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# **The Decision to become an entrepreneur and entrepreneurial success among ethnic minorities and immigrants: The case of Israel**

by

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## **Abstract**

Entrepreneurship is often considered as a route towards greater economic equality for population groups that are disadvantaged in the formal labor market, such as minorities and immigrants. However, these same population groups often face obstacles as entrepreneurs that prevent them from taking full advantage of their entrepreneurial activities. Israel is a perfect case study in this regard because it has a large Arab minority and a large group of recent immigrants. This paper examines the choice of becoming self-employed and the income gaps between Arab, immigrant and native entrepreneurs, using a version of the Oaxaca-Blinder decomposition technique corrected for selectivity into self-employment. We found that both Arab and immigrant entrepreneurs earn less than the native entrepreneurs, despite the fact that selectivity into self-employment is more severe among Arabs and immigrants. Several observable differences explain these income gaps, in particular age and gender differentials as well as the regional population distributions. However, most of the income advantage of the native self-employed is due to the superior returns on their attributes. Customer discrimination against Arab and immigrant entrepreneurs could explain these results, but at least part of the different returns could reflect our inability to capture all observable differences among the populations.

**Key words:** Entrepreneurship, minorities, immigrants, earnings, decomposition

**JEL codes:** C34, J31, J70

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## **Introduction and background**

Entrepreneurship is often considered as a route towards greater economic equality for population groups that find it harder to succeed in the formal labor market, such as minorities and immigrants (Carter et al., 2015). However, these same population groups often face obstacles as entrepreneurs that prevent them from taking full advantage of their entrepreneurial activities (Barr, 2015). Hence, one can expect to find higher rates of entrepreneurship but lower entrepreneurial success among minorities and immigrants than among others with similar qualifications. The purpose of this research is to test these two hypotheses using data from Israel. Israel has a large ethnic minority group, the Israeli Arabs, who are lagging behind in the formal labor market in terms of employment and income, and who rarely mix with the majority Jewish population. It also has a large group of immigrants, mostly from the Former Soviet Union, who immigrated during the 1990s. These immigrants have demonstrated a remarkable convergence with the majority but have not entirely closed the socioeconomic gap. It would be interesting to compare the performance of these two population groups, each consisting roughly a fifth of the population.

## **Previous literature**

Bates et al. (2007) claim that minority business enterprises face various barriers that make them less economically viable. They also claim that the most important barrier is access to managerial capabilities and business-specific human capital. Other barriers include access to financial capital and access to markets. These barriers are often related to family background and resources, but also to discrimination. However, Bates et al. (2007) indicate that the relevance of these barriers seem to be declining in recent years. Fairlie and Robb (2007) found that African American-owned businesses lag behind white-owned businesses in a number of success outcomes, and attributed the performance gaps to differences in prior work experience in a family business. Chatterji and Seamans (2012) found that racial discrimination, in particular in access to financial resources, has limited the transition of blacks into entrepreneurship. The role of human capital was emphasized by Bates (1985), who found that better-educated minority entrepreneurs are concentrated in high-value business activities, are utilizing their financial and human capital more effectively, and as a result are making higher profits. Basu (2008) also concluded that education is one of the most important barriers to success among minority entrepreneurs.

Robb (2002) found that business survival rates differ by minority group membership. In particular, Asian-owned businesses fared better than white-owned businesses, while black/Hispanic-owned businesses fared worse, after controlling for a large set of other business attributes. This may be related to differences in networking opportunities, as a form of social capital, and is supported by other studies. For example, Bates and Robb (2014) found that the concentration of minority- and immigrant-owned firms in minority neighborhoods and their targeting of clientele in those neighborhoods are strongly related to firm closure and low profitability. In addition, Fairlie (2012) found that in the US, immigrants are more likely to own a business than non-immigrants. However, the immigrant-owned businesses tend to be smaller. He also found that home ownership is an important determinant of business formation, probably because it provides access to financial capital. Since home ownership is much lower among immigrants than among non-immigrants, he concludes that business ownership among immigrants could be even higher if they had better access to capital.

