Journal of World Business xxx (2016) xxx–xxx

Contents lists available at ScienceDirect

Journal of World Business

journal homepage: www.elsevier.com/locate/jwb

From human capital externality to entrepreneurial aspiration: Revisiting the migration-trade linkage

Xiaohua Lin[a], Xiyan Yang[b,*]

[a] International Business & Entrepreneurship, Ted Rogers School of Management, Ryerson University, 350 Victoria Street, Toronto, ON M5B 2K3, Canada
[b] International Economics, International Business School, Shanghai University of International Business and Economics, No. 1900 Wenxiang Road, Songjiang District, Shanghai, 201620, China

ARTICLE INFO

Article history:
Received 18 January 2016
Received in revised form 2 November 2016
Accepted 3 November 2016
Available online xxx

Keywords:
Immigrant networks
Entrepreneurship
Trade
Gravity model
China

ABSTRACT

The economics literature tends to view the positive impact of migration on trade as a product of human capital externalities. Drawing on the sociological perspectives of immigrant adaptation, we instead focus on entrepreneurial aspirations that drive immigrants into trade-creation activities. Considering levels of migrant educational attainment while applying entrepreneurship theory to China as the source of both migrants and traded goods, we propose and find support for our key hypothesis that the pro-trade effect of migrant networks is greater among low-skilled than high-skilled immigrants, thus adding precision to existing knowledge of how immigrants positively influence trade.

© 2016 Elsevier Inc. All rights reserved.

1. Introduction

Since Gould's (1994) seminal work, the contribution of immigrants to international trade has been widely recognized. The literature, predominantly concentrated in the field of economics, identified two channels through which migrant networks impact trade. First, there is an information effect in that migrant networks help reduce transaction costs in trade by mitigating information asymmetries and inadequate contract reinforcement. Second, there is a demand effect as immigrants help stimulate trade by demanding goods from their country of origin. Using the same network logic, each of these arguments suggests a positive pro-trade effect of migration. However there has been no attempt to integrate the two, leaving these arguments to simply co-exist in the literature without informing each other. In examining the migration-trade nexus, scholars might choose one of the two arguments to build a theoretical base; when both arguments are included, inconsistent or even contradictory results often emerge (Greenaway, Mahabir, & Milner, 2007; Wagner, Head, & Ries, 2002).

A more problematic limitation in the existing literature is associated with two assumptions underpinning the information effect, which lack scrutiny to date. First, proponents of this effect essentially assume that immigrants promote trade by offering information to other economic agents who are directly engaged in trade activities, described by Gould (1994: 302) as immigrant networks leading to "a beneficial human capital-type externality." In other words, immigrants facilitate trade only indirectly. Second, scholars assuming this human capital externality perspective maintain that higher levels of education affords migrants with better information gathering abilities which in turn helps facilitate trade (Felbermayr & Toubal, 2012). It follows that the pro-trade effect should be greater from high-skilled than from low-skilled migrants, with skills being measured by pro-migration educational attainment.

Affirming the pro-trade effect of migrant networks while exploring the effect from an entrepreneurial perspective, a theory to reconcile the two mechanisms and draw on immigrants' economic and psychological aspirations is proposed. This perspective treats immigrants as individuals who are directly engaged in trade, rather than mere facilitators of trade activities by other economic agents. Stemming from insights in the literature on international entrepreneurship (e.g. Chandra & Coviello, 2010; Coviello & Munro, 1995) and grounded in the social science tradition of ethnic studies (e.g., Light & Bonacich, 1988; Portes,

* Corresponding author.
E-mail addresses: hlin@ryerson.ca (X. Lin), yangxiyan@suibe.edu.cn (X. Yang).

http://dx.doi.org/10.1016/j.jwb.2016.11.001
1090-9516/© 2016 Elsevier Inc. All rights reserved.

Please cite this article in press as: X. Lin, X. Yang, From human capital externality to entrepreneurial aspiration: Revisiting the migration-trade linkage, Journal of World Business (2017), http://dx.doi.org/10.1016/j.jwb.2016.11.001

1981), we see the entrepreneurial pursuits of immigrants at the intersection of economic and psychological adaptation, implying the possibility that immigrant entrepreneurs who endeavour to bring in goods from their countries of origin could be the ones who help to create demand for such goods.

The compatibility of the economic (Portes, 1981) and psychological aspirations (Berry, 1997) is enabled by exploring educational attainment, a key quality for this immigrant population, weighing heavily on the broadly received migrant network effect. Departing from the prevailing human capital externality-centered theory, our entrepreneurship theory suggests that low-skilled migrants, in comparison to their high-skilled counterparts, have stronger aspirations – first, to get involved in exporting activities because of their stronger incentive (rather than "capability") and second, to demand goods from their origin country because of their lower level of acculturation. The two processes of immigrant adaptation, apparently interrelated but rarely examined simultaneously in the literature, should generate varied levels of aspirations for consuming home-country goods and for engaging in activities of importing such goods, respectively, which in turn could inspire entrepreneurship among the immigrants.

We test our theory in the context of China as it is one of the largest sources of emigrants and exports worldwide, and yet China has surprisingly received scant attention in regards to the migration-trade nexus despite the country's large scale and diverse profiles of outbound people and product flows. In previous investigations, China has often been left out of data pools for unspecified peculiarities (e.g., White, 2007). Thus, in addition to advancing the existing theory of the migration network effect, China-focused studies will contribute to policymaking in destination countries that have traded with China extensively and have received large numbers of Chinese immigrants in recent decades. To set a stage for testing our key hypothesis concerning migrant educational attainment, we start with a baseline hypothesis pertaining to the widely assumed migrant network effect and then a second hypothesis concerning the heterogeneity of traded goods. Findings from testing the second hypothesis will contribute to our understanding of how Chinese immigrants influence China's exports, which have become increasingly sophisticated over the years (Schott, 2008). Our main focus is the third hypothesis that examines the effect of skill-level of immigrants in terms of educational attainment. Our main contribution is the idea that immigrants engage in trade due to their motivation above and beyond existing emphasis on knowledge. Although the impact of ethnic networks on international trade was identified many decades ago, we provide up to date evidence that immigrant-owned businesses belong to the contemporary phenomenon of international entrepreneurship (Sui, Morgan, & Baum, 2015), that immigrant entrepreneurship is a unique case of "consumers as international entrepreneurs" (Chandra & Coviello, 2010), and that entrepreneurial aspiration may highlight the unique "cognitive aspects of the venture creation process" involving immigrants (Hitt, Li, & Xu, 2016, p. 68).

In the following sections of the current paper, we first conduct a critical review of existing literature. We then present a theory combining the processes underpinning the migration-trade nexus, followed by offering three testable hypotheses in the context of China. The subsequent section describes our methodology, which involves applying a gravity model to migration and trade data from China as the source country, complemented by illustrations from our field work with immigrant entrepreneurs. Finally, we present our results and contributions to the important areas of immigrants, trade, and entrepreneurial activity (Ahlstrom & Ding, 2014; Gould, 1994; Sui et al., 2015).

2. Literature review

The link between trade and migrant networks is formally conceptualized by Gould (1994) and later confirmed by a number of academic contributions concerning host countries such as the U. K. (Girma & Yu, 2000), Canada (Head & Ries, 1998), U.S. (Mundra, 2005), and France (Combes, Lafourcade, & Mayer, 2005). According to these studies, the effect of migration networks emerges mainly through two channels. First, migrant networks help overcome information barriers as well as contract enforcement challenges, thus reducing transaction costs for trade (Dunlevy, 2004). The channel operates through knowledge-related mechanisms, such as migrants' familiarity with markets and institutions, possession of personal ties, and mastery of languages and cultural nuances in their country of origin (Gould, 1994), all important resources and capabilities for conducting international business effectively (Sui et al., 2015; Tarique & Schuler, 2010). This information is especially valuable when there are vast differences between trading partners in terms of institutions, languages and cultures (Dunlevy, 2004), and when the business and political environment is less transparent in the country of origin (Rauch, 1999).

Second, migrant networks help create demand for goods from origin countries, thus stimulating trade and promoting imports from the origin to destination country (Girma & Yu, 2000). It is often assumed that migrants are likely to retain preference over certain goods that originate from their home countries. In El Salvador's case, for example, trade due to the demand effect accounts for as much as 10% of a country's total trade (Orozco, 2008). Importantly, entrepreneurially minded consumers could exploit the opportunities from such demand to create market internationally (Chandra & Coviello, 2010). We will argue that it is exactly the case with Chinese immigrants.

While the migrant-trade nexus has become a widely accepted theorem, the mechanisms through which migrant networks facilitate trade is far from being fully established. Empirical findings have been inconsistent, especially when both information and demand effects are considered (Wagner et al., 2002). Seeking for more precise conceptualizations, some scholars have examined the nature of traded goods as the dependent variable in the migration-trade link. Evidence has started to emerge suggesting that the pro-trade effect of migrant networks should be greater for goods that are more sophisticated and thus require more developed insight. Rauch (1999) differentiates traded goods into three categories – organized exchange, reference priced, and differentiated, and has found that the effects of geographic proximity, common language, and colonial ties are most common for differentiated goods. Apparently, migrants convey trade-relevant information on differentiated goods that may not be captured by the price system (Greenaway et al., 2007; Rauch & Trindale, 2002).

