Does Networking Promote Immigrant Business Performance?—The Case of Chinese and Korean Immigrants in California

Yunxiao Xu
Yew Chung International School of Shanghai, Shanghai, China
Email: ynxarthur@yahoo.com

Abstract

Scholars have pointed out both positive and negative effects ethnical networks could have on immigrant business performance. By statistically analyzing the difference in income among Chinese and Korean entrepreneurs, this study focuses on the impact of a strong network on immigrant business performance. The results indicate that higher network quality and quantity have negative impacts on business owners’ incomes, yet these negative effects could be offset by stronger overall networks.

Keywords

Economics, Chinese, Korean, California, Immigrants, Entrepreneurship, Networks

1. Introduction

From Chinese restaurants to Korean laundromats, immigrant-owned businesses are ubiquitous in everyday American life. Immigrants have proven to be more entrepreneurial than their native counterparts [1]. The number of immigrant businesses rose from 2.7 million in 1997 to 3.3 million in 2002 [2]. This is an annual increase of 4 percent, while the yearly growth for all U.S. firms is 2 percent. However, immigrant-owned businesses are smaller in general. According to the 2007 Survey of Business Owners and Self-Employed Persons, immigrant-owned businesses have 4.5 fewer employees than the national average. However, these immigrant-owned businesses still make substantial and growing contributions to job and wealth creation. Total business income for immigrants is $121 billion, representing 15 percent of all business income in the United States [3]. Bigger firms in the STEM fields also have impressive performances.
For example, in Silicon Valley, a hub for immigrant entrepreneurs, immigrant-run companies collectively accounted for more than $16.8 billion in sales and 58,282 jobs in 1998. Moreover, due to the centrality of self-employment with regards to upward economic mobility, these businesses play an important role in bridging the wage-gap between natives and immigrants, promoting economic assimilation for immigrants. They unquestionably have the ability to influence the U.S. economy in terms of both growth and allocation.

Every profit-seeking firm relies on its business performance to survive and make economic contributions possible. In order to better understand the economic contribution of immigrant businesses, examining the driving force of their business performance becomes crucial. The United States welcomes immigrant entrepreneurs by giving special preferences for admission to immigrants who invest $1 million in businesses and provide or preserve at least 10 full-time jobs for U.S. workers. Identifying the factors that affect immigrant business performance can help the U.S. government when it comes to screening these immigrant entrepreneurs and granting entry to the most “beneficial” individuals. Scholars have found certain factors contributing to above-average business performances for some immigrant-owned firms. It is argued that Asian-owned businesses outperform non-Hispanic white owned businesses due to higher levels of owner education and startup capital [4]. Besides capital and education, another often unobservable, and less discussed factor that might also affect immigrant business performance is networks formed among immigrants. Critics have pointed out both the advantages and disadvantages of migrant networks and ethnical enclaves. Using statistical analysis, this paper looks into the impact of immigrant networks on immigrant entrepreneurship performance.

To quantitatively study this question, I chose Chinese and Korean entrepreneurs in California as the target of this investigation. Coming from East-Asia and possessing similar cultural influences, both groups are highly educated, entrepreneurial, and motivated. These two groups of immigrants possess many similar characteristics, yet different immigrant networks. I have concluded that Koreans have stronger networks, likely through their common religious beliefs. In my analysis, I examined the income of business owners from these two groups, and through my regression results, I found that immigrant entrepreneurs with a strong ethnical network do earn more than those without one. This indicates the positive relationship between immigrant networks and business performances. Finally, I will discuss conclusions and limitations of this research.

By studying the relationship between immigrant networks and business performance, we will be one step closer to understanding the keys to establish successful immigrant-owned firms. Successful firms, in turn, lead to economic growth for immigrants and non-immigrants alike, as well as immigrant assimilation. The methods used in this paper, while only being applied in this example to Chinese and Koreans in California, could also be used to compare other ethnic enclaves of similar size in communities around the United States. This re-
search also contributes to the broader investigation of benefits and costs of immigrant networks, which further provides insight into whether it is more advantageous for immigrant entrepreneurs to branch out from their communities, or stay within them.