Hence, both immigrants and other minorities may suffer from discrimination and lack of access to resources, but immigrants may compensate these deficiencies through networking. This hypothesis is supported by Tata and Prasad (2015), who found that social capital influenced access to resources and information and hence business performance among immigrant family businesses. Also, Wang and Liu (2015) found that immigrant-owned businesses that develop transnational activities fare significantly better than businesses without such activities, being immigrant-owned or not. In addition, they found that immigrant-owned businesses are more likely to develop transnational activities than other businesses. The bottom line is that the case of immigrants may be different than the case of ethnic minorities, and hence this research compares each of these groups in turn to the non-immigrant non-minority business owners.

### **Empirical methodology**

Oaxaca (1973) and Blinder (1973) developed quite similar decomposition techniques in order to assess the role of discrimination in male-female or white-black wage gaps in the US. The following technique follows the modification of Daymont and Risani (1984) and is adapted to the case of business income. Suppose there are two population segments. Without loss of generality denote the high-income segment by the

letter  $H$  and the low-income segment by the letter  $L$ . Also, assume that wages (or log-wages) can be estimated as a segment-specific linear regression of explanatory variables. Hence, for each individual  $i$ , in segments  $H$  and  $L$ , respectively, the income can be specified as

$$(1) Y_{iH} = X_{iH}\beta_H + U_{iH}$$

$$(2) Y_{iL} = X_{iL}\beta_L + U_{iL}$$

where  $X_{iH}$  and  $X_{iL}$  are matrices of explanatory variables, and  $\beta_H$  and  $\beta_L$  are their associated vectors of coefficients.

Denote  $b_H$  and  $b_L$  as the least-squares estimates of  $\beta_H$  and  $\beta_L$ , respectively. Also denote the segment-specific population means of  $Y_{iH}$ ,  $Y_{iL}$ ,  $X_{iH}$  and  $X_{iL}$  by  $Y_H$ ,  $Y_L$ ,  $X_H$  and  $X_L$ , respectively. It is well-known from least-squares theory that  $Y_H = X_H b_H$  and  $Y_L = X_L b_L$ . It is easy to verify that the mean income gap can be written as:

$$(3) Y_H - Y_L = (X_H - X_L)b_L + X_L(b_H - b_L) + (X_H - X_L)(b_H - b_L).$$

Equation (3) essentially decomposes the majority-minority mean income gap into three components. The first component on the right-hand-side of (3) is denoted "endowments". It measures the increase in mean income of the minority if the mean characteristics of the minority are equated to those of the majority. The second component is denoted "prices" or "coefficients". It measures the increase in mean income of the minority if the income equation coefficients of the minority are equated to those of the majority. The third component is a residual denoted "interaction". Note that each of these components is itself a sum of components, each related to a specific characteristic or coefficient. Jann (2008) has shown how the standard deviations of the different components can be estimated and used for statistical inference.

Decomposing income gaps among business owners using regression is complicated by the fact that incomes are only observed for people who actually own a business and report their income, and hence the estimated coefficients could be biased. Neuman and Oaxaca (2004) suggested, for the case of decomposing wage gaps, estimating the wage equations using the Heckman (1979) two-stage selectivity correction method. Specifically, assuming a linear selection equation and a joint normality of the regression equation and selection equation error terms, the selectivity-corrected estimated wage equations become:

$$(4) Y_H = X_H b_H + a_H \lambda_H$$

$$(5) Y_L = X_L b_L + a_L \lambda_L$$

where  $\lambda_H$  and  $\lambda_L$  are the segment means of the individual selectivity-correction terms  $\lambda_{iH}$  and  $\lambda_{iL}$ , and  $a_H$  and  $a_L$  are their estimated coefficients. The former are computed using the selection equation coefficients as:

$$(6) \lambda_{ij} = \phi(W_{ij}m_j) / \Phi(W_{ij}m_j), j=H,L,$$

where  $W$  are matrices of explanatory variables of the selection equation,  $m$  are vectors of their estimated coefficients, and  $\phi$  and  $\Phi$  are the density function and cumulative probability function, respectively, of a standard normal random variable.

Using (4) and (5), (3) becomes:

$$(7) Y_H - Y_L = (X_H - X_L)b_L + X_L(b_H - b_L) + (X_H - X_L)(b_H - b_L) + (a_H\lambda_H - a_L\lambda_L).$$

The last component on the right-hand-side of (7) represents the contribution to the mean wage gap of the differential selectivity mechanisms in the two population segments, and can be interpreted as the contribution of differential selectivity to the observed wage gap.

