluded. Results are reported in Table 3. As the first step, we run separate regressions for each of the five indicators of social remittances without interaction terms between financial and social remittances (Table 3, panel A). Then we add them and compare the main outcomes (Table 3, panel B).

The results shown in Panel A of Table 3 (columns 1 to 5) provide no evidence that financial remittances might positively affect new firms' creation. If any, the link seems to be negative, although only in column 5 the estimated coefficient is barely statistically significant. On the contrary, when statistically significant, a positive association between social remittances and new firms' creation emerges for the weighted economic freedom index (SR_EFI) in column 1, for the weighted index of globalization (SR_KGI) in column 2, for the sub-index of political globalization (SR_KGIp) in column 4 and the sub-index of social globalization (SR_KPIs) in column 5. These results represent a significant contribution to the empirical literature since the positive role of social remittances in stimulating the entrepreneurial environment in migrants' home countries, widely debated at the theoretical level, had not yet received any empirical confirmation.

By including the interaction terms (Panel B, columns 6 to 10), interesting variations can be observed since the effect of financial remittances depends on the level of social remittances. The statistically significant positive coefficients associated with social remittances are confirmed for four out of five indicators, and the estimated coefficients for financial remittances are now positive and highly significant across all estimates. In addition, it is worth noticing that the interaction term coefficient ($\beta_3$) is negative and highly significant, thus pointing towards an inverse relationship between financial remittances and new firms' creation as long as the level of social remittances increases. We will discuss the implications of this result when showing the full model estimates.

Table 4 reports the results by including the main controls $x'_{it-1}$ defined above, with and without interaction terms. The overall result is twofold. On the one hand, the control variables, when significant, have the expected sign. On the other hand, the pattern of signs that identify the role of financial and social remittances is confirmed. Focusing on control variables, we find that GDPGR and TRADE are highly statistically significant, whereas GDP and FDI do not influence new firms' creation. The positive coefficients of both GDPGR and TRADE agree with theoretical predictions discussed in Section 3.2. Conversely, we do not find confirm of the positive role expected for FDI. As for GDP, the insignificant estimated coefficient indicates that there is no relationship between economic development and new firms' creation. In turn, this lends support to the hypothesis that our sample represents the horizontal stretch of the L-shaped relationship between economic development and new business creation.[11] Finally, as theoretically predicted, the estimated coefficient of the real interest rate is always negative, although barely significant. These results are confirmed independently of whether the interaction terms are included or not. Turning the attention to financial and social remittances alone, without their interaction, we find

[10] For each home country $i$, we consider the first ten host countries $j$.

[11] All results presented in Tables 4 and 5 are substantially identical even when the two variables GDPPC and GDPPCGR are introduced separately. Results are available upon request.

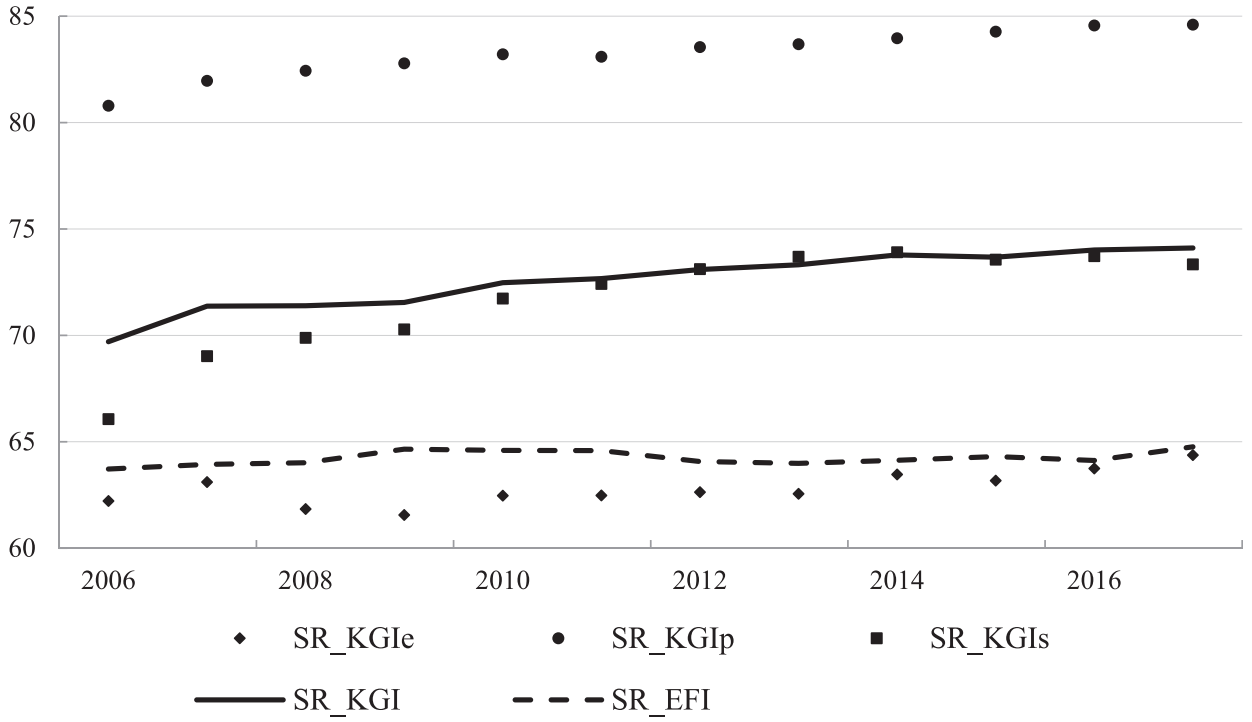


**Fig. 2.** Social remittance indicators, sample average 2006–2018.

that only social remittances show mostly positive, statistically significant coefficients (Panel A). Conversely, the inclusion of the interaction terms reveals the existence of a positive and significant correlation ($\beta_1 > 0$) between financial remittances and business creation that diminishes ($\beta_3 < 0$) as the level of social remittances increases.

All in all, the results reported in Tables 3 and 4 provide preliminary support for H3 and H4. As for H2, i.e. the positive role of financial remittances on entrepreneurship, validation only arises when social remittances and interaction terms are both included (Panels B). However, a full-fledged assessment of our hypotheses must be done for the full model in which both the main ($\boldsymbol{x}'_{it-1}$) and the additional ($\boldsymbol{z}'_{it-1}$) controls are included.

### 4.2. Results with main and additional controls (institutional variables)

Let us now consider the empirical model's full specification, which includes the five categories of institutional variables $\boldsymbol{z}'_{it-1}$ suggested by Gnyawali and Fogel (1994). Results are reported in Table 5.

The inclusion of the institutional variables confirms the general picture on the role of financial and social remittances and adds some significant determinants of new firms' creation.[12] As a matter of fact, financial remittances appear to bust new firms' creation when both social remittances and interaction terms are included (H2 conditionally accepted), social remittances positively influence the establishment of new firms (H3 accepted), financial and social remittances interact in business creation (H4 accepted). As regards the institutional variables, as a general result they confirm the expected theoretical signs: the easiness of doing business (EDB), the share of domestic credit by private banks over GDP (CREDIT), and the control of corruption (CC) have a crucial positive impact on $NF_{it}$. Conversely, the share of government expenditure on education over GDP (GEE) is not statistically different from zero, and the human development index (HDI) has a limited impact on the dependent variable. Overall, we can conclude that also H1 is confirmed.

In order to check whether results may differ according to the specific sample of countries included in our analysis, we estimate the full specification in Table 5 by restricting the sample in two alternative directions. We first excluded countries whose average total population over the entire time period is below the 10th percentile of the sample distribution. In this way, 13 small countries such as Dominica, St. Lucia and Tonga were excluded, due to their structural differences with respect to other larger countries considered in our analysis. Alternatively, we restrict the sample by excluding 32 countries whose average remittances-to-GDP ratio over the entire period is lower than 0.5 %, in order to focus on major recipients. Both exercises, reported in Tables A2 and A3 in the Appendix, provide results in line with our baseline estimates on the full sample and hence confirm our research hypotheses.

[12] As for the group of the main controls, regressions in Table 4 confirm the positive role of TRADE and GDPGR and the negative role of RIR.