2. Background
Some immigrant-run businesses are more successful than others in terms of generating profits, and this is not simply due to individual characteristics or coincidence. On average, immigrant firms have lower sales than non-immigrant firms. On the other hand, studies also find high levels of business earnings among Asian immigrant groups. Using data from the Characteristics of Business Owners, it was found that “Asian-owned businesses, which are 80 percent immigrant owned, have higher sales and profits, and they are more likely to survive and hire employees than non-Hispanic white owned businesses”. Also, startup capital explains at least 50 percent, and high levels of education explain “8 - 26 percent of why Asian-owned businesses perform better on average” [4].

Capital and the education level of owners represent only part of the ultimate equation for running a successful business as an immigrant. Networking is another indispensable factor. The overall effect of networks on immigrant entrepreneurship and business performance is double-sided, yet networks undoubtedly play an important role in increasing earning opportunities for immigrants. Some scholars believe that networks represent entrepreneurial resources that expand economic opportunities immigrants encounter in destination economics [5]. These networks support co-ethnic entrepreneurship in three principal ways discussed below.

First, these networks feed low cost co-ethnic labor to immigrant entrepreneurs, reducing costs for employers [6]. Immigrant entrepreneurs often employ co-ethnic individuals, including relatives, at a significantly high rate. For example, it was reported that 30.8% of the Korean immigrants in Los Angeles were employees of Korean-owned firms, while Koreans only made up 1 percent of the total population in Los Angeles County at that time [7]. It was also shown that ethnic networks helped Mexican migrants find jobs in low-wage, labor-intensive sectors [8]. This low-cost labor brought by immigrant networks usually possessed the same language and cultural values as the business owner, which further aided smooth operation of these firms, reduced overall production costs, and led to greater business performance.

Second, migration networks feed economic information to immigrant entrepreneurs and aspiring immigrant entrepreneurs, providing a protected market for certain goods. By studying the garment industry in New York, Bailey and Waldinger pointed out that immigrant networks and enclaves served as an “external, informal training system that shaped the employment relationship and increased the availability and quality of information for workers and employers” [9]. As mentioned previously, newcomers tend to work in immigrant firms,
train and become familiarized within the market of the host country. Workers who have gained skills and information by working for their co-ethnic owners often set up new businesses of their own, which creates an informal training system for both immigrant entrepreneurs and employees. This is valuable in terms of generating sales for an immigrant-owned business as it forms a rather exclusive information system and product markets.

Third, studies have confirmed immigrant networks’ usefulness in dealing with business problems. Migration networks provide access to various kinds of mutual assistance including information, as well as starting capital and business support. Small businesses are the main avenue for economic mobility for minority groups. Self-employment is a mobility ladder, but sometimes, it is also an economic lifeboat for those who are unable to find jobs in a formal sector. Immigrant networks encourage these people by providing access to microfinance or informal lending markets through programs such as rotating credit associations [10]. Networks help newcomers in mobilizing monetary resources and raising business capital. Some other factors immigrant networks can provide are, but not limited to: the ability to purchase goods and services at advantageous prices, assistance in dealing with public bureaucracies, improved labor relations, access to industrial engineering, and marketing services.

However, the effects of immigrant networks on business performance are not all positive. It has been demonstrated that entry by potential immigrant entrepreneurs may become difficult as established immigrants could exert monopoly power and block the entry of those who have arrived more recently [2]. Moreover, ethnical enclaves are sometimes located in economically disadvantageous areas where the purchasing power of the residents is lower than the national average, which could set a ceiling for growth of a business within the enclave. In both cases, we can see how immigrant networks could possibly impede the development of new immigrant-owned businesses and lead to below-average business performance of these firms, which makes the overall effect of networks more complicated.

The relation between networks and immigrant business performance remains unclear since the strength of networks is difficult to measure. It is not simply a matter of population. Different ethnic groups have vastly different networks, and the quality of these networks is often unobservable. The fact that the geographical boundaries for most ethnical enclaves are rather ambiguous adds further difficulties to the study. “Quantity” of a social network is measured as “the number of people the minority individual interacts with through this language”, and “quality” of the social network is measured by “counting the number of people in this language group who use welfare” [2] [11]. This paper will adapt this measurement, which will be introduced and discussed in the following section.

3. Methods

In order to understand the importance of networks, ideally, we want to examine
two groups of entrepreneurs with similar characteristics, yet different immigrant networks—one stronger and the other, weaker. It is impossible in reality to find a perfect counterpart for any group of immigrants. However, I find that Chinese and Korean immigrants in California represent a good pair for comparison in this study.