The area where much is unknown relates to the composition of the migrants as the independent variable in the migration-trade equation. Given their focus on the information effect, a few scholars have included migrants' skill levels, measured by educational attainment in their gravity models (e.g., Felbermayr & Toubal, 2012). A common assumption is that skilled (i.e., more educated) migrants have a greater ability than the low-skilled migrants to convey relevant information, thereby contributing more to trade between origin and destination countries. In his original conception of "immigration links", Gould's (1994) attention is directed at "the foreign market knowledge that immigrants naturally embody" and the possible "knowledge spillovers that can reduce information costs to economic agents who do not migrate" (314). Implicitly, immigrants would facilitate trade by providing the needed information to those agents such that the more immigrants know, the more often trade will occur. Equating

Please cite this article in press as: X. Lin, X. Yang, From human capital externality to entrepreneurial aspiration: Revisiting the migration-trade linkage, Journal of World Business (2017), http://dx.doi.org/10.1016/j.jwb.2016.11.001

education to knowledge, it then follows that the more plentiful that immigrants' education attainments are, the greater impact on trade they will have (Felbermayr & Toubal, 2012).

In our view, two restrictive assumptions have been built into the above human capital-centered theorem. It is assumed that migrants would assist some economic agents in trade with their knowledge, thus migrants do not engage in trade directly, but merely supply information to others who do it. However, this assumption may reflect the biased view of large multinational companies (MNCs) as the only carriers of international trade (Chandra & Coviello, 2010; Oviatt & McDougall, 1994) but does not seem to fit situations where migrants are traders who not only possess preferential channels but also are able to exploit such channels in the search/matching process (Casella & Rauch, 2002). It certainly does not fit the case of overseas Chinese who are known for carrying out trade activities through their transnational networks (Kotkin, 1992). In such cases, immigrants do not merely aid trade, but are directly involved in the trading process that entails exploitation of international commercial opportunities mediated by co-ethnic ties (Light & Bonacich, 1988). While the field of international entrepreneurship did not emerge until the late 1980s (Hitt et al., 2016), the records of Chinese migrants promoting international trade through co-ethnic networks can be traced many decades back (Weidenbaum & Hughes, 1966). What is interesting is that, as demonstrated in the current study, the Chinese immigrant entrepreneurs have continued exerting impact on international trade by joining those new comers in the international scene – non-immigrant entrepreneurs (Sui et al., 2015).

The human capital view of the migrant network effect also assumes that formal education enables trade-facilitating information/knowledge. Based on Gould's (1994) famous statement that "Immigrant links suggest a beneficial human capital-type externality" (302), scholars tend to assume that skilled (i.e., more educated) migrants have a greater ability than low-skilled migrants to promote the exchange of valuable information regarding aspects of their country of origin, and are thereby more likely to contribute to trade between origin and destination countries (Felbermayr & Toubal, 2012). We identify a major flaw in this assumption as it is biased towards the endowment of human capital and fails to acknowledge its effectual use in pro-trade activities. In Vroom's (1964) terminology, education might represent the ability/can do factor, which indicates the potential for performing certain tasks, but such ability may or may not be utilized depending on the motivation/will do factor which reflects drive and consequently the intensity of effort toward that task. In the context of MNCs, Minbaeva, Pedersen, Bjorkman, Fey, and Park, 2003 demonstrate that both ability and motivation are needed to facilitate the transfers of knowledge. Likewise, we argue that skills do not necessarily increase immigrants' impact upon trade since it is the motivation to migrate that first and foremost directs their efforts in the host country (Cerdin, Diné, & Brewster, 2014). According to the literature on ethnic economies, immigrants choose certain modes of economic adaptation in the host society, including business engagements with their countries of origin depending on their human and social capital endowments (Portes, 1981). In other words, migrants' education may be relevant in facilitating trade, but their orientation toward pro-trade entrepreneurial activities is exceptionally important because a multitude of attributes determine how a person's skills and knowledge are utilized (Hart, 2007).

3. An entrepreneurial perspective of migration-trade linkage

We suppose that the role of immigrants in expanding trade between country of origin and destination country could vary. For example, Chung and Tung (2013) identified three major roles with which immigrants are involved in international trade: as owners, managers, or employees. Whereas the managers and employees' role may be accounted as a human capital-type externality, many immigrants, at a minimum for certain high-proclivity groups would opt for an entrepreneurial path, are directly involved in trade activities (Light & Rosenstein, 1995: 16–18). Among the different types of social networks conducive of international trade (Andersen, 2006; Coviello & Munro, 1995), co-ethnic networks is probably the most identifiable one (Rauch & Trindade, 2002). Chinese living abroad are arguably the best known example exhibiting the breadth and depth of co-ethnic networks. They are known for sustaining an active trading diaspora, dispersing information, spotting and sharing opportunities, and structuring/operating the supply chain mainly through co-ethnic networks (Weidenbaum & Hughes, 1996). Indeed, it was the case studies documenting such evidence that inspired Gould's (1994) work towards an economic model of the migration-trade nexus (302).

Our theory treats immigrants' involvement in international trade as a mode of *economic adaptation* in a host country (Portes, 1981) as a result of interactions between group characteristics of immigrant factions and the opportunity structure facing them (Aldrich & Waldinger, 1990). In much of the history in Western industrialized countries, ethnic minority groups participated in ethnic economies due to obstructed opportunities for which their deficiency in human capital (e.g., education, language capability) is partially responsible. Skilled migrants are increasingly drawn to the developed world today, particularly for employment opportunities (Rydgren, 2004). Most OECD countries, for instance, have implemented immigration policies that aim to attract skilled workers for the purpose of enhancing their economies and, at the same time, have let in low-skilled migrants to meet other employment and economic needs (Bauer & Kunze, 2004). Lack of professional opportunities and unemployment among low-skilled migrating groups create the desire for business creation (Shinnar & Young, 2008). Research shows that ethnic business owners and entrepreneurs tend to have lower levels of education compared to those who have little to no involvement with the ethnic community (Chaganti & Greene, 2002), since higher levels of education reduce the dependency on ethnic communities for professional or financial advancement (Sequeira & Rasheed, 2006). While higher levels of human capital can reduce self-employment (Coleman, 1988), human capital deficiencies, including insufficient language capability often prevent the low-skilled migrants from participating effectively in the "mainstream" market. Disadvantaged in host country labor markets but uniquely embedded in countries of origin, immigrants have a natural tendency to engage with their origin countries when looking for entrepreneurial opportunities (Light & Rosenstein, 1995). Our theory thus recognizes the role of educational attainment, a key measure of human capital, in the extent to which immigrants are engaged in international trade. However, although formal education may facilitate the development of useful knowledge for trading activities, it influences immigrants' entrepreneurial engagement with trade more through their orientations upon migration than through the information ability afforded by formal education. In the contemporary world, skilled and low-skilled immigrants normally look for different economic opportunities in destination countries, which in turn determine the likelihood and level of devotion with which immigrants would contribute to exports from home to host country.

On the other hand, we conceptualize immigrants' demand for goods from their origin countries as reflecting their degrees of *psychological adaptation*, that is, changes that take place in individuals or groups in response to environmental demands

Please cite this article in press as: X. Lin, X. Yang, From human capital externality to entrepreneurial aspiration: Revisiting the migration-trade linkage, Journal of World Business (2017), http://dx.doi.org/10.1016/j.jwb.2016.11.001

(Berry, 1997: 13). According to cross-cultural psychologists, psychological adaptation and resultant behaviors (e.g., consumption of traditional goods from the origin country vs. common goods at the destination) are partially determined by individual characteristics. Education is widely thought to be an individual characteristic that positively predicts assimilation, known as giving up one's cultural identity and seeking daily interaction with other cultures. In Berry's terminology, for example, immigrants with lower levels of education are more likely to fall in the category of separation, that is, holding on to one's original culture but avoiding interaction with the dominant culture. Evidence has shown that immigrants with less education tend to be positively connected to origin country and co-ethnics in the host country (Abu-Rayya, 2009; Goldmann, 2000). One key reason for the above relationship, according to Berry (1997), is that education is "a kind of pre-acculturation to the language, history, values, and norms of the new culture" (22). Since acculturation happens in continuous interaction between two or more cultures and their adjustment to each other by borrowing traits (Crapo, 1993), less educated immigrants are more likely than highly-educated immigrants to demand goods from their origin country due to their isolation from mainstream society (Chiswick & Miller, 2002). The tendency to have less "acculturated" food habits is found among many less educated immigrants in developed countries, including those of Korean (Kang & Garey, 2002), Japanese (Marmot & Syme, 1976), and Hispanic (Byrd, Balcazar, & Hummer, 2000) backgrounds. Importantly, immigrants' demand creation role may go beyond consumerism, to distributing these goods in an entrepreneurial role. As Chandra and Coviello (2010) contend, consumers may start as informal entrepreneurs and then transition into formal business entrepreneurship in the international arena. Recent data shows that much of the demand created by immigrants is handled by immigrant entrepreneurs in the destination countries (Enderwick, Tung, & Chung, 2011).

We take a contextualization approach (Tsui, 2006) in advancing our entrepreneurship theory with the realization that the migration-trade nexus is likely to be context-bound (Qian, 2008). China has gradually become a major source of emigrants after decades of effective migration control, permitting the introduction of an open-door policy as part of the country's reform programme in the late 1970s (Pieke, 1999). To a certain degree, emigration is seen by the government as consistent with its need for integration within the international community (Biao, 2003). While low-skilled migrants historically dominated the Chinese diaspora, skilled workers have increasingly joined the migratory movements as they look for better returns on their education and training (Widmaier & Dumont, 2011). At the same time, more attractive employment opportunities start to emerge in international labor markets, particularly in OECD economies which favor highly skilled migrants (Johnston, 1991). The Chinese diaspora is known as one of the most influential migrant networks in the world, whose impact on trade between the country of origin and host countries is widely recognized (Weidenbaum & Hughes, 1996). According to Rauch and Trindade (2002), ethnic Chinese networks could increase bilateral trade by as much as 60% between China and Southeast Asian countries with large shares of ethnic Chinese populations. In the emerging literature linking trade to migration, migrant networks have proven to be most effective for countries where information acquisition is costly and opportunism prevails (Gould, 1994). Thus, China is exactly the type of context in which informal networks are ideally suited (Greenaway et al., 2007), especially in light of the country's transition process and troublesome business environment. Consistent with historical observations, recent evidence shows that international trade tends to be the most common type of business among contemporary Chinese immigrants and such trade is likely to involve China (Wong & Ng, 2002). We state our baseline hypothesis as the following:

Hypothesis 1. There is a positive relationship between migrant networks and exports from China.