However, things are more complicated when self-employment income is concerned. This is because the occupational choice problem involves three choices: working for a wage, self-employment or not working. Hence, the Heckman (1979) selectivity correction method, which is suitable for a binary choice, is insufficient. One particular extension that is useful in this context is the two-stage multinomial-choice selectivity correction method suggested by Bourguignon, Fournier and Gurgand (2007). The first stage is a multinomial logit model, and it is used to produce selectivity-correction terms. The second stage equations estimated by this method are similar to (4)-(5) with the selectivity-correction terms taking different functional forms. Hence, only the last term on the right changes in the decomposition equation (7).

The two-stage procedure is important not only for correcting for selectivity bias. The first-stage occupational choice model is important in itself in order to understand the differences in occupational choices among the population sub-groups.

## Data

We use data from the 2008 population census in Israel. The census file includes roughly 14% of the population, which amounts to 392,589 individuals between the ages of 25 and 69 who reported their employment status. About 8.6% of them are self-employed with reported income. This includes individuals who combine self-employment and hired work, but the income we consider is the income from self-employment alone. The Arab ethnic minority includes 80,600 people, with 7.1% of them self-employed. The immigrants include 65,585 people, with 4.8% of them self-employed. Among the non-minority non-immigrant population, roughly 10% are self-employed. It is evident that occupational choices vary across these population sub-groups. Hence, correcting the estimation and decomposition results for selectivity into self-employment is essential. We hypothesize that business performance varies as well among the self-employed from the different population groups. The raw data support this hypothesis (table 1), with business income highest among the native majority and lowest among immigrants.

We use the following explanatory variables in the self-employment income equation. Age is reported in three categories: 25-34, 35-49 and 50-69. Education is reported in four categories: less than high-school diploma, high-school diploma, nonacademic higher education, and academic degree. Occupation is reported in the following broad categories: academic, professional, managerial, clerical, sales, skilled and unskilled. Economic branch is grouped into four categories: traditional manufacturing, modern manufacturing, private services and public services. For both occupation and industry, the excluded category includes those who have not provided enough information to define their occupation or industry. We also include three regional dummies: Jerusalem, North and South, where the base category is Center. Size of locality is grouped into three categories: small (up to 20,000), medium (20,000-50,000) and large (more than 50,000). Finally, we include a gender dummy.

In the selection equations, we use the same explanatory variables with the exception of occupation and industry, because they are reported only for those who work. In addition, we include as identifying variables household size, home ownership, number of rooms (for those who own their home), vehicle ownership, non-labor income, and the number of children of the individuals. The number of children is split into those under age 15 and

those between the ages of 15 and 24, with the latter group also split into single and married children.

## **Results**

The descriptive statistics of the selection equation variables are presented in table 1. These are essentially the entire relevant population, split into the three population groups. The Arab minority population is considerably younger and less educated. Immigrants are not different by age from the majority, but are more educated. In terms of geographic location, both Arabs and immigrants are more concentrated in the periphery, but while the Arab minority is mostly concentrated in Jerusalem and in the North, the immigrants are mostly concentrated in the South. In terms of locality size, the Arab minority tends to concentrate in small localities, while immigrants tend to concentrate in large localities. The gender composition is not very different in the different population groups, although the fraction of females among the immigrants is somewhat higher. Household sizes are different, though, with the Arab minority having the largest households, while the immigrants having the smallest. Arabs have the highest home ownership rates, while immigrants have the lowest. The number of rooms is lowest in the immigrant population, while it is somewhat lower in the Arab population than in the majority population. Vehicle ownership is surprisingly highest in the immigrant population, and non-labor income is lowest among the Arabs and highest among the native majority. Number of young children is highest among the Arabs and lowest among the immigrants, and the same is true for the number of older single children. In the case of older married children, Arabs are still leading, but immigrants are in second place.