**Table 3**
Personal remittances: baseline regressions.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Panel A | | | | | Panel B | | | | |
| FR | −0.0153 | −0.0139 | −0.0108 | −0.0130 | −0.0172* | 0.3529*** | 0.2978*** | 0.2460*** | 0.2358*** | 0.2401*** |
| | (0.0103) | (0.0101) | (0.0103) | (0.0101) | (0.0099) | (0.0732) | (0.0694) | (0.0620) | (0.0656) | (0.0674) |
| SR_EFI | 0.0283*** | | | | | 0.0454*** | | | | |
| | (0.0077) | | | | | (0.0087) | | | | |
| SR_KGI | | 0.0243** | | | | | 0.0324*** | | | |
| | | (0.0103) | | | | | (0.0073) | | | |
| SR_KGIe | | | −0.0024 | | | | | 0.0048 | | |
| | | | (0.0070) | | | | | (0.0073) | | |
| SR_KGIp | | | | 0.0170* | | | | | 0.0228*** | |
| | | | | (0.0089) | | | | | (0.0075) | |
| SR_KGIs | | | | | 0.0386*** | | | | | 0.0438*** |
| | | | | | (0.0095) | | | | | (0.0070) |
| (FR * SR_EFI) | | | | | | −0.0055*** | | | | |
| | | | | | | (0.0011) | | | | |
| (FR * SR_KGI) | | | | | | | −0.0041*** | | | |
| | | | | | | | (0.0009) | | | |
| (FR * SR_KGIe) | | | | | | | | −0.0039*** | | |
| | | | | | | | | (0.0009) | | |
| (FR * SR_KGIp) | | | | | | | | | −0.0029*** | |
| | | | | | | | | | (0.0007) | |
| (FR * SR_KGIs) | | | | | | | | | | −0.0035*** |
| | | | | | | | | | | (0.0009) |
| Observations | 1418 | 1418 | 1418 | 1418 | 1418 | 1418 | 1418 | 1418 | 1418 | 1418 |
| Pseudo R-sq | 0.176 | 0.176 | 0.175 | 0.175 | 0.177 | 0.178 | 0.176 | 0.176 | 0.176 | 0.177 |

**Table 4**
Personal remittances: baseline regressions with main controls.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Panel A | | | | | Panel B | | | | |
| FR | −0.0054 | −0.0040 | 0.0000 | −0.0031 | −0.0099 | 0.3593*** | 0.4217*** | 0.3635*** | 0.2846*** | 0.3881*** |
| | (0.0157) | (0.0153) | (0.0155) | (0.0153) | (0.0152) | (0.0868) | (0.1004) | (0.0955) | (0.0954) | (0.0946) |
| SR_EFI | 0.0328*** | | | | | 0.0509*** | | | | |
| | (0.0099) | | | | | (0.0109) | | | | |
| SR_KGI | | 0.0252** | | | | | 0.0390*** | | | |
| | | (0.0123) | | | | | (0.0081) | | | |
| SR_KGIe | | | −0.0055 | | | | | 0.0053 | | |
| | | | (0.0078) | | | | | (0.0088) | | |
| SR_KGIp | | | | 0.0182* | | | | | 0.0266*** | |
| | | | | (0.0106) | | | | | (0.0091) | |
| SR_KGIs | | | | | 0.0448*** | | | | | 0.0558*** |
| | | | | | (0.0129) | | | | | (0.0085) |
| (FR * SR_EFI) | | | | | | −0.0056*** | | | | |
| | | | | | | (0.0013) | | | | |
| (FR * SR_KGI) | | | | | | | −0.0059*** | | | |
| | | | | | | | (0.0014) | | | |
| (FR * SR_KGIe) | | | | | | | | −0.0058*** | | |
| | | | | | | | | (0.0015) | | |
| (FR * SR_KGIp) | | | | | | | | | −0.0035*** | |
| | | | | | | | | | (0.0011) | |
| (FR * SR_KGIs) | | | | | | | | | | −0.0056*** |
| | | | | | | | | | | (0.0013) |
| Main controls | | | | | | | | | | |
| GDP | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) |
| GDPGR | 0.0088*** | 0.0086*** | 0.0076** | 0.0085*** | 0.0095*** | 0.0075** | 0.0087*** | 0.0078** | 0.0088*** | 0.0089*** |
| | (0.0031) | (0.0031) | (0.0031) | (0.0032) | (0.0032) | (0.0031) | (0.0031) | (0.0031) | (0.0031) | (0.0033) |
| TRADE | 0.0058*** | 0.0060*** | 0.0059*** | 0.0060*** | 0.0062*** | 0.0057*** | 0.0059*** | 0.0060*** | 0.0059*** | 0.0059*** |
| | (0.0012) | (0.0012) | (0.0012) | (0.0012) | (0.0011) | (0.0011) | (0.0012) | (0.0012) | (0.0012) | (0.0011) |
| FDI | 0.0000 | 0.0000 | 0.0000 | 0.0000 | −0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | −0.0000 |
| | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) |
| RIR | −0.0029* | −0.0029* | −0.0023 | −0.0028 | −0.0032* | −0.0030* | −0.0036** | −0.0027 | −0.0031* | −0.0041** |
| | (0.0017) | (0.0018) | (0.0018) | (0.0018) | (0.0018) | (0.0017) | (0.0018) | (0.0018) | (0.0017) | (0.0018) |
| Observations | 986 | 986 | 986 | 986 | 986 | 986 | 986 | 986 | 986 | 986 |
| Pseudo R-sq | 0.188 | 0.187 | 0.186 | 0.187 | 0.189 | 0.189 | 0.188 | 0.187 | 0.187 | 0.190 |

**Table 5**
Personal remittances: baseline regressions with main and additional controls.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Panel A | | | | | Panel B | | | | |
| FR | 0.0069 | 0.0051 | 0.0111 | 0.0074 | −0.0059 | 0.2472*** | 0.3459*** | 0.2306** | 0.3376** | 0.3208*** |
| | (0.0136) | (0.0135) | (0.0138) | (0.0134) | (0.0133) | (0.0892) | (0.1332) | (0.1023) | (0.1446) | (0.1169) |
| SR_EFI | 0.0184* | | | | | 0.0318*** | | | | |
| | (0.0096) | | | | | (0.0121) | | | | |
| SR_KGI | | 0.0337** | | | | | 0.0285* | | | |
| | | (0.0148) | | | | | (0.0147) | | | |
| SR_KGIe | | | 0.0007 | | | | | 0.0045 | | |
| | | | (0.0111) | | | | | (0.0110) | | |
| SR_KGIp | | | | 0.0208 | | | | | 0.0144 | |
| | | | | (0.0146) | | | | | (0.0147) | |
| SR_KGIs | | | | | 0.0517*** | | | | | 0.0469*** |
| | | | | | (0.0110) | | | | | (0.0111) |
| (FR * SR_EFI) | | | | | | −0.0036*** | | | | |
| | | | | | | (0.0012) | | | | |
| (FR * SR_KGI) | | | | | | | −0.0045*** | | | |
| | | | | | | | (0.0017) | | | |
| (FR * SR_KGIe) | | | | | | | | −0.0034** | | |
| | | | | | | | | (0.0016) | | |
| (FR * SR_KGIp) | | | | | | | | | −0.0038** | |
| | | | | | | | | | (0.0016) | |
| (FR * SR_KGIs) | | | | | | | | | | −0.0043*** |
| | | | | | | | | | | (0.0015) |
| Main controls | | | | | | | | | | |
| GDP | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) |
| GDPGR | 0.0081** | 0.0089** | 0.0082** | 0.0088** | 0.0090** | 0.0070* | 0.0088** | 0.0085** | 0.0090** | 0.0083** |
| | (0.0040) | (0.0040) | (0.0040) | (0.0040) | (0.0040) | (0.0040) | (0.0041) | (0.0040) | (0.0040) | (0.0041) |
| TRADE | 0.0034** | 0.0038** | 0.0037** | 0.0037** | 0.0038** | 0.0035** | 0.0039** | 0.0039** | 0.0038** | 0.0038** |
| | (0.0015) | (0.0015) | (0.0015) | (0.0015) | (0.0015) | (0.0015) | (0.0016) | (0.0016) | (0.0015) | (0.0015) |
| FDI | −0.0000 | −0.0000 | −0.0000 | −0.0000 | −0.0000 | −0.0000 | −0.0000 | −0.0000 | −0.0000 | −0.0000 |
| | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) |
| RIR | −0.0063*** | −0.0063*** | −0.0060*** | −0.0061*** | −0.0064*** | −0.0059*** | −0.0058*** | −0.0057*** | −0.0057*** | −0.0059*** |
| | (0.0017) | (0.0017) | (0.0018) | (0.0017) | (0.0017) | (0.0017) | (0.0017) | (0.0018) | (0.0017) | (0.0017) |
| Additional controls | | | | | | | | | | |
| EDB | 0.0167*** | 0.0166*** | 0.0168*** | 0.0164*** | 0.0156*** | 0.0167*** | 0.0166*** | 0.0167*** | 0.0166*** | 0.0159*** |
| | (0.0028) | (0.0027) | (0.0028) | (0.0028) | (0.0026) | (0.0027) | (0.0027) | (0.0027) | (0.0028) | (0.0027) |
| HDI | 3.5303* | 2.6367 | 3.8039** | 3.1799* | 1.2668 | 3.4754* | 2.8938 | 3.7636** | 3.4760* | 1.5342 |
| | (1.8349) | (2.0077) | (1.9358) | (1.8726) | (2.0142) | (1.8059) | (1.9826) | (1.9086) | (1.8624) | (1.9920) |
| GEE | 0.0113 | 0.0050 | 0.0069 | 0.0080 | −0.0034 | 0.0108 | 0.0014 | 0.0015 | 0.0078 | −0.0071 |
| | (0.0265) | (0.0256) | (0.0262) | (0.0259) | (0.0246) | (0.0262) | (0.0252) | (0.0261) | (0.0255) | (0.0243) |
| CREDIT | 0.0031*** | 0.0030*** | 0.0033*** | 0.0031*** | 0.0027*** | 0.0029*** | 0.0025*** | 0.0029*** | 0.0029*** | 0.0021*** |
| | (0.0007) | (0.0007) | (0.0007) | (0.0007) | (0.0007) | (0.0007) | (0.0007) | (0.0007) | (0.0007) | (0.0007) |
| CC | 0.2542*** | 0.2650*** | 0.2861*** | 0.2755*** | 0.2541*** | 0.2395*** | 0.2895*** | 0.2904*** | 0.3028*** | 0.2807*** |
| | (0.0861) | (0.0945) | (0.0949) | (0.0933) | (0.0942) | (0.0822) | (0.0955) | (0.0934) | (0.0948) | (0.0958) |
| Observations | 594 | 594 | 594 | 594 | 594 | 594 | 594 | 594 | 594 | 594 |
| Pseudo R-sq | 0.198 | 0.197 | 0.197 | 0.197 | 0.199 | 0.198 | 0.198 | 0.197 | 0.198 | 0.200 |