The pro-trade effect of migrant networks should be greater for goods that are more sophisticated and thus require more developed insight and understanding (Rauch & Trindale, 2002). Greenaway et al. (2007) investigate whether ethnic Chinese presence in host countries influences their trade with China from 1990 to 2000. While the results are mixed, one thing is clear that the migrant networks have absolutely no impact on goods traded on organized exchange, the least sophisticated class in Rauch (1999) classification. While China first entered the international market as an exporter of labor-intensive, low value-added and non-sophisticated goods, its export profiles have become increasingly complicated and to a certain degree now overlap those of more developed Western countries for reasons such as an overall upgrading of technological capabilities and large regional variations in factor endowment (Schott, 2008). Arguably, the Chinese economy has evolved into one with a wide range of manufactured goods from less differentiated to relatively more differentiated products (Lall & Albaladejo, 2004). The evidence, while very limited and preliminary (e.g., Rauch & Trindade, 2002), suggest that the influence of Chinese migrants on China's exports vary by the level of sophistication of the goods according to the different levels of information needs, from a destination country's point of view. Thus further advancing our understanding of how Chinese immigrant networks might influence China's trade with host countries, we test the following hypothesis:

Hypothesis 2. The effect proposed in Hypothesis 1 gets stronger as the exports move from homogeneous to more differentiated goods.

We believe that low-skilled Chinese migrants should exert a greater impact on China's exports than their high-skilled counterparts first and foremost because they are more likely to pursue an entrepreneurial pathway. There are peculiar reasons as to why formal education does not necessarily translate into greater levels of trade. First, in a country like China where the environment is transient and ambiguous, "valuable information" might not be enabled by schooling, but through personal connections (Davies, Leung, Luk, & Wong, 1995). Second, the ability to help alleviate opportunism due to information asymmetries is not necessarily associated with formal education either. Instead, immigrants exerting impact on trade tend to be those with business experience from their country of origin (Blanes-Cristóbal, 2005). In China, private businesses have been the driving force behind the country's transformation towards a market-based economy (Ahlstrom, Bruton, & Yeh, 2008; Ahlstrom & Ding, 2014), but individuals with higher education and credentials tend not to get involved in private businesses when presented with other opportunities in professional or political careers (Wu, 2006). Third and most importantly, knowledge endowment and its actual usage are two different things even if greater knowledge could be assumed among the skilled immigrants. In Western developed countries, low-skilled Chinese immigrants have often been pushed to self-employment whereas their high-skilled counterparts tend to start the job search immediately upon landing on the foreign soil (Salaff & Greve, 2003).

Historically, immigrant entrepreneurship has largely developed as a result of parallel growth between immigrant demand and the ethnic enclave economy (Light & Bonacich, 1988). According to our theory, contemporary immigrants contribute to trade first and foremost because of their entrepreneurial aspirations resulting from their modes of economic and psychological adaptation. Since

Please cite this article in press as: X. Lin, X. Yang, From human capital externality to entrepreneurial aspiration: Revisiting the migration-trade linkage, Journal of World Business (2017), http://dx.doi.org/10.1016/j.jwb.2016.11.001

such aspirations are likely to be stronger among low-skilled Chinese immigrants due to their unique experience in adapting to host country circumstances, we would expect that these immigrants contribute more to China's export to the destination country than do their high-skilled counterparts. The following hypothesis affords a test of our entrepreneurial theory of the migration-trade linkage:

Hypothesis 3. The export-promoting effect is greater among low skilled Chinese migrants than among skilled migrants.

4. Applying a gravity model

4.1. Model

The gravity model has been widely used in trade-related research and has evolved from the intuitive model to the theoretical model (Shepherd, 2013). The most commonly used model in economics literature is the Anderson and Van Wincoop (2003) Model, which is based on the standard monopolistic competition trade model. In the current study, we adopt the Anderson and van Wincoop Model, hereafter the A&vW model, as our base model:

$$X_{ij}^k = \frac{Y_i^k E_j^k}{Y^k}\left\{\frac{\tau_{ij}^k}{\Pi_i^k P_j^k}\right\}^{1-\sigma_k} e_{ij}^k$$

$$\Pi_i^k = \sum_{j=1}^{C}\left\{\frac{\tau_{ij}^k}{P_j^k}\right\}^{1-\sigma_k}\frac{E_j^k}{Y^k}$$

$$P_j^k = \sum_{i=1}^{C}\left\{\frac{\tau_{ij}^k}{\Pi_i^k}\right\}^{1-\sigma_k}\frac{Y_i^k}{Y^k}$$

Where X is exports from country i to j, k indexes sectors; Y is GDP; E denotes expenditure, which is not necessarily the same as GDP on a sectorial basis; $Y^k = \sum_{i=1}^{C} Y_i^k$ indicates world GDP; σ_k is the intra-sector elasticity of substitution; e_{ij}^k denotes the multiplicative error term; and τ_{ij}^k indicates trade costs.

The most branded feature of the A&vW model is its accounting for multilateral resistance. First, it accounts for outward multilateral resistance, Π_i^k, capturing the fact that exports from country i to country j depend not only on trade costs between country i and j, but also on those across all possible export markets. Second, it accounts for inward multilateral resistance, P_j^k; that is, imports from country j into country i depend on trade costs across all possible suppliers.

To verify the impact of migrant networks on China's exports, we consider both aggregate exports and exports grouped according to product differentiation. In light of the unmanageable difficulty associated with a large number of sectors due to the number of parameters involved, we estimate separate group models, respectively. This is a frequently used approach in the literature (Shepherd, 2013). We thus augment the A&vW model into the following:

$$X_{ij} = \frac{Y_i E_j}{Y}\left\{\frac{\tau_{ij}}{\Pi_i P_j}\right\}^{1-\sigma} e_{ij}$$

$$\Pi_i = \sum_{j=1}^{C}\left\{\frac{\tau_{ij}}{P_j}\right\}^{1-\sigma}\frac{Y_j}{Y}$$

$$P_j = \sum_{i=1}^{C}\left\{\frac{\tau_{ij}}{\Pi_i}\right\}^{1-\sigma}\frac{Y_i}{Y}$$

$$\log\tau_{ij} = b_1 migshare^s + b_2 \log distance_{ij} + b_3 contig + b_4 comlang_off$$

Where $migshare^s$ refers to migrant network in China's trading partner country, with the superscript s indicating the skill structure of migrants: "*T*", "*H*", and "*L*" correspond to total, high-skilled, and low-skilled migrants, respectively; *distance* is the geographical distance between countries i and j, with i indicating China in the current paper; *contig* is a dummy variable, taking the value of one for countries that share a common land border with China, zero otherwise; *comlang_off* is a dummy variable with the value of one for countries whose official language is or includes Chinese, zero otherwise.

In this study, we use the Poisson pseudo maximum likelihood (PPML) method due to its adaptability (Arvis & Shepherd, 2013) and its wide acceptance in the newest trade literature (Fally, 2015). The approach provides robust solutions compared to other approaches such as OLS with fixed effects that can induce sample selection bias and inconsistent results (Fally, 2015; Head & Ries, 1998). However, we present the results of OLS with and without controlling for the fixed effect of country pairs, for comparison purposes.

4.2. Dependent variable

The A&vW model requires that the dependent variable is unidirectional trade flow, i.e., either exports or imports, but not total trade (the sum of exports and imports) nor the average of the two. Our dependent variable is the aggregate (*Exp*) or disaggregated exports (*Exp_Sitc4*) of China, depending on the purpose of test. Since the Feenstra dataset provides export values classified by the 4-digit SITC, revision 2, we also extract export values from the UN comtrade, based on the same classification scheme. Following Rauch and Trindade (2002), we group the above classified exports into three categories according to the "liberal" classification rule from Rauch (1999). The dependent variable is the natural logarithm of exports for the OLSr and OLSF regressions, and exports in levels for the PPML regressions, respectively. Table 1 presents a representative correlation matrix.

Note the extra high correlations between the three independent variables, which could indicate severe multicollinearity. To address this concern, we calculate the values of Variance Inflation Factor (VIF). According to a commonly accepted rule of thumb, VIF values are less than 10 would suggest that multicollinearity is not a problem (Miles, 2009). Since all the corresponding VIF values are less than 10, we conclude that multicollinearity is not a major concern in our case.