Table 2 presents the regression-equation variable means for the self-employed. Compared to the population at large, the self-employed tend to be older among the native majority, and middle-age among the Arab minority and among the immigrants. Among the self-employed, the (minority) Arabs are still considerably younger, and the immigrants are also younger than the native majority. The self-employed are in general more educated than the population at large, but the education ordering of the three population groups is similar to the population at large. In general, the self-employed are less represented in the South and in small localities, but the orderings of regional location and locality size of the three population groups are similar to the population at large. The gender composition of the



self-employed is very different than in the population at large. There are fewer women among the self-employed, and this is particularly true in the Arab minority. The fraction of females among the self-employed is highest in the immigrant population.

The occupational composition of the Arab self-employed is much different than in the other population groups, they are much less represented in the academic and professional occupations and much more represented in the skilled occupation. The industrial composition of the Arab self-employed is also different. They are represented less in the service industries and more in the manufacturing industries. Compared to the native majority, the self-employed immigrants are more represented in public services and less in private services.

Table 3 shows the estimation results of the multinomial logit model. The excluded category includes those who are not working. The coefficients have more or less the same signs in the three population groups, but their sizes are far from being similar. For example, education seems to have a stronger impact on work choices among the Arab minority, while living in the South is associated with a much lower likelihood of being either self-employed or a wage worker among the Arabs. Females are less likely than males to work, either as self-employed or as wage workers, and this gender gap is highest among the Arabs.

The coefficients of the regression equation, in which the dependent variable is the log of self-employment income, are presented in table 4. Somewhat surprisingly, higher education is associated with lower self-employment income among the native majority, and is not significantly associated with self-employment income among the minority and immigrants. Significant income differences are observed across occupations and industries, and perhaps this also reflects the role of education, because education is key to working in more rewarding occupations and industries. Here as well there are some notable differences among the three population group. For example, Arabs enjoy a much smaller income advantage in academic and professional occupations than the other population groups, while immigrants enjoy a much higher income advantage in managerial occupations. Regional income gaps also differ across the three population groups. For immigrants, income is lower in the North and South than in the Center or in Jerusalem, while for the native majority income is lower in the North compared to the other regions, and for the Arab minority income is lower in Jerusalem but higher in the

South compared to the Center and North. In all population groups, females earn less than males, but the gender gap is highest in the Arab population and second highest among the immigrants.

The decomposition results are in table 5. First, note that before correcting for selectivity, there are statistically significant predicted income gaps in favor of the native majority over the Arabs (20%) and the immigrants (24%). These same income gaps become much larger after correcting for selectivity (63% and 52%, respectively). Supposedly, the fact that the corrected income gaps are larger than the uncorrected income gaps reflects the fact that selectivity is more severe for the minority and for the immigrants than for the native majority. In other words, the income distribution is censored higher for these population groups. However, the income gaps are estimated much less accurately after correcting for selectivity, and hence they are not statistically different from zero. Second, decomposing the income gaps (after selectivity correction) into attributes, coefficients and interaction does not produce interesting results. In the case of the Arab minority, attribute differences generate a modest income gap in favor of the Arabs which is marginally significant, while coefficient differences generate a large but insignificant income gap in favor of the native majority. The interaction effect is positive and significant in the case of the Arab minority, which is not easy to interpret. In the case of the immigrants, none of the three components is statistically significant.

Despite the fact that differences in attributes or in coefficients as a whole do not explain income gaps in a statistically significant manner, several specific differences do have significant contributions. For example, the fact that the self-employed in the native majority are much more likely to work in academic occupations than the Arab minority (table 2) contributes 2.1% to the income gap between these population groups. In addition, the fact that working in such occupations is more rewarding for the native majority than for the Arab minority (table 4) contributes another 6.8% to the income gap. Moreover, the interaction effect in the case of academic occupations is also positive and statistically significant, implying that the combined contribution of the difference in the tendency to work in academic occupations and the difference in the reward to these occupations is 5.3 percentage points higher than the sum of the individual contributions.

Also, self-employed Arabs earn more when they reside in the South (table 4), while fewer self-employed Arabs reside in the South (table 2). This implies that part of the income gap

in favor of the native majority stems from the relatively low fraction of minority self-employed living in the South, and this is reflected in the positive endowment coefficient of the South dummy (table 5). A positive South coefficient is also obtained for the immigrants, but here the situation is different. Immigrant self-employed earn less when they reside in the South, and more of them live in the South, which leads to a higher income gap in favor of the native majority. Finally, females earn less in all population groups, but fewer of the self-employed are females among the Arabs. Hence, the income gap would have been higher if more of the Arab self-employed were females. The opposite is true for the immigrants.