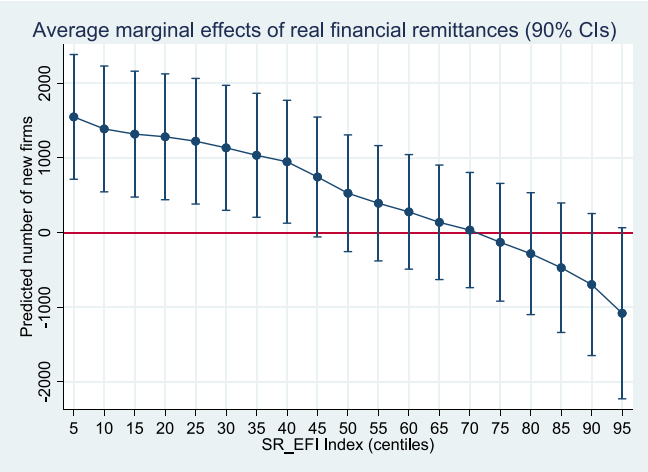


**Fig. 3.** Average marginal effect of real financial remittances on new firms' creation for different centiles of social remittances (based on SR_EFI index).

### *4.3. Marginal effects of financial remittances*

All results presented so far (Tables 3, 4 and 5) confirm that the role of financial and social remittances is intertwined: on the one hand, the former becomes positive and statistically significant when the two kinds of remittances interact; on the other hand, the coefficients on the interaction terms are negative and statistically significant most of the time. A better grasp of this intertwined effect can be seen in Figs. 3 and 4. These figures, based on the estimates for the full model presented in Table 5, report the (non-linear) average marginal effects of financial remittances on new firms' creation at different centiles of the distribution of the five proxies used to capture social remittances (continuous line), with the vertical bars representing the 90 % confidence interval.

Fig. 3 shows a statistically significant positive effect of financial remittances on new firms' creation up to about the 40th centile of social remittances (measured by SR_EFI). The effect then becomes statistically insignificant. In our sample of countries, this would imply that at the 5th centile of SR_EFI, an increase of real per capita financial remittances by one dollar would increase the number of new firms by 1551, at the 10th centile the number of new firms would increase by 1389, at the 15th centile the number of new firms would increase by 1320 and so on until 949 new firms at the 40th centile. After that, the average marginal effect of financial remittances becomes statistically insignificant. Although with different magnitudes, Fig. 4 presents similar qualitative results by considering the distribution of the alternative indicators for social remittances.

To sum up, financial remittances are positively and significantly correlated with the decision to create new firms until social remittances reach a certain threshold level, which changes depending on the specific index considered. According to our premises (see Section 3.1), this result suggests that when host countries with better institutions allow for faster socio-economic integration, migrants' linkages with their origin countries, along with entrepreneurial projects involving new firms' creation, are likely to weaken. Hence, one might conceive that, whereas the flow of social remittances is likely to intensify with migrants' integration in host countries, the transfers of norms and habits might influence and/or divert the use of financial remittances towards other scopes such as, for example, investments in education and human capital.

## 5. Additional results

In this section, we discuss further results. First, we conduct a sub-sample analysis; second, we split total financial remittances into its two components: personal transfers and compensation of employees.

### *5.1. Sub-sample analysis*

Columns 1 to 5 of Table 6 report the regressions for developing countries, columns 6 to 10 show the results for developed countries. Fig. 5 depicts this differentiated behaviour for the two sub-samples showing the average marginal effect measured by SR_EFI.[13]

As we can see, in the sub-sample of developing countries, the pattern of the average marginal effects of financial remittances closely resembles the one observed for the full sample. The marginal effect is positive and significant up to the median level of social remittances; no significant effect is detected after that. Conversely, developed countries do not benefit from any significant positive correlation between financial remittances and new businesses creation, irrespective of the level of social remittances. Results are very

[13] Similar results available upon request are also obtained with the indicator for social remittances based on SR_KGI, SR_KGIe, SR_KGIp and SR_KPIs.

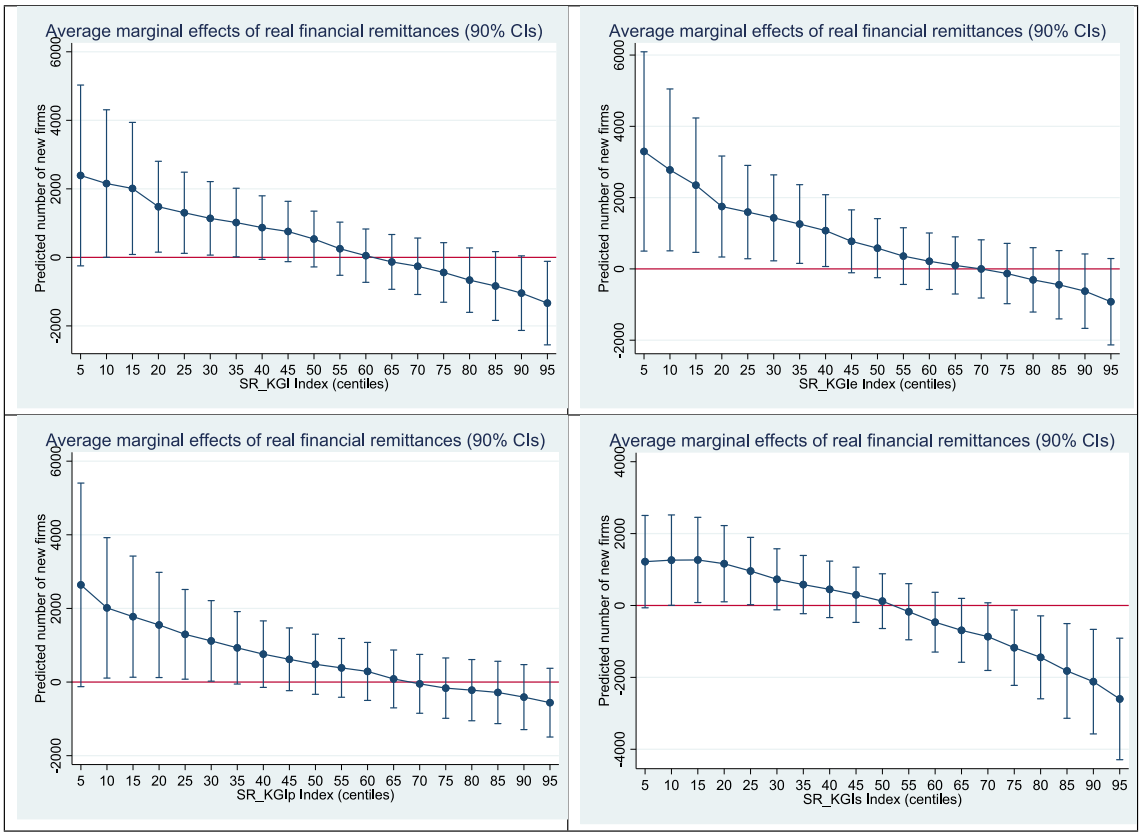


**Fig. 4.** Average marginal effect of real financial remittances on new firms' creation for different centiles of social remittances (SR_KGI, SR_KGIe, SR_KGIp and SR_KGIs indexes).

similar if we follow a different classification and separate low- and middle-income (developing) countries, on one hand, and high-income (developing + developed) countries, on the other hand (see Table A4 in the Appendix A).

In a further test, we split the sample between non-OECD and OECD countries. For non-OECD countries (Table 7, columns 1 to 5), results are very similar to those for developing countries reported in Table 6.

The coefficients of financial remittances are always positive and statistically significant, as well as most of the coefficients associated with the different proxies of social remittances. The interaction terms are always negative and highly significant, except for column 3. At first sight, results for OECD countries (columns 6–10) present a less clear-cut picture, possibly due to the small number of observations. In particular, we observe more ambiguous results regarding social remittances, whereas the interaction terms are negative and statistically significant in three out of five specifications, in line with previous results.