4.3. Migrant network variables

We use the variable "migrant share" (i.e.,$migshare^s$), the share of Chinese migrants in the host country population, to measure the strength of migrant network. This approach is in line with Rauch and Trindade's (2002) seminal work. For these authors, the measure of migrant share equals the product of the ethnic Chinese population shares for countries *i* and *j*. Since we focus on the

Please cite this article in press as: X. Lin, X. Yang, From human capital externality to entrepreneurial aspiration: Revisiting the migration-trade linkage, Journal of World Business (2017), http://dx.doi.org/10.1016/j.jwb.2016.11.001

Table 1
Correlation matrix.

	lExp	MIGshare ~ T	MIGshare ~ H	MIGshare ~ L	lGDP_j	lGDP_CH	ldistance	contig
LExp	1							
MIGshare ~ T	0.2234	1						
MIGshare ~ H	0.1699	0.966	1					
MIGshare ~ L	0.2043	0.9941	0.9716	1				
lGDP_j	0.7876	−0.0153	−0.052	−0.0265	1			
lGDP_CH	0.3328	−0.0068	−0.0023	−0.0227	0.0729	1		
ldistance	−0.3717	−0.3425	−0.3129	−0.3359	−0.1671	−0.0145	1	
Contig	0.1046	0.4378	0.4117	0.4388	−0.0668	−0.0192	−0.5698	1
comlang_off	0.2745	0.7631	0.6957	0.7314	0.0352	−0.0125	−0.3372	0.292

Note: Due to space constraints, this table contains the correlation matrix for the aggregated export only. Correlation matrix for the disaggregated export is available upon request.

bilateral pro-trade effect of Chinese network between China (i.e., country *i*) and its partner country *j*, there is essentially no difference between our measure and that of Rauch and Trindade's. Other authors, such as Greenaway et al. (2007), have taken the same approach. Besides migrant share, we use two additional variables for robust tests: "migrant stock", that is, the total number of Chinese migrants in a host country; and "migrant flow", that is, the number of Chinese people migrating into a host country within a specific time frame.

Skills of migrants are measured by educational levels in accordance with the International Standard Classification of Education by the United Nations: Low-skilled migrants are those with primary education (i.e., 0–8 years of schooling); medium-skilled migrants are those with secondary education (i.e., 9–12 years of schooling completed); high-skilled migrants are those with tertiary education (i.e., 13 years and above). We combine the first two classes into one category termed low-skilled migrants, and treat the third category as high-skilled migrants (or skilled for simplicity). Following the protocol of DOPA (to be described later), we consider only long-term legal migrants aged 25 or older. Students and other short-term foreign individuals are thus excluded. As a result, we measure the total migrant network by the share of total migrants in the host country population aged 25+, and the skilled (low-skilled) migrant network by the share of skilled (low-skilled) migrants in the host country population with the corresponding levels of education.

4.4. Control variables

We control for country size, as measured by GDP (Shepherd, 2013). Furthermore, we use aggregate GDP as a regressor in accordance with A&vW model suggestions (Shepherd, 2013). Following the literature of the gravity model, we also include variables for distance (*distance*), common land border (*contig*), and common official language (*comlang_off*) between China and its trader partners. By including country fixed effects, we control for the multilateral resistance terms and all other country-specific determinants, such as history and policy.

4.5. Databases

Our migrant stock data is from two sources. One source is Table "Bilateral Migration Database 1960–2000" of the World Bank (http://go.worldbank.org/092X1CHHD0). This dataset (WB dataset for short) provides the total Chinese migration stock data in the years 1980, 1990, 2000, and 2010. The second source is the dataset, "Comprehensive Migration Matrices by Education Level and by Gender (1990–2000)" (http://perso.uclouvain.be/frederic.docquier/oxlight.htm. This dataset (DOPA dataset for short) provides layered Chinese migration data corresponding to education in 1990 and 2000, and covers almost all of the same countries as the WB dataset.

The export data of the years 1980, 1990, and 2000 are extracted from Feenstra, Lipsey, Deng, Ma, and Mo, 2005, which exclude Chinese exports shipped through Hong Kong; the dataset will be referred to as Feenstra in this paper. The export data for the year 2010 are extracted from the UN Comtrade database. According to the A&vW model, trade values should be in nominal terms, not real terms. Thus our export data is in current U.S. (thousand) dollars. Similar to trade flows, the A&vW model also requires GDP values to be in nominal terms, not real terms. Accordingly, we use current U. S. (thousand) dollars, which is consistent with export data. Data for GDP, populations, and education indices come from the World Development Indicators (WDI). Data on distance, use of common official language, and common land border are taken from the CEPII. Our sample countries are those which are included in both DOPA and Feenstra databases. In order to increase the sample size, we use pooled cross-sectional data.

5. Results

Table 2 presents the impact of migrant networks on exports at the aggregate level. First, total migrant networks promote exports, which is statistically significant at the one percent level (b = 0.342). This result supports Hypothesis 1 and confirms the argument that migration is positively associated with exports from home to host countries (Felbermayr, Jung, & Farid, 2010; Greenaway et al., 2007; Rauch & Trindade, 2002). Second, skilled and low-skilled migrant networks are all positively and significantly correlated with China's exports at the one percent significance level. However, compared with the magnitude of the coefficient for skilled migrant networks (b = 0.102), the export-promoting effect of low-skilled migrant networks (b = 0.198) is larger. These results regarding *aggregated* exports support Hypothesis 3.

Table 3 shows the link between total migrant networks and disaggregated exports by Rauch (1999) classification. First, total migrant networks are positively correlated with exports across all groups (for differentiated goods: $p < 0.01$; for goods traded on an organized exchange: $p < 0.05$). Second, the largest impact appears for differentiated goods (b = 0.366); the magnitude of this coefficient is three times greater than that of goods traded on an organized exchange (b = 0.107). These results are consistent with the argument that the pro-trade effect of migrant networks gets stronger as the exports move from homogeneous to more differentiated goods, thus giving support to Hypothesis 2.

Table 4 presents the results related to the impact of skilled and low-skilled migrant networks on exports classified according to Rauch (1999). First, skilled and low-skilled migrant networks all

Please cite this article in press as: X. Lin, X. Yang, From human capital externality to entrepreneurial aspiration: Revisiting the migration-trade linkage, Journal of World Business (2017), http://dx.doi.org/10.1016/j.jwb.2016.11.001

Table 2
Impact of migrant network on aggregate export.

	Total migrant network			Skilled(low-skilled) migrant network		
	OLSr	OLSF	PPML	OLSr	OLSF	PPML
Migshare ~ T	0.0348	0.092	0.342***			
	(0.0228)	(0.459)	(0.0582)			
Migshare ~ H				−0.0361***	0.0918***	0.102***
				(0.0102)	(0.0126)	(0.028)
Migshare ~ L				0.103***	0.222***	0.198***
				(0.0248)	(0.0437)	(0.0303)
LGDP_j	0.894***	1.28***	0.899***	0.87***	1.25***	1.1***
	(0.0565)	(0.456)	(0.331)	(0.0577)	(0.443)	(0.213)
LGDP_CH	1.17***	1.08***	1.02***	1.22***	1.13***	0.992***
	(0.109)	(0.185)	(0.125)	(0.11)	(0.186)	(0.094)
Ldistance	−0.79***	−0.21	−1.13	−0.841***	−0.67	−0.489*
	(0.174)	(1.08)	(0.806)	(0.172)	(0.545)	(0.258)
Contig	−0.178	−0.0353	−0.0405	−0.242	−22.5***	−22.7***
	(0.384)	(0.157)	(0.116)	(0.375)	(2.95)	(5.34)
Comlang_off	1.75***	1.27	1.83***	1.75***	1.67	1.17
	(0.408)	(0.882)	(0.658)	(0.417)	(1.59)	(0.759)
Constant	−20.3***	−30.5**	−15.4	−20.6***	−27.6***	−23.2***
	(2.38)	(14.3)	(9.86)	(2.48)	(3.79)	(1.18)
Fixed Effect	No	Yes	Yes	No	Yes	Yes
N	198	198	198	218	218	218
R^2	0.79	0.953	0.999	0.779	0.956	0.998
Pseudo log-likelihood			−3324267.6			−2324975.8

Note: OLSr indicates the specification of ordinary least squares with robust standard errors, OLSF indicates the specification of ordinary least squares with fixed effects, PPMLindicates the specification of Poisson Pseudo-Maximum Likelihood with fixed effects. The dependent variable is the natural logarithm of exports for the OLSr and OLSF regressions, and exports in levels for PPML regressions. *, **, *** indicate significance at the 10%, 5%, and 1% level, respectively. Observations are clustered by country (importer). Robust standard errors are in parenthesis. To be consistent with the Feenstra dataset, in which the lower threshold is 1000 USD, we drop all trade values lower than 1000 USD dollars for data of year 2010. As a result, the sample sizes for OLSF and PPML approach are the same.

positively impact the export of differentiated and reference priced food at the one percent significance level. The relationship between skilled and low-skilled migrant networks and organized exchange is not significant. This is in accordance with the results in Table 3, validating the argument that the pro-trade effect of high and low skilled migrant networks grows stronger as the exports move from homogeneous to more differentiated goods. Second, compared to skilled migrants, low-skilled migrants had a greater positive effect on exports across all groups of goods. The magnitude of the coefficient for low-skilled migrant networks is more than two times that of the skilled migrant networks across all groups. For example, for differentiated goods, one percent increase in the low-skilled Chinese migrants network in the host country leads to a 15.5 percent increase in exports from China, while one percent increase in the *skilled* Chinese migrants network leads to only 5.9% increase in export; for reference priced goods, one percent increase in the low-skilled Chinese migrants leads to 24.8% increase in exports, while a one percent increase in the skilled Chinese migrants leads to 10.1% increase in exports. Thus, the results support Hypothesis 3 concerning disaggregated export from China.

In Table 2, the control variables from the PPML specification, except for *Contig*, have the expected signs across all specifications. However, this exception is consistent with Felbermayr et al. (2010)

Table 3
Impact of total migrant network on disaggregated export.