The contributions of the coefficient differences to the income gaps are easier to interpret. In the case of the income gap between the native majority and the Arab minority, we observe positive contributions of the coefficients of the oldest age group, some of the occupation and industry dummies, and the female dummy. These are all cases in which the relevant coefficients in the native majority equation are larger (in the case of the female coefficient, less negative) than in the minority equation. The coefficients of North and South are larger in the minority equation, hence they contributed negatively to the income gap. Fewer coefficient differences have significant contributions to the income gap in the case of immigrants, although, as mentioned before, their combined contribution is significant and is responsible for most of the income gap.

## **Conclusion**

We have examined the income gaps among self-employed individuals in three population groups in Israel, and found that both Arabs and immigrants earn less than the native majority, despite the fact that selectivity into self-employment is more severe in these two population groups. Several observable differences explain these income gaps, in particular age and gender differentials as well as the regional distributions. This has a number of implications. Empowering self-employed Arab women in a way that enhances their income could reduce the income advantage of the native majority over the Arabs, not only because these females will earn more but also because more Arab females will choose self-employment. The potential success of such entrepreneurship-promoting program has been established in previous research (e.g., Lyons and Zhang, 2017). The regional distributions require more careful treatment, though, because if, for example,

more Arabs in the South will choose self-employment, or if self-employed Arabs from other regions will migrate to the South, it could be that the income advantage of the self-employed Arabs in the South will decline and the income gap will not be affected as much. This would be true if Arab self-employed in the South are not competing with self-employed from other population groups.

Much of the income advantage of the native majority self-employed is due to the more favorable returns they enjoy on their attributes. This may lead to the conclusion that there is customer discrimination against minority and immigrant self-employed. However, one must be careful when making this conclusion because it could be that our explanatory variables do not capture all observable differences among the populations. For example, the fact that the coefficients of academic, professional and managerial occupations are larger for the native majority than for the Arab minority may reflect the fact that within these relatively broad occupational categories, Arabs are more concentrated in the lowest-income occupations.

Finally, note that our selectivity correction method is somewhat artificial because we compare self-employment to a merged alternative of wage-work and non-employment. As mentioned in the methodological section above, we still need to verify that our results are robust to this simplification.

## References

- Barr, Michael S. (2015). *Minority and Women Entrepreneurs: Building Capital, Networks, and Skills*. The Hamilton Project Discussion Paper 2015-03. The Brookings Institution. Available at: <http://repository.law.umich.edu/other/78/>
- Basu, Anuradha (2008). "Ethnic Minority Entrepreneurship." In: Casson, M., Yeung, B., Basu, A. and Wadeson, N. (Eds.). *The Oxford Handbook of Entrepreneurship*. Oxford: Oxford University Press, pp. 580-600.
- Bates, Timothy (1985). "Entrepreneur Human Capital Endowments and Minority Business Viability." *The Journal of Human Resources* 20 (4): 540-554.
- Bates Timothy, William E. Jackson III, and James H. Johnson Jr. (2007). "Introduction: Advancing research on minority entrepreneurship." *Annals of the American Academy of Political and Social Science* 613: 10-17.

Bates, Timothy, and Alicia Robb (2014). "Small-Business Viability in America's Urban Minority Communities." *Urban Studies* 51 (13): 2844-2862.

Blinder, Alan (1973). "Wage Discrimination: Reduced Form and Structural Estimates". *The Journal of Human Resources* 8: 436-455.

Bourguignon, Francois, Martin Fournier and Marc Gurgand (2007). "Selection Bias Corrections Based on the Multinomial Logit Model: Monte Carlo Comparisons." *Journal of Economic Surveys* 21:174-205.

Carter, Sara, Samuel Mwaura, Monder Ram, Kiran Trehan and Trevor Jones (2015). "Barriers to ethnic minority and women's enterprise: Existing evidence, policy tensions and unsettled questions." *International Small Business Journal* 33 (1): 49-69.

Chatterji, Aaron K. and Robert C. Seamans (2012). "Entrepreneurial Finance, Credit Cards, and Race." *Journal of Financial Economics* 106: 182-195.