Fig. 6 depicts the different behaviour in the two sub-samples by showing the average marginal effect of financial remittances at different centiles of the social remittance's distribution measured by SR_EFI.[14] For non-OECD countries, the positive and significant role of financial remittances is confirmed up to the 65th centile, whereas above that threshold, the marginal effect on new firms' creation is no longer significant. On the contrary, a statistically significant negative role of financial remittances above the 20th centile of the social remittance distribution emerges for OECD countries.

### 5.2. *Personal transfers and compensation of employees*

As a final step of our analysis, given the quite different nature of the two components of personal remittances, we separately consider the role of personal transfers, FR(PT), and compensation of employees, FR(CE), in new firms' creation. Table 8 reports the results.

Real personal transfers turn out statistically significant in all specifications except in column 3. Furthermore, results shown in columns 2 and 5 confirm the signs and significance of SR_KGI and SR_KGIs indexes of social remittances. On the contrary, in columns 1, 3 and 4 SR_EFI, SR_KGIe and SR_KGIp are not statistically significant. Results get weaker when looking at compensation of employees, in terms of both financial transfers and social remittances. These findings are in line with previous literature stating that the

[14] Similar results available upon request are obtained also with the other indicator of social remittances.

**Table 6**
Personal remittances: baseline regressions with main and additional controls (developing and developed countries).

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Developing countries | | | | | Developed countries | | | | |
| FR | 0.1898** | 0.3476** | 0.2653** | 0.3489** | 0.2946** | −0.3005 | 0.6170 | −0.0776 | 0.3874 | 1.0574*** |
| | (0.0864) | (0.1388) | (0.1044) | (0.1454) | (0.1279) | (0.2493) | (0.4658) | (0.2613) | (0.6494) | (0.3122) |
| SR_EFI | 0.0425** | | | | | −0.0289 | | | | |
| | (0.0172) | | | | | (0.0223) | | | | |
| SR_KGI | | 0.0284* | | | | | 0.0192 | | | |
| | | (0.0165) | | | | | (0.0592) | | | |
| SR_KGIe | | | 0.0060 | | | | | −0.0098 | | |
| | | | (0.0123) | | | | | (0.0302) | | |
| SR_KGIp | | | | 0.0086 | | | | | 0.0110 | |
| | | | | (0.0171) | | | | | (0.0421) | |
| SR_KGIs | | | | | 0.0498*** | | | | | 0.0028 |
| | | | | | (0.0120) | | | | | (0.0369) |
| (FR * SR_EFI) | −0.0025** | | | | | 0.0042 | | | | |
| | (0.0012) | | | | | (0.0037) | | | | |
| (FR * SR_KGI) | | −0.0045** | | | | | −0.0078 | | | |
| | | (0.0018) | | | | | (0.0058) | | | |
| (FR * SR_KGIe) | | | −0.0039** | | | | | 0.0009 | | |
| | | | (0.0016) | | | | | (0.0037) | | |
| (FR * SR_KGIp) | | | | −0.0038** | | | | | −0.0044 | |
| | | | | (0.0016) | | | | | (0.0071) | |
| (FR * SR_KGIs) | | | | | −0.0040** | | | | | −0.0133*** |
| | | | | | (0.0017) | | | | | (0.0039) |
| Main controls | | | | | | | | | | |
| GDP | −0.0000 | −0.0000 | −0.0000 | −0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) |
| GDPGR | 0.0090** | 0.0106** | 0.0106** | 0.0107** | 0.0100** | 0.0023 | −0.0011 | 0.0005 | 0.0004 | −0.0054 |
| | (0.0046) | (0.0046) | (0.0046) | (0.0045) | (0.0045) | (0.0069) | (0.0066) | (0.0067) | (0.0065) | (0.0064) |
| TRADE | 0.0038** | 0.0046*** | 0.0048*** | 0.0046** | 0.0044** | 0.0032 | 0.0027 | 0.0029 | 0.0029 | 0.0027 |
| | (0.0019) | (0.0018) | (0.0018) | (0.0018) | (0.0018) | (0.0026) | (0.0026) | (0.0025) | (0.0026) | (0.0026) |
| FDI | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | −0.0000 | −0.0000 | −0.0000 | −0.0000 | −0.0000 |
| | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) |
| RIR | −0.0066*** | −0.0064*** | −0.0063*** | −0.0063*** | −0.0066*** | −0.0061* | −0.0069** | −0.0066** | −0.0069** | −0.0063* |
| | (0.0020) | (0.0020) | (0.0021) | (0.0020) | (0.0020) | (0.0032) | (0.0033) | (0.0032) | (0.0032) | (0.0034) |
| Additional controls | | | | | | | | | | |
| EDB | 0.0158*** | 0.0163*** | 0.0164*** | 0.0162*** | 0.0158*** | 0.0203*** | 0.0211*** | 0.0211*** | 0.0207*** | 0.0257*** |
| | (0.0030) | (0.0030) | (0.0030) | (0.0031) | (0.0029) | (0.0046) | (0.0056) | (0.0050) | (0.0047) | (0.0056) |
| HDI | 1.3393 | 1.8860 | 2.6568 | 2.5820 | 0.4514 | −1.9056 | −1.0761 | −1.4388 | −1.3274 | 0.0907 |
| | (2.6826) | (2.7829) | (2.7036) | (2.6135) | (2.8173) | (3.1960) | (3.2856) | (3.2532) | (3.2834) | (3.3754) |
| GEE | −0.0025 | −0.0187 | −0.0209 | −0.0136 | −0.0265 | 0.1082** | 0.0908** | 0.0996** | 0.0944** | 0.1054** |
| | (0.0309) | (0.0284) | (0.0290) | (0.0292) | (0.0276) | (0.0462) | (0.0463) | (0.0480) | (0.0461) | (0.0448) |
| CREDIT | 0.0064*** | 0.0069*** | 0.0069*** | 0.0066*** | 0.0075*** | 0.0020*** | 0.0012 | 0.0018** | 0.0017** | 0.0004 |
| | (0.0025) | (0.0025) | (0.0026) | (0.0025) | (0.0024) | (0.0007) | (0.0008) | (0.0007) | (0.0007) | (0.0008) |
| CC | 0.1970** | 0.2690** | 0.2693** | 0.2867** | 0.2479** | 0.2948** | 0.3078** | 0.2722* | 0.2918** | 0.3191** |
| | (0.0954) | (0.1143) | (0.1102) | (0.1128) | (0.1166) | (0.1280) | (0.1376) | (0.1405) | (0.1412) | (0.1285) |
| Observations | 418 | 418 | 418 | 418 | 418 | 176 | 176 | 176 | 176 | 176 |
| Pseudo R-sq | 0.201 | 0.200 | 0.199 | 0.199 | 0.202 | 0.185 | 0.185 | 0.185 | 0.185 | 0.188 |

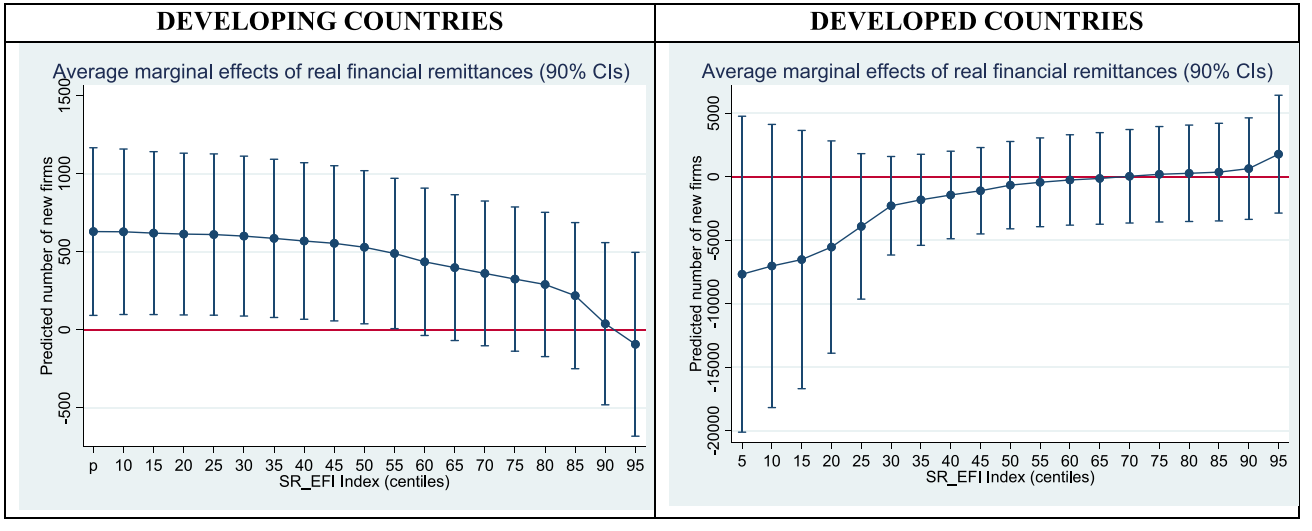


**Fig. 5.** Average marginal effect of real financial remittances on new firms' creation for different levels of social remittances (based on SR_EFI index): developed and developing countries.