	Differentiated Goods			Reference priced goods			Goods traded on organized exchange		
	OLSr	OLSF	PPML	OLSr	OLSF	PPML	OLSr	OLSF	PPML
Migshare ~ T	−0.00937	0.184	0.366***	−0.011	0.122	0.345***	−0.00464	0.147	0.107**
	(0.0221)	(0.229)	(0.11)	(0.0163)	(0.234)	(0.0869)	(0.0251)	(0.122)	(0.047)
LGDP_j	0.854***	0.53	2.36**	0.852***	0.632**	1.52***	0.78***	0.55	0.71***
	(0.0537)	(0.369)	(1.01)	(0.0537)	(0.306)	(0.451)	(0.0585)	(0.362)	(0.131)
LGDP_CH	0.428***	0.635***	−0.332	0.507***	0.703***	0.0913	0.0986	0.352*	0.0562
	(0.0784)	(0.193)	(0.524)	(0.0674)	(0.159)	(0.232)	(0.085)	(0.211)	(0.0776)
Ldistance	−0.734***	−1.33	3.97	−1.04***	−1.55*	1.2	−1.36***	−1.82*	−1.34***
	(0.192)	(1.07)	(2.92)	(0.184)	(0.886)	(1.3)	(0.231)	(1.05)	(0.368)
Contig	0.8**	−10.2	−11.1**	0.422	−7.26	−14.3***	−0.106	1.54	0.481
	(0.391)	(9.92)	(5.29)	(0.309)	(10.1)	(3.24)	(0.473)	(1.66)	(0.562)
Comlang_ ~ f	1.82***	2.81***	−1.68	2.15***	2.43***	0.31	2.62***	−7.43	−4.71**
	(0.217)	(1.03)	(2.92)	(0.195)	(0.877)	(1.3)	(0.674)	(5.37)	(2.06)
Constant	−6.04***	−0.631	−53.3*	−6.16***	−2.29	−26.4*	5.63**	8.06	7.99*
	(2.14)	(11.2)	(29.8)	(2.22)	(9.39)	(13.6)	(2.49)	(10.7)	(4.7)
Fixed Effect	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
N	420	420	420	409	409	409	372	372	372
R^2	0.621	0.793	0.589	0.688	0.871	0.915	0.576	0.831	0.915
Pseudo log- likelihood			−2.782e + 08			−17412715			−6493543

Note: see notes of Table 2.

Please cite this article in press as: X. Lin, X. Yang, From human capital externality to entrepreneurial aspiration: Revisiting the migration-trade linkage, Journal of World Business (2017), http://dx.doi.org/10.1016/j.jwb.2016.11.001

Table 4
Skill level and disaggregated export.

	Differentiated Goods			Reference priced goods			Goods traded on organized exchange		
	OLSr	OLSF	PPML	OLSr	OLSF	PPML	OLSr	OLSF	PPML
Migshare ~ H	−0.0383***	0.0793***	0.0599***	−0.0313***	0.101***	0.112***	−0.0252***	−0.0269	0.0105
	(0.0125)	(0.0069)	(0.0158)	(0.0095)	(0.0203)	(0.0334)	(0.0067)	(0.0459)	(0.0623)
Migshare ~ L	0.116***	0.19***	0.155***	0.0779***	0.248***	0.192***	0.0516**	0.0145	0.0498
	(0.0305)	(0.0301)	(0.0209)	(0.0222)	(0.0492)	(0.0401)	(0.0236)	(0.0823)	(0.106)
LGDP_j	0.907***	0.913**	0.742***	0.829***	0.656	0.373	0.68***	−0.46	0.599
	(0.0619)	(0.406)	(0.218)	(0.0551)	(0.508)	(0.261)	(0.067)	(0.78)	(1.01)
LGDP_CH	1.35***	1.36***	1.32***	1.13***	1.29***	1***	0.186	0.671**	0.0857
	(0.0971)	(0.18)	(0.0928)	(0.102)	(0.217)	(0.141)	(0.141)	(0.31)	(0.351)
Ldistance	−0.774***	−0.0333	0.192	−1.16***	−1.8	−2.41***	−1.16***	−4.12**	−1.54
	(0.174)	(0.5)	(0.265)	(0.162)	(1.22)	(0.644)	(0.244)	(1.99)	(2.59)
Contig	−0.179	−1.42	−2.72	−0.312	−28.2***	−27.8***	−0.302	−5.26**	−2.65
	(0.474)	(3.27)	(1.78)	(0.342)	(3.88)	(6.18)	(0.52)	(2.01)	(2.63)
Comlang_ ~ f	1.52***	−17.5***	−12.6***	1.9***	2.04**	2.48***	2.7***	4.22**	1.73
	(0.405)	(2.78)	(3.5)	(0.287)	(0.992)	(0.542)	(0.554)	(1.71)	(2.24)
Constant	−24.9***	−30.6***	−28.2***	−16.9***	−12.5	3.13	4.1	37.5	11.2
	(2.37)	(3.41)	(1.25)	(2.63)	(15.4)	(7.38)	(3.69)	(24.9)	(32.2)
Fixed Effect	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
N	223	223	223	216	216	216	188	188	188
R^2	0.801	0.963	1	0.77	0.954	0.997	0.6	0.927	0.929
Pseudo log- likelihood			−1452349			−614960			−1630517

Note: see notes of Table 2.

Table 5
Robust checks.

	Model 1 Aggregated	Model 2 Aggregated	Model 3 Deferentiated Goods	Model 4	Model 5 Reference priced goods	Model 6
Migstock	0.248***					
	(0.0873)					
Migflow ~ H		−0.522**				
		(0.263)				
Migflow ~ L		0.351**				
		(0.155)				
MIGshare_T			0.566*	−0.220	0.543*	−0.527***
			(0.309)	(0.216)	(0.289)	(0.121)
MIGshare ~ H			0.0515		0.0707	
			(0.0764)		(0.0637)	
MIGshare ~ L				0.147***		0.203***
				(0.0549)		(0.0365)
LGDP_j	1.299***	1.499***	0.557**	0.692***	0.00289	0.314
	(0.189)	(0.307)	(0.227)	(0.223)	(0.374)	(0.261)
LGDP_CH	0.359***	0.439***	1.321***	1.374***	1.064***	1.069***
	(0.0799)	(0.106)	(0.115)	(0.0974)	(0.169)	(0.132)
Ldist	−0.0746	−0.0127	−2.164***	−1.755***	−3.379***	−2.199***
	(0.125)	(0.0334)	(0.556)	(0.552)	(0.905)	(0.627)
Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
N	356	251	203	203	198	198
R^2	0.994	0.992	1.000	1.000	0.996	0.997
Pseudo log- likelihood	−52788562	−37485579	−1703768	−1503134	−752699	−638427.68

Note: "Migstock" denotes migrant stock; "Migflow ~ H (Migflow ~ L)" denotes high (low)-skilled migrant flow. Due to space limitation, we present only most important results.

and Greenaway et al. (2007). Based on overseas Chinese data and the PPML specification, Greenaway et al. (2007) found trade flows between China and adjacent countries to be lower. Felbermayr et al. (2010) also found that the sign of *Contig* is negative in some circumstances. One explanation is that less trade might be the result of political tensions (e.g., border disputes), natural barriers (e.g., challenging mountainous routes), and similar industrial structures among China and its adjacent countries. As seen in Tables 3 and 4, all the control variables have the expected signs, with the exceptions of *Contig*.

5.1. Robustness checks

We conduct three robustness checks and present the results in Table 5. First, we use migrant stock and migrant flow to replicate the effect of migrant network. As shown in models 1 and 2 in Table 5, the results are similar to that with migrant share, i.e., the unskilled migrants, not skilled one, consistently promote export. Second, in order to determine whether the export promoting roles of migrants are robust in our study, we add the skilled and unskilled migrant network incrementally to the model that includes the total migrant network (see models 3,4,5,6 in Table 5). This method helps ascertain the factors that actually promote trade, while avoiding collinearity. With the total migrant network in the same regressions, the skilled migrant networks are still positively related with exports, however not significantly, whereas the low-skilled migrant networks remain positively related with exports, and the effect robustly stays at the one percent significance level. At the same time, the effect of the total migrant network is dwarfed, becoming insignificantly or negatively with

Please cite this article in press as: X. Lin, X. Yang, From human capital externality to entrepreneurial aspiration: Revisiting the migration-trade linkage, Journal of World Business (2017), http://dx.doi.org/10.1016/j.jwb.2016.11.001

the addition of the low-skilled, but not the skilled migrant network. These results are consistent across the differentiated and reference priced groups of goods and confirm our hypothesis that the export-promoting effect is greater among low-skilled migrants than among skilled migrants.

The last robustness check is intended to address the issue of outliers in light of the fact that Hong Kong and Macau have especially high ratios of the low-skilled migrants in the sample. After we drop these two regions, the export-promoting role of the low-skilled migrant network remains very robust, but the effect of the skilled network becomes insignificant. Besides, the effect of migration is mainly found on differentiated and reference priced goods, not on the homogeneous group. These results are again consistent with our hypotheses.

There could be a concern for endogeneity due to the possibility that trade affects migration, for example, by causing wage differentials. However, it is difficult to find the direct channel within which trade influences the decision to migrate (Felbermayr & Toubal, 2012). Moreover, as previously observed by Gould (1994), the reverse causality is not a concern, since migration is subject to binding quotas and occurs before the onset of trade. In our case, this concern is also mitigated by our way of measuring migration network, which is based on migration stock, rather than migration flow.