Daymont, Thomas. N., and Paul J. Andrisani (1984). "Job Preferences, College Major, and the Gender Gap in Earnings". *The Journal of Human Resources* 19: 408-428.

Fairlie, Robert W. (2012). *Immigrant Entrepreneurs and Small Business Owners, and their Access to Financial Capital*. Small Business Administration Office of Advocacy Working Paper No. 396. Available at: <http://www.sba.gov/sites/default/files/rs396tot.pdf>

Fairlie, Robert W. and Alicia M. Robb (2007). "Why are black-owned businesses less successful than white-owned businesses: The role of families, inheritances, and business human capital." *Journal of Labor Economics* 25 (2), 289-323.

Heckman, James J. (1979). "Sample Selection Bias as a Specification Error". *Econometrica* 47: 153-161.

Jann, Ben (2008). "The Blinder-Oaxaca decomposition for linear regression models". *The Stata Journal* 8: 453-479.

Lyons, Elizabeth, and Laurina Zhang (2017). "The Impact of Entrepreneurship programs on Minorities." *American Economic Review: Papers and Proceedings* 107 (5): 303-307.

Neuman, Shoshana, and Ronald L. Oaxaca (2004). "Wage decompositions with selectivity-corrected wage equations: A methodological note". *Journal of Economic Inequality* 2: 3-10.

Oaxaca, Ronald L. (1973). "Male-Female Wage Differentials in Urban Labor Markets". *International Economic Review* 14: 693-709.

Robb, Alicia M. (2002). "Entrepreneurial performance by women and minorities: The case of new firms." *Journal of Developmental Entrepreneurship* 7 (4), 383-397.

Tata, Jasmine and Sameer Prasad (2015). "Immigrant family businesses: social capital, network benefits and business performance." *International Journal of Entrepreneurial Behavior & Research* 21 (6): 842-866.

Wang, Qingfang and Cathy Yang Liu (2015). "Transnational activities of immigrant-owned firms and their performances in the USA." *Small Business Economics* 44 (2): 345-359.

Table 1. Descriptive statistics of selection equation variables by population group

Variable	native majority	minority	immigrant
self-employed	0.10	0.07	0.05
age 35-49	0.35	0.41	0.36
age 50-69	0.38	0.25	0.38
high-school diploma	0.19	0.15	0.19
nonacademic higher education	0.15	0.07	0.22
academic degree	0.31	0.09	0.41
Jerusalem	0.14	0.20	0.11
North	0.22	0.63	0.27
South	0.14	0.10	0.22
medium-size locality	0.18	0.26	0.23
large-size locality	0.56	0.29	0.67
female	0.48	0.51	0.53
household size	3.65	4.80	3.33
number of rooms in house	3.14	2.91	2.23
vehicle ownership	0.43	0.43	0.55
ln(exogenous income)	3.46	1.92	2.56
home ownership	0.78	0.82	0.63
number of children 0-14	1.03	1.72	0.78
number of single children 15-24	0.51	0.77	0.37
number of married children 15-24	0.01	0.07	0.02
observations	245,534	80,411	65,373

Table 2. Descriptive statistics of regression equation variables by population group

Variable	native majority	minority	immigrant
ln(self-employment income)	8.33	8.13	8.09
age 35-49	0.40	0.52	0.48
age 50-69	0.42	0.20	0.29
high-school diploma	0.18	0.18	0.18
nonacademic higher education	0.16	0.09	0.17
academic degree	0.34	0.19	0.53
academic occupation	0.20	0.11	0.22
professional occupation	0.13	0.05	0.15
managerial occupation	0.07	0.04	0.04
clerical occupation	0.05	0.02	0.04
sales occupation	0.21	0.21	0.26
skilled occupation	0.21	0.33	0.19
unskilled occupation	0.02	0.02	0.03
traditional manufacturing	0.19	0.22	0.16
modern manufacturing	0.24	0.33	0.23
private service industry	0.22	0.10	0.16
public service industry	0.25	0.13	0.36
Jerusalem	0.12	0.15	0.14
North	0.24	0.72	0.22
South	0.12	0.05	0.18
medium-size locality	0.15	0.28	0.17
large-size locality	0.49	0.26	0.69
female	0.32	0.16	0.44
observations	24,846	5,731	3,161