The characteristics of Korean and Chinese immigrant business owners are similar. In terms of culture, Chinese and Korean are two ethnic groups heavily influenced by Confucianism. Instilled with the same ideology, they share many common unobservable characteristics such as motivation and attitudes towards kinship. For example, Table A2 and Table A3 show the distribution of weeks worked last year for Chinese and Korean immigrants. A majority number in both groups worked 50 to 52 weeks in the past year. Moreover, both groups are highly educated in comparison to other ethnic groups. According to the 2000 U.S. Census, the share of population with less than a high school education are 12% and 2% for Chinese and Korean immigrants, respectively. This number is 38% for Cambodian immigrants, another group that also has high rates of self-employment (12%). Moreover, businesses owned by Chinese and Korean immigrants both have above-average starting capital, which is a crucial factor in promoting better business performances. Restaurants and other food services, as well as dry cleaning and laundry facilities are popular industries for both self-employed Chinese and Koreans.

Networks are the product of shared language, ideologies and beliefs. The difference between networks of these two groups is also obvious, due to the fact that most Korean immigrants are religious while Chinese immigrants are not. Korean immigrants historically have had a very strong Christian heritage. More than 70% Korean Americans identify themselves as Christian; 60% of those consist of immigrants who were already Christians at the time of their arrival in the United States. There are about 4000 Korean Christian churches in the United States, while the estimated number of Chinese Christian churches is 1200 [12]. A wide variety of studies have indicated that common religious preference serves as a strong social bond. For example, using the national Survey of Parents and Youth (1998-1999) data, it was found that "participation in religious congregations increases network closure between the parents of youth and their children's friends" [13]. Studies also indicate that Korean immigrants maintain higher levels of ethnic attachment than other Asian immigrant groups. "The affiliation of the majority of Korean immigrants with Korean churches, their cultural homogeneity, and their concentration in small businesses contribute to their high ethnic attachment." Korean immigrants in Los Angeles preserve an even higher level of ethnicity than those in other parts of the U.S. partly because of the existence of Korea Town as a "territorial base" and partly because of a large concentration of Koreans in the city" [14].

Ethnic network is defined as the interaction between the size of the network and the quality of the network [2] [11]. Below is a mathematical representation:
\[ \text{Network}_{jk} = E_{jk} \times Q_k \]

where \( E_{jk} \) is the “ethnic enclave” of a person from a country of origin group \( k \) living in area \( j \), defined as follows:

\[
E_{jk} = \frac{\text{Number of people from group } k \text{ in area } j}{\text{Total population in area } j} \times \frac{\text{Number of people from group } k}{\text{Total population in country}}
\]

\( Q_k \) stands for the quality of the network, or the “knowledge” and “attitude” of others from the country origin group \( k \) (China or Korean) has towards entrepreneurship. This is measured by the logarithm of the self-employment rate of the group in certain metropolitan areas, divided by the national self-employment rate for the specific group, which is 12% and 24% for Chinese and Koreans, respectively.

\[
Q_{jk} = \ln \left( \frac{\text{Number of self-employed people from group } k \text{ in area } j}{\text{Total population of group } k \text{ in area } j} \times \frac{\text{Number of self-employed people from group } k \text{ in country}}{\text{Total population of group } k \text{ in country}} \right)
\]

I chose California as the sample for my study because \( E_{jk} \) for both Chinese and Korean immigrants are equally high in this area. I generated this enclave indicator for immigrants at different metropolitan areas in California and controlled for the fixed effect of these metropolitan areas to add another degree of variation. In Table A2, we can see that the majority of Chinese and Korean immigrant entrepreneurs are located in three metropolitan areas: Los Angeles-Long Beach-Anaheim, San Francisco-Oakland-Hayward, and San Jose-Sunnyvale-Santa Clara. See Appendix 2 for the full list of metropolitan areas in California.