5.2. Entrepreneurs at work: an illustration

As robust as our results are from the gravity model, the aggregated migration data does not capture detailed information concerning immigrants' motivations and behaviors, making it difficult to assess whether it is really the proposed entrepreneurial mechanism that is driving the results. For illustration purposes (Siggelkow, 2007), here we present relevant findings of our field research with the owners of the largest Chinese grocery chain in Toronto, Canada and with their main suppliers. This fieldwork first inspired our empirical investigations with the large data and later helped to make sense of the results. The chain, consisting of eight grocery stores, was owned by two partners who emigrated from the Fujian Province of China. In addition to interviews with the chain owners, we conducted a focus group with ten of their Chinese suppliers who were randomly selected with the help of the chain owners. On average, the chain sold approximately 20,000 different items, 90% of which were imported from China. The chain used approximately 300 suppliers who were predominantly of mainland China origin. These suppliers were also responsible for Chinese imports at some local stores with an "international foods" section. The chain attracts all Chinese immigrants, but their main targets are those with low- to mid-incomes which, according to one of the chain owners, equates with low levels of education: "(Y)ou see elders, labourers, and all those new comers. Many of them do not speak English. You may still see people in suits, people working offices like law firms; but Loblaws or Longos are where they normally shop." The entrepreneur, who attended only primary school in China and later spent several years in Japan, believed that importing consumer goods from China was a viable business in Canada because "people are allowed to keep their traditions, and there are so many Chinese." Over the years, the chain has expanded its clientele by also catering to other Asian communities, as its low-cost formula appeals to people of similar socio-economic statuses and tastes.

Among the ten Chinese suppliers involved in our focus group, only one had obtained a university degree, while six had obtained a high school diploma and three had not completed high school. When asked how they entered the importing business from China, the answers from all participants were consistent with our entrepreneurial theory anchoring on the two types of immigrant adaptation. As one entrepreneur put it: "I almost decided to return to China immediately after I landed in Canada. I had previously owned a successful business in China, but could barely find a job here, which didn't make sense. I did find a labor job, but couldn't keep it. I remember the day when I lost this job and came home. Mad in my tiny basement room, I overheard my wife and her friends complaining that they could not find the right ingredients to cook, and I said to myself, 'wait a minute – isn't it a business opportunity?' I went on starting importing and have never stopped till this day. It might sound like an incident – it could be something else like electronics, souvenir – who knows; but I knew from my deep heart that I would create a business for myself. I determined to sort of liberalize myself in this foreign land. And my best chance would be doing something with China where I had made a fortune and I have quite a bit resources that I can still make use of."

According to the Chinese suppliers, everyone can do the business as long as "you know where to find the products and who make them, and you have the connections that help you to get the products at right price". What about those border crossing processes and paperwork – aren't they required a certain level of education to be able to handle? Not really; brokers are hired to manage these tasks. We challenged the assumption equating formal education to entrepreneurial knowledge and were not surprised that all the Chinese suppliers in our focus group had business experience of some sorts back in China. The comments from the entrepreneur with a university degree were rather enlightening: "I am exceptional, belonging to the first generation of intellectuals in China who came out of the comfort zone to create own businesses. It takes a different set of skills and resources to do business. That experience is hard-earned, not from school. But after you've had the experience, you can use it elsewhere. Like myself – I bought and sold computer parts in China, and it's easy with food now." Another Chinese supplier added: "Highly educated – these are the *smart* people who look after technology jobs. What if they can't find *that* job? They would continue looking for other jobs to get paid, but rarely creating their own business. In my opinion, if you have not made money in China, you won't be able to make money in Canada either."

Although a detailed reporting of our fieldwork is not permitted here, the above illustration should help verify the essence of our entrepreneurship theory, that is, low-skilled but highly entrepreneurial immigrants are more likely to enter the import business as a way to adapt economically, while meeting the culture-bounded consumption needs of their communities.

6. Discussion

6.1. Contributions

In the context of China, our findings confirm the widely held belief that emigration enhances exports, especially for more differentiated goods (Rauch & Trindade, 2002). Our departure from and thereby main contribution to the literature concerns a key aspect of network heterogeneity, that is, the skill structure of migrants. Viewing immigrants as trade-creating entrepreneurs enables us to conceptually re-consolidate the two mechanisms underpinning the migration-trade nexus. Our entrepreneurship perspective is focused on *aspirations*, that is, what motivates immigrants to become international entrepreneurs who help create demand and subsequently deliver on such demand. Our novel hypothesis and empirical support, including illustrations from our fieldwork, serve as a context-bound test of such entrepreneurial aspiration logic, and will have implications for research in two primary ways.

First, we offer an alternative view of educational attainment in determining immigrants' pro-trade role, namely, creating trade

Please cite this article in press as: X. Lin, X. Yang, From human capital externality to entrepreneurial aspiration: Revisiting the migration-trade linkage, Journal of World Business (2017), http://dx.doi.org/10.1016/j.jwb.2016.11.001

entrepreneurially instead of merely facilitating trade activities of other economic agents. While a human capital externality is likely to exist, the role of immigrants may be underestimated with a restricted externality logic. According to our findings, education may create a negative choice effect (Burke, FitzRoy, & Nolan, 2000) among high-skilled Chinese immigrants and it is low-skilled Chinese immigrants with stronger entrepreneurial aspirations who contribute more to China's exports to destination countries. In establishing our hypothesis favoring low-skilled immigrants we have to contest the much entrenched assumption that educational attainment equates with trade-promotion information capability. We do this by arguing that formal education does not necessarily translate into useful information/knowledge, and, more importantly, information alone does not necessarily lead to trade expanding efforts. Consistent with the expectancy-valence theory of work motivation (Vroom, 1964), we argue that low-skilled migrants should be more attentive to trade activities between origin and destination countries, owing to their relatively limited employment opportunities in the general labor markets at destination. In other words, it is this attentiveness that determines the extent to which relevant knowledge is actually utilized by immigrants in expanding source-destination trade. Interestingly, although our focus is on information as a potential network benefit, this discussion echoes recent work in the field of social capital. That is to say, possessing social capital is not the same as actually using social capital (Yu, Hao, Ahlstrom, Si, & Liang, 2014), and there are factors which influence whether social capital is actually utilized (Kwon & Adler, 2014). In our case, migrant networks have the potential to convey relevant information for trade but whether the information is mobilized depends on the levels of aspirations among immigrants.

Second, we establish a link between immigrant economic and psychological adaptations in regards to immigrants' educational attainment. Although immigrants' modes of psychological and economic adaptation, respectively, seems to be based on some common social and personal variables, there has been rare discussion on how psychological and economic consequences from such choices come together and are demonstrated in behavioral development among different immigrant groups. In the case of low-educated immigrants, the lack of ability to interact with the host country culture proves to be not only prohibitive to acculturation (Chiswick & Miller, 2002) but also supportive of business strategies relying on ethnic resources (Aldrich & Waldinger, 1990). Thus in the globalized milieu which allows for substantive trade between home and host countries, the culturally unassimilated immigrants are likely to become engaged in such trade, taking advantage of the ethnic network sustained by migration. The scarcer the labor market opportunities, the stronger such entrepreneurial aspirations will be.

We sensibly situate our hypothesis in the context of China and explain why it appears to contradict the oft-assumed notion that higher educated immigrants are more valuable in facilitating the transnational flow of "ideas" (Madhavan & Iriyama, 2009). As Hernandez (2014) demonstrated, in order to ascertain the knowledge implications of immigrant networks, one must determine the knowledge-related mechanisms and peculiar contexts within which immigrant networks give rise to idiosyncratic benefits in the domains of knowledge transfer and learning. Based on the education-facilitating-knowledge-transfer logic, Vaaler (2011) predicted that the contribution of remittances to the venture investment environment in immigrants' origin countries should be greater from immigrants with higher education, yet his findings countered his prediction. In the current study, the same logic would lead us to expect a greater impact from high-skilled immigrants, particularly when the imported goods become increasingly more sophisticated (Rauch, 1999). However, our results suggest that the pro-trade effect of low-skilled migrants is greater than that of skilled migrants across all goods groups, including differentiated goods. Since our findings and that of Vaaler (2011) go against the favor of high-skilled immigrants (e.g., Kugler & Rapoport, 2007; Saxenian, 2002) and thus point to the possibility that the value of immigrants' educational endowments might be context-bound, future research may compare the various transnational processes in an effort to determine the extent to which immigrants serve as knowledge carriers or channels under specific circumstances.

Our context-bound theorizing does not deny the importance of information or a possible indirect role of immigrants in conveying information so as to help reduce transaction costs for other economic agents (Gould, 1994); we only consider the prevailing human capital-type externality logic to be too restrictive in accounting for the effect of migrant networks. Statistically, the externality effect could be exhausted quickly with inbound migrants. For us, internationalization is a market-creation process where entrepreneurs and entrepreneurial managers identify and explore opportunities (Coviello & McAuley, 1999; Teece, 2014). While immigrants could contribute to trade by helping reduce transaction costs of MNCs or other internationally oriented small businesses, in the context of China they are more likely to help expand trade as market-creating entrepreneurs (Kotkin, 1992). We suspect that the divide between the human capital externality centered logic and our entrepreneurial perspective reflects discipline-embedded biases.