**Table 7**
Personal remittances: baseline regressions with main and additional controls (NON-OECD and OECD countries).

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Non-OECD countries | | | | | OECD countries | | | | |
| FR | 0.2720*** | 0.2645** | 0.1703* | 0.2877** | 0.2539** | 0.4904 | 3.5646*** | 0.5090 | 5.5841*** | 3.1898*** |
| | (0.0904) | (0.1270) | (0.1014) | (0.1327) | (0.1182) | (1.2483) | (1.1105) | (0.6241) | (1.6110) | (0.8746) |
| SR_EFI | 0.0361*** | | | | | −0.1500*** | | | | |
| | (0.0125) | | | | | (0.0355) | | | | |
| SR_KGI | | 0.0389** | | | | | 0.1879*** | | | |
| | | (0.0154) | | | | | (0.0615) | | | |
| SR_KGIe | | | 0.0095 | | | | | 0.0460* | | |
| | | | (0.0117) | | | | | (0.0243) | | |
| SR_KGIp | | | | 0.0184 | | | | | 0.1091 | |
| | | | | (0.0155) | | | | | (0.0785) | |
| SR_KGIs | | | | | 0.0555*** | | | | | 0.1379** |
| | | | | | (0.0114) | | | | | (0.0654) |
| (FR * SR_EFI) | −0.0038*** | | | | | −0.0088 | | | | |
| | (0.0013) | | | | | (0.0172) | | | | |
| (FR * SR_KGI) | | −0.0033** | | | | | −0.0447*** | | | |
| | | (0.0016) | | | | | (0.0133) | | | |
| (FR * SR_KGIe) | | | −0.0023 | | | | | −0.0093 | | |
| | | | (0.0016) | | | | | (0.0084) | | |
| (FR * SR_KGIp) | | | | −0.0031** | | | | | −0.0625*** | |
| | | | | (0.0015) | | | | | (0.0175) | |
| (FR * SR_KGIs) | | | | | −0.0034** | | | | | −0.0394*** |
| | | | | | (0.0015) | | | | | (0.0103) |
| Main controls | | | | | | | | | | |
| GDP | −0.0000 | −0.0000 | −0.0000 | −0.0000 | 0.0000 | 0.0000 | −0.0000 | −0.0000 | −0.0000 | −0.0000 |
| | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) |
| GDPGR | 0.0086** | 0.0108** | 0.0105** | 0.0109** | 0.0104** | −0.0086 | −0.0155 | −0.0172 | −0.0097 | −0.0214** |
| | (0.0044) | (0.0043) | (0.0043) | (0.0043) | (0.0043) | (0.0102) | (0.0108) | (0.0112) | (0.0103) | (0.0104) |
| TRADE | 0.0032* | 0.0036** | 0.0036** | 0.0035** | 0.0035** | 0.0078** | 0.0059* | 0.0046 | 0.0075** | 0.0074** |
| | (0.0016) | (0.0016) | (0.0016) | (0.0016) | (0.0016) | (0.0031) | (0.0033) | (0.0035) | (0.0030) | (0.0032) |
| FDI | 0.0000 | 0.0000 | −0.0000 | 0.0000 | −0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) |
| RIR | −0.0069*** | −0.0070*** | −0.0068*** | −0.0068*** | −0.0071*** | 0.0045 | 0.0064 | 0.0091 | 0.0026 | 0.0094 |
| | (0.0018) | (0.0018) | (0.0018) | (0.0017) | (0.0018) | (0.0086) | (0.0079) | (0.0082) | (0.0085) | (0.0080) |
| Additional controls | | | | | | | | | | |
| EDB | 0.0167*** | 0.0166*** | 0.0168*** | 0.0165*** | 0.0158*** | 0.0166** | 0.0170** | 0.0195** | 0.0201** | 0.0110 |
| | (0.0028) | (0.0027) | (0.0028) | (0.0028) | (0.0027) | (0.0082) | (0.0079) | (0.0084) | (0.0081) | (0.0083) |
| HDI | 2.8998 | 2.1055 | 3.0593 | 2.7909 | 0.8427 | 12.9039*** | 25.3997*** | 23.5483*** | 22.4825*** | 22.1006*** |
| | (2.2874) | (2.4753) | (2.4046) | (2.3305) | (2.4881) | (4.9450) | (5.1592) | (5.0511) | (5.2969) | (4.7657) |
| GEE | −0.0029 | −0.0131 | −0.0123 | −0.0068 | −0.0223 | 0.0561 | 0.0195 | 0.0287 | −0.0033 | 0.0205 |
| | (0.0273) | (0.0259) | (0.0268) | (0.0264) | (0.0249) | (0.0774) | (0.0854) | (0.0872) | (0.0809) | (0.0856) |
| CREDIT | 0.0053*** | 0.0056*** | 0.0058*** | 0.0055*** | 0.0060*** | 0.0023*** | 0.0006 | 0.0019*** | 0.0020*** | −0.0010 |
| | (0.0020) | (0.0019) | (0.0020) | (0.0019) | (0.0018) | (0.0006) | (0.0008) | (0.0006) | (0.0007) | (0.0010) |
| CC | 0.2876*** | 0.3346*** | 0.3317*** | 0.3527*** | 0.3324*** | 0.0889 | 0.0669 | 0.0784 | −0.0027 | 0.0874 |
| | (0.0915) | (0.1088) | (0.1052) | (0.1064) | (0.1105) | (0.1812) | (0.2006) | (0.1979) | (0.2029) | (0.1936) |
| Observations | 480 | 480 | 480 | 480 | 480 | 114 | 114 | 114 | 114 | 114 |
| Pseudo R-sq | 0.201 | 0.201 | 0.200 | 0.200 | 0.203 | 0.190 | 0.187 | 0.184 | 0.188 | 0.188 |

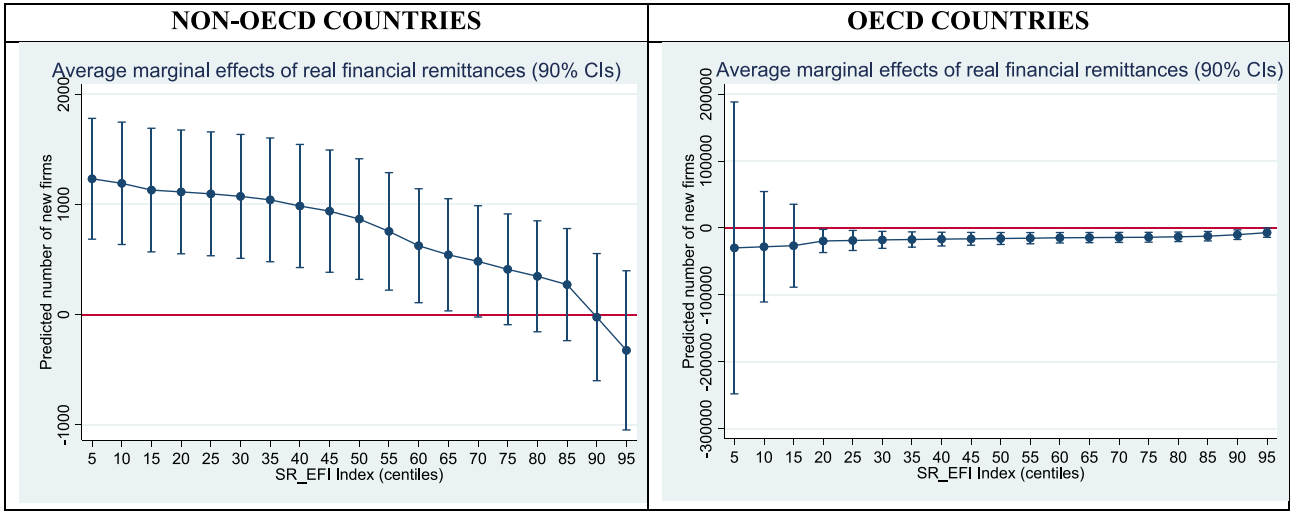


**Fig. 6.** Average marginal effect of real financial remittances on new firms' creation for different levels of social remittances (based on SR_EFI index): OECD and non-OECD countries.

**Table 8**
Personal remittances: baseline regressions with main and additional controls (personal transfers versus compensation of employees).