My data comes from the Public Use Microdata Sample (PUMS) file created for the 2013 American Community Survey (ACS). Another relevant survey available is the 2007 Survey of Business Owners and Self-Employed Persons (SBO). The 2007 SBO includes information on whether the business owner is an immigrant. It further collects information on gender, ethnicity and educational attainment of business owners and includes information on the sales, starting capital, employment, language spoken in transactions, and industries of the business. The SBO is a good resource to analyze immigrant business performances since it directly captures sales, an essential measurement of performance. Appendix 1 includes summary statistics from the dataset. However, the 2007 SBO does not include detailed country-level birthplace information, which makes the dataset not useful in this study. The 2007 SBO also lacks data about metropolitan areas, which again, unfortunately, eliminates possibility to analyze the concentration of immigrant-owned businesses in Californian metropolitan areas to determine if certain ones are more likely to attract immigrant entrepreneurs. The next best substitute for the SBO is the 2013 ACS, which contains individual-level information including birthplace, employment classification (work for wages or self-employed), total income, working hours, and total per-
sonal income. I perform regression analysis on hourly income for self-employed male working-age (21 - 65) Chinese and Korean immigrants, using Koreans as the dummy variable. I control for education level, years in the U.S., years in the U.S. squared, age, age squared, ability to speak English, and the network indicator introduced above. I dropped income outliers (the top and bottom 5 percent). The regression model is:

\[
\text{Hourly personal income} = \beta_0 + \beta_1 \text{Korean} + \beta_2 \text{Network indicator} + \beta_3 \text{Years in the U.S.} + \beta_4 \text{Years in the U.S.}^2 + \beta_5 \text{age} + \beta_6 \text{age}^2 + \beta_7 \text{education} + \beta_8 \text{Speak English}
\]

I also developed an alternative model, in which the dependent variable is the logarithm of hourly personal income instead of personal income:

\[
\ln(\text{Hourly personal income}) = \beta_0 + \beta_1 \text{Korean} + \beta_2 \text{Network indicator} + \beta_3 \text{Years in the U.S.} + \beta_4 \text{Years in the U.S.}^2 + \beta_5 \text{age} + \beta_6 \text{age}^2 + \beta_7 \text{education} + \beta_8 \text{Speak English}
\]

As the network indicator that captures both the “quantity” and “quality” of the network is controlled in the regression, \(\beta_1\) and \(\beta_2\) together should reflect the impact of a strong network has on the income of immigrant entrepreneurs.

4. Results and Conclusion

According to the regression results (see Appendix 3), \(\beta_1\) the Korean dummy variable is negative and significant for both regression models. \(\beta_2\), the network indicator, is also negative and significant. This means that for both Chinese and Korean entrepreneurs, a higher “quality” and “quantity” network would negatively impact the entrepreneur’s income. This result supports the hypothesis that potential immigrant entrepreneurs may be blocked by established immigrants with monopoly power. As the immigrant network becomes larger and more immigrants within the network choose to become self-employed, immigrant entrepreneurs within that network on average experience a decline in their income. However, the interaction terms between the Korean dummy variable and the network indicator, \(\beta_3\), is positive and significant. Even though its magnitude is not large enough to offset the negative effect of \(\beta_2\), this indicates that being Korean—or in other words, staying in a network with stronger bonds—does have positive returns. The negative effect of a big network is reduced for Koreans. For instance, a Korean-born entrepreneur on average earns more than his or her Chinese-born counterpart within a network that has same quality × quantity level. As Korean immigrants have stronger networks through their common religious beliefs, these networks yield better business performance and/or overall personal income for Korean business owners in California. Even though the negative network externalities of a big and highly entrepreneurial immigrant network might still outweigh the positive externality of having a strong network,
a more close-knit community does have a positive influence on immigrant business performance. This positive influence will expand as the network indicator becomes larger, which indicates that within a large but strong community, the negative effects of being in a large group will be offset by the positive effect of social bonds.

Despite its statistical significance, this regression analysis is not without flaws. First, total personal income is not the best indicator for business performances since personal income is affected by many other factors and owners may reinvest business revenues. Yet again, this is due to data limitations. Other possible confounding variables include the size of the firm and the starting capital. These two variables are crucial for business performances and could vary across the two groups, so it would be helpful to control for them in our regression model. Unfortunately, ACS data does not have information about firm size or starting capital. Further studies could expand this analysis to the national level to see if the results still hold in the U.S. in general.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Hunt, J. (2011) Which Immigrants Are Most Innovative and Entrepreneurial? Distinctions by Entry Visa. *Journal of Labor Economics*, 29, 417-457. [https://doi.org/10.1086/659409](https://doi.org/10.1086/659409)

[2] Toussaint-Comeau, M. (2008) Do Ethnic Enclaves and Networks Promote Immigrant Self-Employment? *Economic Perspectives*, 32, 30-50.