Although the economic sociology has long established the active role of immigrant entrepreneurs in creating trade between home and host countries, the economics and international business (IB) literature has subscribed to a tradition that favors large MNCs as the main force over entrepreneurial firms in the international realm (Chandra & Coviello, 2010; Oviatt & McDougall, 1994). The bias of the IB scholarship is actually not surprising if we look at the broader literature on connectivity of international activities of firms, which has predominately focused on organizational mechanisms but rarely considered individual-based channels (Andersson, Dasí, Mudambi, & Pedersen, 2016). Although in this research we did not verify the contributions from other economic agents (e.g., MNEs and non-immigrant international entrepreneurs), we provided estimates on the typical contribution of the Chinese immigrants in expanding exports from China to a destination country. It would be interesting for future work to develop a comprehensive picture mapping out the specific contributions of each participating agent, alongside those from the immigrant entrepreneurs.

6.2. Policy implications

Our study contributes to the discourse on the effects of international migration, an issue of seemingly macroeconomic nature but with significant policy implications that should be addressed (Abrahamson, 2008; Ahlstrom, 2015). There is a lack of understanding of the impact of newly immigrated entrepreneurs on host country economies (Neville, Orser, Riding, & Jung, 2014). Concerning imports, if they help reduce transaction costs and cost-saving benefits accrue to native-born consumers, there should be an appreciation for what they do. In situations where trade deficits have become a concern, the immigration of low-skilled workers may be seen in a negative light if they are found to contribute to the imports from the source country (Head & Ries, 1998). This study shows that the inflow of low-skilled migrants help expand imports from the origin to destination countries more than skilled migrants could, but we are by no means suggesting that government should restrict immigration quotas on low-skilled workers simply based on this finding. What we are suggesting is to attain more precise

Please cite this article in press as: X. Lin, X. Yang, From human capital externality to entrepreneurial aspiration: Revisiting the migration-trade linkage, Journal of World Business (2017), http://dx.doi.org/10.1016/j.jwb.2016.11.001

and comprehensive assessments of immigrants' contributions to the host economy as the basis for sound policies. For example, one question that is not considered in the current study concerns the role of Chinese migrant networks in promoting export to China. It would also be interesting to see if the skill/education level of the Chinese immigrants makes a difference in that regard.

6.3. Limitations and future research

Despite its contributions, the present study entails various limitations. First, our theory is built upon the assumption that low-skilled Chinese migrants are more likely to demand home country goods along with greater entrepreneurial aspirations, but we do not empirically rule out the possibility that high-skilled Chinese immigrants may maintain a stronger preference for home country goods even if their higher purchasing power affords them more expensive goods made in host country. Therefore, future research should verify the level of such preference among low-skilled vs. high-skilled Chinese immigrants. If the preference is actually greater in the latter group, it becomes imperative to compare two alternative hypotheses: higher demand for home country goods by high-skilled immigrants vs. stronger entrepreneurial aspirations by low-skilled immigrants – which one is more able to promote exports from China into host countries? Second, in our last robustness test, dropping two outliers with more low-skilled immigrants (i.e., Hong Kong and Macau) causes the effects related to the skilled network to be affected. Further research is needed to verify such effect and offer explanations accordingly.

7. Conclusion

While the economics literature often assumes that high-skilled migrants contribute more to exports from their home countries because of their greater educational attainments, our empirical investigation reveals that the trade-promotion role of low-skilled migrants is actually greater due to their stronger entrepreneurial aspirations. In our view, the prevailing human capital externality logic's focus on information capacity is too narrow and does not recognize the economic, ideational, and cultural contexts that inspire immigrants to engage in trade-promoting entrepreneurial activities (Ahlstrom, 2010; McCloskey, 2016). Educational attainment differentials do matter, but largely in their association with immigrants' devotion to pro-trade activities and preference for home country goods. Ideas and cultural proclivities can matter more (McCloskey, 2013, 2016). Our theoretical insights and empirical findings allow for understanding a specific aspect of the migrant-trade relationship and consequently help legitimize the migrant network model that has been used to describe the phenomenon at the summative level to date.

Acknowledgements

Xiyan Yang would like to acknowledge the financial support to this study by the Key Research Base of Humanities and Social Science of MEC in Institute of World Economy of Fudan University (Project of The Strategic Connection between the Silk Road Economic Belt and the Eurasian Economic Union, Grant No. 15JJD790006), the General Program of SSFC (Grant No. 13BJY135), the Major Program of SSFC (Grant No. 15ZDA058), and the Strategy Research Institute of Shanghai International Trade Center at Shanghai University of International Business and Economics.

References

Abrahamson, E. (2008). 22 things I hate: Mini rants on management research. *Journal of Management Inquiry*, *17*(4), 422–425.
Abu-Rayya, H. M. (2009). Acculturating and its determinants among adult immigrants in France. *International Journal of Psychology*, *44*(3), 195–203.
Ahlstrom, D., & Ding, Z. (2014). Entrepreneurship in China: An overview. *International Small Business Journal*, *32*(6), 610–618.
Ahlstrom, D., Bruton, G. D., & Yeh, K. S. (2008). Private firms in China: Building legitimacy in an emerging economy. *Journal of World Business*, *43*(4), 385–399.
Ahlstrom, D. (2010). Innovation and growth: How business contributes to society. *Academy of Management Perspectives*, *24*(3), 11–24.
Ahlstrom, D. (2015). From the editors: Publishing in the journal of world business. *Journal of World Business*, *2*(50), 251–255.
Aldrich, H. E., & Waldinger, R. (1990). Ethnicity and entrepreneurship. *Annual Review of Sociology*, *16*(1), 111–135.
Andersen, P. H. (2006). Listening to the global grapevine: SME export managers' personal contacts as a vehicle for export information generation. *Journal of World Business*, *41*(1), 81–96.
Anderson, J. E., & Van Wincoop, E. (2003). Gravity with gravitas: A solution to the Border Puzzle. *American Economic Review*, *93*(1), 170–192.
Andersson, U., Dasí, À., Mudambi, R., & Pedersen, T. (2016). Technology, innovation and knowledge: The importance of ideas and international connectivity. *Journal of World Business*, *51*(1), 153–162.
Arvis, J. F., & Shepherd, B. (2013). The Poisson quasi-maximum likelihood estimator: A solution to the adding up problem in gravity models. *Applied Economics Letters*, *20*(6), 515–519.
Bauer, T., & Kunze, A. (2004). The demand for high-skilled workers and immigration policy. *CEPR discussion paper*. No. 4274.
Berry, J. W. (1997). Immigration, acculturation, and adaptation. *Applied Psychology: An International Review*, *46*(1), 5–68.
Biao, X. (2003). Emigration from China: A sending country perspective. *International Migration*, *41*(3), 21–48.
Blanes-Cristóbal, J. V. (2005). Immigrant's characteristics and its different effects on bilateral trade. *Documentos de Economía y Finanzas Internacionales*. .
Burke, A. E., FitzRoy, F. R., & Nolan, M. A. (2000). When less is more: Distinguishing between entrepreneurial choice and performance. *Oxford Bulletin of Economics and Statistics*, *62*(5), 565–587.
Byrd, T. C., Balcazar, H., & Hummer, R. A. (2000). Acculturation and breast-feeding intention and practice in Hispanic women on the US-Mexica border. *Ethnicity & Disease*, *11*(1), 72–79.
Casella, A., & Rauch, J. E. (2002). Anonymous market and group ties in international trade. *Journal of International Economics*, *58*(1), 19–47.
Cerdin, J.-L., Diné, M. A., & Brewster, C. (2014). Qualified immigrants' success: Exploring the motivation to migrate and to integrate. *Journal of International Business Studies*, *45*(2), 151–168.
Chaganti, R., & Greene, P. G. (2002). Who are ethnic entrepreneurs? A study of entrepreneurs' ethnic involvement and business characteristics. *Journal of Small Business Management*, *40*(2), 126–143.
Chandra, Y., & Coviello, N. (2010). Broadening the concept of international entrepreneurship: Consumers as International Entrepreneurship. *Journal of World Business*, *45*(3), 228–236.
Chiswick, B. R., & Miller, P. W. (2002). Immigrant earnings: Language skills, linguistic concentrations and the business cycle. *Journal of Population Economics*, *15*(1), 31–57.
Chung, H. F., & Tung, R. L. (2013). Immigrant social networks and foreign entry: Australia and New Zealand firms in the European Union and Greater China. *International Business Review*, *22*(1), 18–31.
Coleman, J. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, *94*, S95–S120.
Combes, P.-P., Lafourcade, M., & Mayer, T. (2005). The trade-creating effects of business and social networks: Evidence from France. *Journal of International Economics*, *66*(1), 1–29.
Coviello, N. E., & McAuley, A. (1999). Internationalisation and the smaller firm: A review of contemporary empirical research. *Management International Review*, *39*(3), 223–256.
Coviello, N. E., & Munro, H. J. (1995). Growing the entrepreneurial firm: Networking for international market development. *European Journal of Marketing*, *29*(7), 49–61.
Crapo, R. H. (1993). *Cultural anthropology: Understanding ourselves and others*. Guilford, CT: Dushkin Publishing Group.
Davies, H., Leung, T. K., Luk, S. T., & Wong, Y. H. (1995). The benefits of *Guanxi*: The value of relationships in developing the Chinese market. *Industrial Marketing Management*, *24*(3), 207–214.
Dunlevy, J. A. (2004). Interpersonal networks in international trade: Evidence on the role of immigrants in promoting exports from the United States. *Working paper*. University of Miami.
Enderwick, P., Tung, R. L., & Chung, H. F. (2011). Immigrant effects and international business activity: An overview. *Journal of Asia Business Studies*, *5*(1), 6–22.
Fally, T. (2015). Structural gravity and fixed effects. *Journal of International Economics*, *97*(1), 76–85.
Feenstra, R., Lipsey, R. A., Deng, H., Ma, A. C., & Mo, H. (2005). World trade flows: 1962–2000. *NBER working papers, 11040*. Cambridge, MA: National Bureau of Economic Research.