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Personal transfers | | | | | Compensation of employees | | | | |
| FR(PT) | 0.1997* | 0.4015** | 0.0450 | 0.4801** | 0.4257*** | | | | | |
| | (0.1079) | (0.1977) | (0.1737) | (0.2330) | (0.1418) | | | | | |
| FR(CE) | | | | | | 0.4802** | 0.2967 | 0.2769 | 0.3581 | −0.0097 |
| | | | | | | (0.2279) | (0.3659) | (0.2378) | (0.6422) | (0.3119) |
| SR_EFI | 0.0105 | | | | | 0.0152* | | | | |
| | (0.0083) | | | | | (0.0082) | | | | |
| SR_KGI | | 0.0298* | | | | | 0.0338** | | | |
| | | (0.0168) | | | | | (0.0168) | | | |
| SR_KGIe | | | 0.0042 | | | | | 0.0074 | | |
| | | | (0.0114) | | | | | (0.0107) | 0.0091 | |
| SR_KGIp | | | | 0.0056 | | | | | (0.0163) | |
| | | | | (0.0167) | | | | | | |
| SR_KGIs | | | | | 0.0480*** | | | | | 0.0522*** |
| | | | | | (0.0139) | | | | | (0.0137) |
| (FR * SR_EFI) | −0.0023 | | | | | −0.0087** | | | | |
| | (0.0014) | | | | | (0.0035) | | | | |
| (FR * SR_KGI) | | −0.0049* | | | | | −0.0048 | | | |
| | | (0.0026) | | | | | (0.0047) | | | |
| (FR * SR_KGIe) | | | −0.0001 | | | | | −0.0054 | | |
| | | | (0.0026) | | | | | (0.0036) | | |
| (FR * SR_KGIp) | | | | −0.0051* | | | | | −0.0049 | |
| | | | | (0.0026) | | | | | (0.0072) | |
| (FR * SR_KGIs) | | | | | −0.0056*** | | | | | −0.0010 |
| | | | | | (0.0019) | | | | | (0.0039) |
| Main controls | | | | | | | | | | |
| GDP | −0.0000** | −0.0000* | −0.0000** | −0.0000** | −0.0000 | −0.0000* | −0.0000 | −0.0000* | −0.0000* | −0.0000 |
| | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) |
| GDPGR | 0.0061 | 0.0071 | 0.0073* | 0.0070 | 0.0068 | 0.0076* | 0.0082* | 0.0083* | 0.0080* | 0.0083* |
| | (0.0044) | (0.0044) | (0.0044) | (0.0044) | (0.0044) | (0.0044) | (0.0045) | (0.0044) | (0.0044) | (0.0045) |
| TRADE | 0.0048** | 0.0049** | 0.0047** | 0.0049*** | 0.0047** | 0.0054*** | 0.0054*** | 0.0056*** | 0.0054*** | 0.0051*** |
| | (0.0019) | (0.0019) | (0.0019) | (0.0019) | (0.0019) | (0.0019) | (0.0020) | (0.0020) | (0.0020) | (0.0019) |
| FDI | −0.0000 | −0.0000 | −0.0000 | −0.0000 | −0.0000 | −0.0000 | −0.0000 | −0.0000 | −0.0000 | −0.0000 |
| | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) |
| RIR | −0.0074*** | −0.0076*** | −0.0075*** | −0.0072*** | −0.0080*** | −0.0079*** | −0.0083*** | −0.0078*** | −0.0079*** | −0.0088*** |
| | (0.0021) | (0.0020) | (0.0020) | (0.0020) | (0.0020) | (0.0020) | (0.0020) | (0.0020) | (0.0020) | (0.0020) |
| Additional controls | | | | | | | | | | |
| EDB | 0.0166*** | 0.0164*** | 0.0167*** | 0.0163*** | 0.0156*** | 0.0166*** | 0.0170*** | 0.0170*** | 0.0169*** | 0.0160*** |
| | (0.0028) | (0.0028) | (0.0028) | (0.0029) | (0.0028) | (0.0028) | (0.0028) | (0.0028) | (0.0029) | (0.0028) |
| HDI | 3.4449* | 2.6775 | 3.1424* | 3.6588** | 1.3511 | 3.0100* | 2.0177 | 3.1045* | 3.1776* | 0.4982 |
| | (1.8091) | (1.8723) | (1.8148) | (1.7268) | (2.0206) | (1.8286) | (1.8560) | (1.7637) | (1.7149) | (2.0281) |
| GEE | 0.0150 | 0.0068 | 0.0162 | 0.0128 | −0.0062 | 0.0153 | 0.0088 | 0.0129 | 0.0158 | −0.0031 |
| | (0.0261) | (0.0255) | (0.0265) | (0.0254) | (0.0243) | (0.0258) | (0.0258) | (0.0260) | (0.0258) | (0.0250) |
| CREDIT | 0.0029*** | 0.0029*** | 0.0029*** | 0.0030*** | 0.0027*** | 0.0017** | 0.0017** | 0.0018** | 0.0022*** | 0.0016** |
| | (0.0007) | (0.0007) | (0.0007) | (0.0007) | (0.0007) | (0.0007) | (0.0008) | (0.0008) | (0.0007) | (0.0008) |
| CC | 0.2401*** | 0.2479*** | 0.2668*** | 0.2631*** | 0.2582*** | 0.1816** | 0.1968** | 0.2053** | 0.2051** | 0.2091** |
| | (0.0833) | (0.0828) | (0.0824) | (0.0832) | (0.0848) | (0.0842) | (0.0833) | (0.0822) | (0.0833) | (0.0858) |
| Observations | 505 | 505 | 505 | 505 | 505 | 505 | 505 | 505 | 505 | 505 |
| Pseudo R-sq | 0.207 | 0.207 | 0.207 | 0.207 | 0.209 | 0.208 | 0.207 | 0.207 | 0.207 | 0.209 |

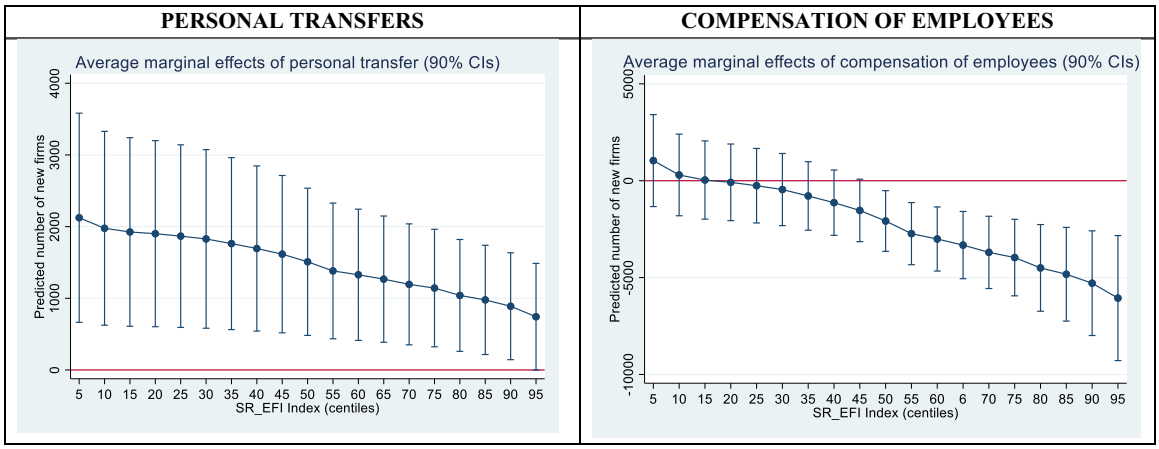


**Fig. 7.** Average marginal effect of real financial remittances on new firms' creation for different levels of social remittances (based on SR_EFI index): personal transfers and compensation of employees.

entrepreneurial use of financial remittances is stronger when migrants transfer their personal transfers because (Vaaler, 2011).

In Fig. 7 we show the average marginal effects of personal transfers and compensation of employees for different levels of social remittances measured by the SR_EFI index.[15] What emerges is that, while personal transfers boost new firms' creation basically overall the centiles of social remittances distribution, the marginal effect associated with the compensation of employees is negative and significant above the median level of social remittances. Such results reflect these two components' very different origins, which bear different implications in terms of motivations that spur workers to remit.

## 6. Conclusions and policy implications

### *6.1. Main findings, limitations, and suggestions for further research*

In this paper, we investigate the role of both financial and social remittances in the process of new firms' creation in migrants' home countries. We contribute to the existing literature in several respects. First, we propose a way to operationalize the complex definition of social remittances by computing them as averages of specific institutional characteristics of migrants' host countries weighted by the size of the diaspora communities in each destination. To the best of our knowledge, this is the first paper that builds an ad hoc measure of social remittances and tests whether it conforms with theoretical expectations. In addition, we improve on the existing literature by jointly considering financial and social remittances as entrepreneurship determinants and by taking their interactions into account.

Results show that, when jointly considered, both financial and social remittances are positively and significantly correlated with the decision to create new firms, but the effects of financial remittances crucially depend on the level of social remittances. After social remittances reach a certain threshold level, financial transfers do not stimulate firms' creation. As discussed above, we maintain that on the one hand, host countries with better institutions are likely to generate more intense flows of social remittances; on the other hand, they allow for faster integration of migrants in their social fabric, and this may weaken diasporas' interest in entrepreneurial projects involving new firms' creation in origin countries. This interpretation of our results regards the entire sample of 143 countries and extends to the two subsamples of developing and non-OECD countries.