[3] Fairlie, R.W. and Lofstrom, M. (2013) Immigration and Entrepreneurship. IZA Discussion Paper, Bonn.

[4] Fairlie, R.W., and Robb, A.M. (2008) Race and Entrepreneurial Success. The MIT Press, Cambridge.

[5] Light, I.H. and Bhachu, P. (1993) Migration Networks and Immigrant Entrepreneurship. Immigration and Entrepreneurship: Culture, Capital, and Ethnic Networks, New Brunswick.

[6] Borjas, G.J. (1986) The Self-Employment Experience of Immigrants. *The Journal of Human Resources, 21*, 485-506. [https://doi.org/10.2307/145764](https://doi.org/10.2307/145764)

[7] Min, P.G. (1989) Review: Immigrant Entrepreneurs: Koreans in Los Angeles, 1965-1982. *International Migration Review, 23*, 728-729.

[8] Munshi, K. (2003) Networks in the Modern Economy: Mexican Migrants in the U.S. Labor Market. *The Quarterly Journal of Economics, 118*, 549-599. [https://doi.org/10.1162/003355303321675455](https://doi.org/10.1162/003355303321675455)

[9] Bailey, T. (1991) Primary, Secondary, and Enclave Labor Markets: A Training Systems Approach. *American Sociological Review, 56*, 432-445. [https://doi.org/10.2307/2096266](https://doi.org/10.2307/2096266)

[10] Light, I., Kwuon, I.J. and Zhong, D. (1990) Korean Rotating Credit Associations in Los Angeles. *Amerasia Journal, 16*, 35-54.
[11] Bertrand, M., Luttmer, E.F.P. and Mullainathan, S. (2000) Network Effects and Welfare Cultures. *Quarterly Journal of Economics, 115*, 1019-1055. https://doi.org/10.1162/003355300554971

[12] Yoo, D. and Chung, R.H. (2008) Religion and Spirituality in Korean America. U of Illinois, Urbana.

[13] Smith, C. (2003) Religious Participation and Network Closure among American Adolescents. *Journal for the Scientific Study of Religion, 42*, 259-267. https://doi.org/10.1111/1468-5906.00177

[14] Moon, S.-J. and Park, C.Y. (2007) Media Effects on Acculturation and Biculturalism: A Case Study of Korean Immigrants in Los Angeles’ Koreatown. *Mass Communication and Society, 10*, 319-343. https://doi.org/10.1080/15205430701407330
Appendix 1

Summary Statistics from the 2007 Survey of Business Owners

Table A1. Number of businesses under different categories.

|                  | Number  | Percent Total | Without paid employees | Percent of without paid employees |
|------------------|---------|---------------|------------------------|-----------------------------------|
| Total            | 20,423,420 | 100          | 14,333,993             | 70.18                             |
| US born          | 17,127,528 | 86.4         | 12,045,116             | 58.98                             |
| Non US born      | 2,703,014  | 13.6         | 1,856,647              | 9.1                               |
| Female           | 7,650,490  | 37.46        | 5,785,930              | 28.33                             |
| Female US born   | 6,402,123  | 31.35        | 4,856,643              | 23.78                             |
| Female non-US born | 1,018,743 | 4.99         | 753,838                | 3.69                              |
| Male             | 12,772,930 | 62.54        | 8,548,063              | 41.85                             |
| Male US born     | 10,725,405 | 52.52        | 7,188,473              | 35.2                              |
| Male non-US born | 1,684,271  | 8.25         | 1,102,809              | 5.4                               |
| Asian            | 1,145,065  | 5.61         | 721,318                | 3.53                              |
| Asian non-US born | 901,658   | 4.41         | 550,990                | 2.7                               |

Appendix 2

List of Metropolitan Areas in California in the 2013 ACS

Bakersfield, Chico, El Centro, Fresno, Hanford-Corcoran, Los Angeles-Long Beach-Anaheim, Madera, Merced, Modesto, Napa, Oxnard-Thousand Oaks-Ventura, Redding, Riverside-San Bernardino-Ontario, Sacramento-Arden-Arcade, Salinas, San Diego-Carlsbad, San Francisco-Oakland-Hayward, San Jose-Sunnyvale-Santa Clara, San Luis Obispo-Paso Robles-Arroyo Grande, Santa Cruz-Watsonville, Santa Maria-Santa Barbara, Santa Rosa, Stockton-Lodi, Vallejo-Fairfield, Visalia-Porterville, Yuba City.