Please cite this article in press as: X. Lin, X. Yang, From human capital externality to entrepreneurial aspiration: Revisiting the migration-trade linkage, Journal of World Business (2017), http://dx.doi.org/10.1016/j.jwb.2016.11.001

Felbermayr, G. J., & Toubal, F. (2012). Revisiting the trade-migration nexus: Evidence from new OECD data. *World Development*, *40*(5), 928–937.
Felbermayr, G., Jung, B., & Farid, T. (2010). Ethnic networks, information, and international trade: Revisiting the evidence. *Annales d'Economie et de Statistique ENSAE*, *97–99*, 41–70.
Girma, S., & Yu, Z. (2000). The link between immigration and trade: Evidence from the UK. *Research paper 2000/23*. Centre for Research on Globalisation and Labour Markets, University of Nottingham.
Goldmann, G. (2000). *The determinants of acculturation: How immigrants adapt*. Ottawa: Carleton University Unpublished PhD thesis.
Gould, D. M. (1994). Immigrant links to the home country: Empirical implication for US bilateral trade flows. *Review of Economics and Statistics*, *76*(2), 302–316.
Greenaway, D., Mahabir, P., & Milner, C. (2007). Does the presence of ethnic Chinese in trading partner countries influence bilateral trade flows with China? *Working paper*. Leverhulme Centre for Research in Globalisation and Economic Policy, University of Nottingham.
Hart, D. M. (2007). Understanding immigration in a national systems of innovation framework. *Science and Public Policy*, *34*(1), 45–53.
Head, K., & Ries, J. (1998). Immigration and trade creation: Econometric evidence from Canada. *Canadian Journal of Economics*, *31*(1), 47–62.
Hernandez, E. (2014). Finding a home away from home: Effects of immigrants on firms' foreign location choice and performance. *Administrative Science Quarterly*, *59*(1), 73–108.
Hitt, M. A., Li, D., & Xu, K. (2016). International strategy: From local to global and beyond. *Journal of World Business*, *51*(1), 58–73.
Johnston, W. B. (1991). Global workforce 2000: The globalization of labor. *Harvard Business Review*, *69*(2), 115–122.
Kang, H. L., & Garey, J. G. (2002). A survey of acculturation of food habits among first generation Koreans in the United States. *Topics in Clinical Nutrition*, *17*(3), 31–43.
Kotkin, J. (1992). *Tribes: How race, religion, and identity determine success in the new global economy*. New York: Random House186–187.
Kugler, M., & Rapoport, H. (2007). International labor and capital flows: Complements or substitutes? *Economics Letters*, *94*(2), 155–162.
Kwon, S. W., & Adler, P. S. (2014). Social capital: Maturation of a field of research. *Academy of Management Review*, *39*(4), 412–422.
Lall, S., & Albaladejo, M. (2004). China's competitive performance: A threat to East Asian manufactured exports? *World Development*, *32*(9), 1441–1466.
Light, I., & Bonacich, E. (1988). *Immigrant entrepreneurs*. Berkeley, CA: University of California Press.
Light, I. H., & Rosenstein, C. N. (1995). *Race, ethnicity, and entrepreneurship in urban America*. Piscataway, NJ: Transaction Publishers.
Madhavan, R., & Iriyama, A. (2009). Understanding global flows of venture capital: Human networks as the 'carrier wave' of globalization. *Journal of International Business Studies*, *40*(8), 1241–1259.
Marmot, M. G., & Syme, S. L. (1976). Acculturation and coronary heart disease in Japanese Americans. *American Journal of Epidemiology*, *104*(3), 225–247.
McCloskey, D. N. (2013). Tunzelmann, Schumpeter, and the hockey stick. *Research Policy*, *42*(10), 1706–1715.
McCloskey, D. N. (2016). *Bourgeois equality: How ideas, not capital or institutions, enriched the world*. Chicago: University of Chicago Press.
Miles, J. (2009). *Tolerance and variance inflation factor*. Wiley StatsRef: Statistics Reference Online.
Minbaeva, D., Pedersen, T., Bjorkman, I., Fey, C., & Park, H. J. (2003). MNC knowledge transfer, subsidiary absorptive capacity and HRM. *Journal of International Business Studies*, *34*(6), 586–599.
Mundra, K. (2005). Immigration and international trade: A semiparametric empirical investigation. *Journal of International Trade & Economic Development*, *14*(1), 65–91.
Neville, F., Orser, B., Riding, A., & Jung, O. (2014). Do young firms owned by recent immigrants outperform other young firms? *Journal of Business Venturing*, *29*(1), 55–71.
Orozco, M. (2008). *Tasting identity: Trends in migrant demand for home-country goods*. Washington, DC: U.S. Agency for International Development.
Oviatt, B. M., & McDougall, P. P. (1994). Toward a theory of international new ventures. *Journal of International Business Studies*, *25*(1), 45–64.
Pieke, F. N. (1999). Introduction. In F. N. Pieke, & H. Mallee (Eds.), *Internal and international migration: Chinese perspectives* (pp. 1–26).New York: Routledge.
Portes, A. (1981). Modes of structural incorporation and present theories of labor immigration. In M. M. Kritz, C. B. Keeley, & S. M. Tomasi (Eds.), *Global trends in migration: Theory and research on international population movements* (pp. 279–297).New York: Center for Migration Studies.
Qian, M. (2008). The economic relationship between trade and immigration in New Zealand. *Working paper number 1*. Albany: Integration of Immigrants Programme, Massey University.
Rauch, J., & Trindade, V. (2002). Ethnic Chinese networks in international trade. *Review of Economics and Statistics*, *84*(1), 116–130.
Rauch, J. (1999). Networks versus markets in international trade. *Journal of International Economics*, *48*(1), 7–35.
Rydgren, J. (2004). Mechanisms of exclusion: Ethnic discrimination in the Swedish labour market. *Journal of Ethnic and Migration Studies*, *30*(4), 697–716.
Salaff, J., & Greve, A. (2003). Gendered structural barriers to job attainment for skilled Chinese Migrants in Canada. *International Journal of Population Geography*, *9*(3), 443–456.
Saxenian, A. (2002). Transnational communities and the evolution of global production networks: The cases of Taiwan, China and India. *Industry and Innovation*, *9*(3), 183–202.
Schott, P. K. (2008). The relative sophistication of Chinese exports. *Economic Policy*, *23*(53), 5–49.
Sequeira, J. M., & Rasheed, A. A. (2006). Start-up and growth of immigrant small businesses: The impact of social capital and human capital. *Journal of Developmental Entrepreneurship*, *11*(4), 357–375.
Shepherd, B. (2013). *The gravity model of international trade: A user guide*. New York: United Nations Publications.
Shinnar, R. S., & Young, C. A. (2008). Hispanic immigrant entrepreneurs in the Las Vegas metropolitan area: Motivations for entry into and outcomes of self-employment. *Journal of Small Business Management*, *46*(2), 242–262.
Siggelkow, N. (2007). Persuasion with case studies. *Academy of Management Journal*, *50*(1), 20–24.
Sui, S., Morgan, H. M., & Baum, M. (2015). Internationalization of immigrant-owned SMEs: The role of language. *Journal of World Business*, *50*(4), 804–814.
Tarique, I., & Schuler, R. S. (2010). Global talent management: Literature review, integrative framework, and suggestions for further research. *Journal of World Business*, *45*(2), 122–133.
Teece, D. J. (2014). A dynamic capabilities-based entrepreneurial theory of the multinational enterprise. *Journal of International Business Studies*, *45*(1), 8–37.
Tsui, A. S. (2006). Contextualization in Chinese management research. *Management and Organization Review*, *2*(1), 1–13.
Vaaler, P. M. (2011). Immigrant remittances and the venture investment environment of developing countries. *Journal of International Business Studies*, *42*(9), 1121–1149.
Vroom, V. H. (1964). *Work and motivation*. New York: John Wiley.
Wagner, D., Head, K., & Ries, J. (2002). Immigration and the trade of provinces. *Scottish Journal of Political Economy*, *49*(5), 507–525.
Weidenbaum, M., & Hughes, S. (1996). *The Bamboo Network: How expatriate Chinese entrepreneurs are creating a new economic superpower in Asia*. New York: Free Press.
White, D. (2007). Immigrant-trade links: Transplanted home bias and network effects. *Applied Economics*, *39*, 839–852.
Widmaier, S., & Dumont, J. C. (2011). Are recent immigrants different? A new profile of immigrants in the OECD based on DIOC 2005/06. *OECD social, employment and migration working papers No. 126*. Directorate for Employment, Labour and Social Affairs: OECD Publishing.
Wong, L. L., & Ng, M. (2002). The emergence of small transnational enterprise in Vancouver: The case of Chinese entrepreneur immigrants. *International Journal of Urban and Regional Research*, *26*(3), 508–530.
Wu, X. (2006). Family businesses in China, 1987–96: entry and performance. In A. S. Tsui, Y. Bian, & L. Cheng (Eds.), *China's domestic private firms* (pp. 40–64). Armonk, NY: M. E. Sharpe.
Yu, B., Hao, S., Ahlstrom, D., Si, S., & Liang, D. (2014). Entrepreneurial firms' network competence, technological capability, and new product development performance. *Asia Pacific Journal of Management*, *31*(3), 687–704.

Please cite this article in press as: X. Lin, X. Yang, From human capital externality to entrepreneurial aspiration: Revisiting the migration-trade linkage, Journal of World Business (2017), http://dx.doi.org/10.1016/j.jwb.2016.11.001