Despite being the major novelty of this study, the proxy for social remittances has its own shortcomings, which could certainly be addressed by future research on the topic. The increasing availability of big data on communications and social connections, for example, would make it possible to build different sets of weighs, which are not limited to the size of the diaspora community in a specific destination country but somehow take into account the size of transnational information flows. More extensive high-quality data on business demographics worldwide would also allow to explore the relationship between financial and social remittances and different components of business creation, namely necessity vs. opportunity entrepreneurship.

### *6.2. Policy implications*

International agencies have long provided policy advice to countries with a significant share of their population living abroad in order to maximize the potential gains from financial remittances and channel them into entrepreneurship. These goals could be generally pursued by increasing competition among remittance service providers, helping migrants compare costs across different providers, and facilitating mobile technologies that can reduce transaction costs (Koczan et al., 2021). Lowering costs is considered a necessary step to maximize the productive impact of remittances (Olivié and Santillán O'Shea, 2022; Piras, 2023). Other channels

[15] Similar results available upon request are obtained also with the other indicator of social remittances.

through which policy interventions could play a positive role are tax exemptions for remittance income, such as those recently introduced by Pakistan in 2021, and different types of economic incentives to attract diaspora investments (Ratha, 2003, 2007; Dhanani and Lee, 2013), irrespective of specific return plans.

What our paper highlights is that financial inflows alone may not significantly stimulate new firms' creation unless coupled with transfers of social and institutional norms, economic knowledge, and entrepreneurial attitude. Engaging the diaspora abroad to actively contribute to their home country's development should be a priority for the governments, particularly in developing and non-OECD countries (Gevorkyan, 2022). As discussed in Section 2.3, both short- and long-term migrants can participate in the transfer of entrepreneurial knowledge and skills. Long-term migrants, in particular, may have stronger interactions with host countries' local communities and institutions that can facilitate the accumulation of entrepreneurial knowledge and ideas to transfer home. The gradual weakening over time of migrants' interests in their country of origin, however, is likely to moderate the entrepreneurial potential of remittances at best and make their contribution insignificant in the worst-case scenario. In this respect, hometown associations, diaspora organizations, national agencies and ministries might help maintain strong long-term transnational connections and effectively bridge links between aspiring entrepreneurs in migrants' sending countries and the diaspora of nationals living permanently abroad, which could be beneficial for creating new businesses. New transnational Fintech actors such as online crowdfunding platforms may also contribute directly to institutional changes in developing countries by leveraging expertise and knowledge and by promoting the engagement of other private, public and third-sector actors (e.g. multinational companies, multilateral organizations, NGOs, microfinance institutions) to create a more supporting environment for entrepreneurship.

## Data availability

Data will be made available on request.

*Acknowledgments*

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## Appendix A

**Table A1**
List of countries.

| Developing countries | | | Developed countries | |
|---|---|---|---|---|
| Afghanistan | Iran | Sao Tome and Principe | Albania | Serbia |
| Algeria | Iraq | Saudi Arabia | Australia[a] | Slovakia[a] |
| Antigua and Barbuda | Jamaica | Senegal | Austria[a] | Slovenia[a] |
| Argentina | Jordan | Seychelles | Belarus | Spain[a] |
| Armenia | Kazakhstan | Sierra Leone | Belgium[a] | Sweden[a] |
| Azerbaijan | Kenya | Singapore | Bosnia and Herzegovina | Switzerland[a] |
| Bangladesh | Kiribati | South Africa | Bulgaria | Ukraine |
| Belize | Kuwait | South Sudan | Canada[a] | United Kingdom[a] |
| Benin | Kyrgyzstan | Sri Lanka | Croatia | |
| Bhutan | Laos | St Lucia | Cyprus | |
| Bolivia | Lesotho | St Vincent and Grenadine | Denmark[a] | |
| Botswana | Liberia | Suriname | Estonia[a] | |
| Brazil | Madagascar | Tajikistan | Finland[a] | |
| Burkina Faso | Malawi | Tanzania | France[a] | |
| Cambodia | Malaysia | Thailand | Germany[a] | |
| Cape Verde | Maldives | Timor-Leste | Greece[a] | |
| Chad | Mali | Togo | Hungary[a] | |
| Chile[a] | Mauritania | Tonga | Iceland[a] | |
| Colombia | Mauritius | Tunisia | Ireland[a] | |
| Comoros | Mexico[a] | Turkey[a] | Israel[a] | |
| Congo, Dem. Rep. | Mongolia | Uganda | Italy[a] | |
| Costa Rica | Morocco | Uruguay | Japan[a] | |
| Cote d'Ivoire | Myanmar | Uzbekistan | Korea, Rep.[a] | |
| Dominica | Namibia | Vanuatu | Latvia[a] | |
| Dominican Republic | Nepal | Vietnam | Lithuania[a] | |
| El Salvador | Niger | Zambia | Luxembourg[a] | |
| Ethiopia | Nigeria | Zimbabwe | Malta | |
| Gabon | Oman | | Moldova | |

(*continued on next page*)

**Table A1** (*continued*)

| Developing countries | | Developed countries |
|---|---|---|
| Georgia | Pakistan | Montenegro |
| Ghana | Panama | Netherlands[a] |
| Grenada | Paraguay | New Zealand[a] |
| Guatemala | Peru | Norway[a] |
| Guinea | Philippines | Poland[a] |
| Haiti | Qatar | Portugal[a] |
| India | Rwanda | Romania |
| Indonesia | Samoa | Russia |

Sources: United Nations Conference on Trade and Development and OECD.
[a] OECD member.

**Table A2**
Additional robustness checks: removing small countries.

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| FR | 0.2330** | 0.3793*** | 0.2456** | 0.3188** | 0.3813*** |
| | [0.0944] | [0.1438] | [0.1034] | [0.1522] | [0.1345] |
| SR_EFI | 0.0321** | | | | |
| | [0.0129] | | | | |
| SR_KGI | | 0.0315** | | | |
| | | [0.0150] | | | |
| SR_KGIe | | | 0.0056 | | |
| | | | [0.0111] | | |
| SR_KGIp | | | | 0.0205 | |
| | | | | [0.0154] | |
| SR_KGIs | | | | | 0.0475*** |
| | | | | | [0.0113] |
| (FR * SR_EFI) | −0.0035*** | | | | |
| | [0.0013] | | | | |
| (FR * SR_KGI) | | −0.0050*** | | | |
| | | [0.0019] | | | |
| (FR * SR_KGIe) | | | −0.0038** | | |
| | | | [0.0016] | | |
| (FR * SR_KGIp) | | | | −0.0036** | |
| | | | | [0.0017] | |
| (FR * SR_KGIs) | | | | | −0.0052*** |
| | | | | | [0.0017] |
| Main controls | | | | | |
| GDP | 0.0071* | 0.0090** | 0.0088** | 0.0092** | 0.0084** |
| | [0.0042] | [0.0042] | [0.0042] | [0.0042] | [0.0042] |
| GDPGR | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] |
| TRADE | 0.0031* | 0.0033** | 0.0035** | 0.0033** | 0.0032** |
| | [0.0016] | [0.0016] | [0.0016] | [0.0016] | [0.0016] |
| FDI | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] |
| RIR | −0.0061*** | −0.0060*** | −0.0059*** | −0.0060*** | −0.0062*** |
| | [0.0017] | [0.0018] | [0.0018] | [0.0017] | [0.0018] |
| Additional controls | | | | | |
| EDB | 0.0161*** | 0.0161*** | 0.0161*** | 0.0159*** | 0.0155*** |
| | [0.0028] | [0.0028] | [0.0028] | [0.0028] | [0.0027] |
| HDI | 3.5288* | 2.473 | 3.7006* | 3.0689 | 0.9667 |
| | [1.9481] | [2.1449] | [2.0664] | [2.0307] | [2.1530] |
| GEE | −0.0043 | −0.0135 | −0.0143 | −0.0059 | −0.021 |
| | [0.0277] | [0.0265] | [0.0276] | [0.0270] | [0.0256] |
| CREDIT | 0.0052*** | 0.0054*** | 0.0056*** | 0.0055*** | 0.0054*** |
| | [0.0018] | [0.0017] | [0.0018] | [0.0017] | [0.0017] |
| CC | 0.2507*** | 0.3110*** | 0.3098*** | 0.3191*** | 0.3056*** |
| | [0.0894] | [0.1081] | [0.1031] | [0.1087] | [0.1081] |
| Observations | 545 | 545 | 545 | 545 | 545 |
| Pseudo R-sq | 0.188 | 0.188 | 0.187 | 0.188 | 0.190 |

Note: estimation sample includes all countries listed in Table A1 with the exception of Antigua and Barbuda, Belize, Dominica, Grenada, Iceland, Kiribati, Samoa, Sao Tomè and Principe, Seychelles, St. Lucia, St. Vincent and the Grenadines, Tonga and Vanuatu.