Table A2. Number of Chinese and Korean self-employed males by metropolitan area (unweighted).

| Metropolitan area, 2013 OMB delineations | Freq | Percent | Cum. |
|-----------------------------------------|------|---------|------|
| Not in identifiable Area                | 1    | 0.15    | 0.15 |
| Bakersfield, CA                         | 1    | 0.15    | 0.30 |
| Fresno, CA                              | 2    | 0.30    | 0.61 |
| Los Angeles-Long Beach-Anaheim, CA      | 394  | 60.06   | 60.67|
| Merced, CA                              | 2    | 0.30    | 60.98|
| Napa, CA                                | 1    | 0.15    | 61.12|
| Oxnard-Thousand Oaks-Ventura, CA        | 9    | 1.37    | 62.50|
| Riverside-San Bernardino-Ontario, CA    | 34   | 5.18    | 67.68|
| Sacramento—Roseville—Arden-Arcade, CA   | 13   | 1.98    | 69.66|
Continued

Table A3. Weeks worked last year for Chinese Self-employed Immigrants.

| Weeks worked last year, intervalled | Freq | Percent | Cum.  |
|------------------------------------|------|---------|-------|
| 1 - 13 weeks                       | 19   | 5.85    | 5.85  |
| 14 - 26 weeks                      | 13   | 4.00    | 9.85  |
| 27 - 39 weeks                      | 18   | 5.54    | 15.38 |
| 40 - 47 weeks                      | 22   | 6.77    | 22.15 |
| 48 - 49 weeks                      | 27   | 8.31    | 30.46 |
| 50 - 52 weeks                      | 226  | 69.54   | 100.00|
| Total                              | 325  | 100.00  |       |

Table A4. Weeks worked last year for Korean Self-employed Immigrants.

| Weeks worked last year, intervalled | Freq | Percent | Cum.  |
|------------------------------------|------|---------|-------|
| 1 - 13 weeks                       | 6    | 2.33    | 2.33  |
| 14 - 26 weeks                      | 12   | 4.67    | 7.00  |
| 27 - 39 weeks                      | 8    | 3.11    | 10.12 |
| 40 - 47 weeks                      | 13   | 5.06    | 15.18 |
| 48 - 49 weeks                      | 8    | 3.11    | 18.29 |
| 50 - 52 weeks                      | 210  | 81.71   | 100.00|
| Total                              | 257  | 100.00  |       |

Table A5. Regression Results.

| Variables                              | (1)       | (1)           |
|----------------------------------------|-----------|---------------|
| Hourly income                          | **-28.33*** | **-0.443***   |
| Ln(hourly income)                      | (10.66)   | (0.117)       |
| Network Indicator                      | **-74.94** | -0.123        |
| (34.60)                                | (0.381)   |               |
| Korean × Network Indicator             | **55.74**  | 0.0694        |

DOI: 10.4236/me.2018.910108
Continued

|                  | Coefficient | Standard Error |
|------------------|-------------|---------------|
| Age              | -7.974*     | (4.592)       |
|                  | -0.0233     | (0.0505)      |
| Age²             | 0.0931*     | (0.0480)      |
|                  | 0.000311    | (0.000528)    |
| Years in the USA | -3.131      | (2.493)       |
|                  | 0.0138      | (0.0274)      |
| Years in the USA²| -0.00337    | (0.0281)      |
|                  | 1.96e-05    | (0.000309)    |
| Education        | 5.599***    | (1.940)       |
|                  | 0.117***    | (0.0213)      |
| Speak English    | -3.019      | (4.065)       |
|                  | -0.0310     | (0.0447)      |
| Constant         | 276.6**     | (119.0)       |
|                  | 2.615**     | (1.310)       |
| Observations     | 516         | 516           |
| R-squared        | 0.064       | 0.125         |

Standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.