**Table A3**
Additional robustness checks: removing low recipient countries.

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| FR | 0.3348*** | 0.4457** | 0.2122 | 0.5181** | 0.3675** |
| | [0.1174] | [0.1979] | [0.1356] | [0.2631] | [0.1679] |
| SR_EFI | 0.0420*** | | | | |
| | [0.0140] | | | | |
| SR_KGI | | 0.0431** | | | |
| | | [0.0175] | | | |
| SR_KGIe | | | 0.0098 | | |
| | | | [0.0143] | | |
| SR_KGIp | | | | 0.0237 | |
| | | | | [0.0171] | |
| SR_KGIs | | | | | 0.0553*** |
| | | | | | [0.0128] |
| (FR * SR_EFI) | −0.0048*** | | | | |
| | [0.0016] | | | | |
| (FR * SR_KGI) | | −0.0058** | | | |
| | | [0.0026] | | | |
| (FR * SR_KGIe) | | | −0.0031 | | |
| | | | [0.0020] | | |
| (FR * SR_KGIp) | | | | −0.0058** | |
| | | | | [0.0029] | |
| (FR * SR_KGIs) | | | | | −0.0049** |
| | | | | | [0.0022] |
| Main controls | | | | | |
| GDP | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] |
| GDPGR | 0.0058 | 0.0088* | 0.0086* | 0.0089* | 0.0081* |
| | [0.0048] | [0.0048] | [0.0047] | [0.0047] | [0.0047] |
| TRADE | 0.0035* | 0.0039** | 0.0038** | 0.0040** | 0.0037** |
| | [0.0018] | [0.0019] | [0.0019] | [0.0019] | [0.0019] |
| FDI | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] |
| RIR | −0.0060** | −0.0058** | −0.0053** | −0.0056** | −0.0063*** |
| | [0.0024] | [0.0025] | [0.0025] | [0.0024] | [0.0024] |
| Additional controls | | | | | |
| EDB | 0.0179*** | 0.0175*** | 0.0178*** | 0.0173*** | 0.0167*** |
| | [0.0029] | [0.0028] | [0.0029] | [0.0029] | [0.0028] |
| HDI | 3.0759 | 2.3642 | 3.4498 | 3.4218 | 1.0681 |
| | [2.6479] | [3.0217] | [2.9606] | [2.8473] | [2.9990] |
| GEE | 0.0121 | −0.0025 | 0.0048 | 0.0087 | −0.0108 |
| | [0.0311] | [0.0296] | [0.0315] | [0.0300] | [0.0287] |
| CREDIT | 0.0024*** | 0.0020** | 0.0023** | 0.0024** | 0.0016 |
| | [0.0009] | [0.0009] | [0.0010] | [0.0009] | [0.0010] |
| CC | 0.3318*** | 0.3814*** | 0.4142*** | 0.4076*** | 0.3781*** |
| | [0.0964] | [0.1110] | [0.1125] | [0.1085] | [0.1110] |
| Observations | 451 | 451 | 451 | 451 | 451 |
| Pseudo R-sq | 0.186 | 0.185 | 0.184 | 0.185 | 0.187 |

Note: estimation sample includes all countries listed in Table A1 with the exception of Argentina, Australia, Botswana, Brazil, Canada, Chile, Congo, Denmark, Finland, Gabon, Germany, Iran, Iraq, Ireland, Israel, Italy, Japan, Kazakhstan, Kuwait, Maldives, Namibia, Netherlands, New Zealand, Norway, Oman, Russia, Saudi Arabia, South Africa, Spain, Tanzania, Turkey, Zambia.

**Table A4**
Personal remittances: baseline regressions with main and additional controls (high-income and low- and middle-income countries).

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Low- and middle-income (developing) countries | | | | | High-income (developing and developed) countries | | | | |
| FR | 0.2484** | 0.4414** | 0.151 | 0.4544* | 0.4650** | 0.0118 | −0.0219 | 0.1555 | 0.0577 | −0.2245** |
| | [0.1243] | [0.2060] | [0.1391] | [0.2750] | [0.1812] | [0.1438] | [0.1325] | [0.1735] | [0.1345] | [0.0944] |
| SR_EFI | 0.0314** | | | | | 0.0167 | | | | |
| | [0.0149] | | | | | [0.0197] | | | | |
| SR_KGI | | 0.0253 | | | | | 0.0610* | | | |
| | | [0.0175] | | | | | [0.0311] | | | |
| SR_KGIe | | | 0.0012 | | | | | −0.0124 | | |
| | | | [0.0135] | | | | | [0.0253] | | |
| SR_KGIp | | | | 0.0088 | | | | | 0.0471* | |
| | | | | [0.0179] | | | | | [0.0253] | |
| SR_KGIs | | | | | 0.0410*** | | | | | 0.1203*** |
| | | | | | [0.0128] | | | | | [0.0214] |
| (FR * SR_EFI) | −0.0036** | | | | | 0.0002 | | | | |
| | [0.0017] | | | | | [0.0025] | | | | |
| (FR * SR_KGI) | | −0.0058** | | | | | 0.0007 | | | |
| | | [0.0027] | | | | | [0.0020] | | | |
| (FR * SR_KGIe) | | | −0.0023 | | | | | −0.002 | | |
| | | | [0.0021] | | | | | [0.0028] | | |
| (FR * SR_KGIp) | | | | −0.0051* | | | | | −0.0005 | |
| | | | | [0.0031] | | | | | [0.0018] | |
| (FR * SR_KGIs) | | | | | −0.0062*** | | | | | 0.0040*** |
| | | | | | [0.0023] | | | | | [0.0015] |
| Main controls | | | | | | | | | | |
| GDP | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001*** | 0.0001*** | 0.0001** | 0.0001*** | 0.0001*** |
| | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] |
| GDPGR | 0.0072 | 0.0088* | 0.0090* | 0.0092* | 0.0079 | 0.0061 | 0.0049 | 0.0089 | 0.0067 | 0.0037 |
| | [0.0051] | [0.0051] | [0.0051] | [0.0050] | [0.0051] | [0.0067] | [0.0064] | [0.0069] | [0.0063] | [0.0058] |
| TRADE | 0.0034 | 0.0038* | 0.0036* | 0.0037* | 0.0037* | 0.0033* | 0.0032* | 0.0034* | 0.0035* | 0.0030* |
| | [0.0021] | [0.0021] | [0.0021] | [0.0021] | [0.0021] | [0.0019] | [0.0018] | [0.0018] | [0.0019] | [0.0018] |
| FDI | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] |
| RIR | −0.0064*** | −0.0062** | −0.0059** | −0.0061** | −0.0065*** | −0.0034 | −0.004 | −0.0028 | −0.0044* | −0.0026 |
| | [0.0024] | [0.0025] | [0.0025] | [0.0025] | [0.0024] | [0.0025] | [0.0025] | [0.0025] | [0.0024] | [0.0023] |
| Additional controls | | | | | | | | | | |
| EDB | 0.0163*** | 0.0165*** | 0.0164*** | 0.0165*** | 0.0162*** | 0.0236*** | 0.0245*** | 0.0206*** | 0.0225*** | 0.0278*** |
| | [0.0029] | [0.0029] | [0.0029] | [0.0030] | [0.0029] | [0.0064] | [0.0060] | [0.0062] | [0.0062] | [0.0055] |
| HDI | 3.26 | 2.4478 | 3.5226 | 3.2627 | 0.8073 | −1.2214 | −1.9694 | −0.1986 | −0.7448 | −4.8595** |
| | [2.0579] | [2.2454] | [2.1466] | [2.0954] | [2.2893] | [2.4575] | [2.5950] | [2.7617] | [2.5476] | [2.2489] |
| GEE | 0.0179 | 0.0081 | 0.0186 | 0.0183 | −0.003 | −0.0535 | −0.0344 | −0.0615 | −0.0302 | −0.0242 |
| | [0.0329] | [0.0316] | [0.0336] | [0.0322] | [0.0300] | [0.0391] | [0.0409] | [0.0407] | [0.0404] | [0.0365] |
| CREDIT | 0.0023*** | 0.0020*** | 0.0024*** | 0.0025*** | 0.0014** | 0.0093*** | 0.0103*** | 0.0094*** | 0.0099*** | 0.0105*** |
| | [0.0007] | [0.0007] | [0.0007] | [0.0007] | [0.0007] | [0.0028] | [0.0024] | [0.0031] | [0.0024] | [0.0018] |
| CC | 0.3842*** | 0.4342*** | 0.4582*** | 0.4559*** | 0.4343*** | −0.1444 | −0.1088 | −0.1669 | −0.092 | −0.1003 |
| | [0.1056] | [0.1269] | [0.1287] | [0.1262] | [0.1245] | [0.1158] | [0.1089] | [0.1118] | [0.1187] | [0.0947] |
| Observations | 459 | 459 | 459 | 459 | 459 | 135 | 135 | 135 | 135 | 135 |
| Pseudo R-sq | 0.197 | 0.197 | 0.196 | 0.196 | 0.198 | 0.223 | 0.225 | 0.223 | 0.224 | 0.232 |

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