Table 3. Multinomial logit estimation results by population group

## A. Wage-work equation

Variable	native majority	minority	immigrant
age 35-49	0.115*** (8.24)	-0.115*** (-4.80)	0.069** (2.43)
age 50-69	-1.189*** (-85.15)	-1.542*** (-49.43)	-1.733*** (-62.32)
high-school diploma	0.589*** (43.48)	0.466*** (16.91)	0.569*** (18.35)
nonacademic higher education	1.279*** (98.39)	1.683*** (48.29)	1.013*** (36.71)
academic degree	0.758*** (52.34)	1.280*** (33.30)	0.839*** (27.60)
Jerusalem	-0.391*** (-26.48)	-0.453*** (-9.40)	-0.783*** (-23.15)
North	-0.151*** (-11.36)	-0.155*** (-3.84)	-0.396*** (-14.14)
South	-0.191*** (-12.96)	-0.946*** (-17.98)	-0.470*** (-17.62)
medium-size locality	-0.260*** (-17.21)	0.102*** (4.16)	-0.317*** (-8.18)
large-size locality	-0.319*** (-25.37)	0.523*** (15.10)	-0.238*** (-6.62)
female	-0.553*** (-56.57)	-2.771*** (-121.22)	-0.756*** (-37.63)
household size	-0.057*** (-7.88)	-0.104*** (-8.83)	0.085*** (6.34)
number of rooms in house	0.039*** (10.30)	0.071*** (6.84)	-0.007 (-0.69)
vehicle ownership	-0.204*** (-20.55)	-0.684*** (-32.16)	-0.751*** (-35.53)
ln(exogenous income)	-0.046*** (-32.30)	-0.050*** (-13.44)	-0.012*** (-3.76)
home ownership	-0.115*** (-6.07)	-0.262*** (-5.96)	0.679*** (16.46)
number of children 0-14	-0.111*** (-13.63)	0.043*** (3.34)	-0.417*** (-25.10)
number of single children 15-24	0.207*** (21.06)	0.066*** (4.13)	-0.009 (-0.45)
number of married children 15-24	-0.382*** (-10.65)	0.381*** (10.65)	-0.230*** (-3.32)
intercept	1.571*** (60.88)	1.242*** (20.88)	1.975*** (33.20)

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Table 3. (continued)

## A. Self-employment equation

Variable	native majority	minority	immigrant
age 35-49	0.575*** (24.68)	0.389*** (9.77)	0.358*** (6.44)
age 50-69	-0.286*** (-12.19)	-0.466*** (-9.62)	-1.340*** (-22.19)
high-school diploma	0.411*** (18.35)	0.630*** (14.86)	0.623*** (8.60)
nonacademic higher education	1.096*** (55.22)	1.791*** (37.46)	1.248*** (19.60)
academic degree	0.544*** (23.44)	1.254*** (21.88)	0.703*** (9.64)
Jerusalem	-0.565*** (-23.22)	-0.759*** (-10.03)	-0.743*** (-11.12)
North	-0.284*** (-13.85)	-0.228*** (-3.83)	-0.630*** (-10.77)
South	-0.490*** (-20.01)	-1.125*** (-13.16)	-0.663*** (-11.76)
medium-size locality	-0.720*** (-30.27)	0.065* (1.74)	-0.610*** (-8.01)
large-size locality	-0.742*** (-39.71)	0.387*** (7.37)	-0.347*** (-5.27)
female	-1.138*** (-70.73)	-2.877*** (-71.70)	-0.947*** (-23.20)
household size	-0.170*** (-13.70)	-0.180*** (-8.67)	-0.177*** (-5.82)
number of rooms in house	0.057*** (9.62)	0.168*** (10.46)	0.091*** (4.60)
vehicle ownership	-1.010*** (-59.66)	-1.231*** (-33.01)	-1.697*** (-37.65)
ln(exogenous income)	-0.072*** (-31.64)	-0.066*** (-11.30)	-0.016** (-2.40)
home ownership	-0.100*** (-3.26)	-0.448*** (-6.17)	0.291*** (3.47)
number of children 0-14	0.089*** (6.34)	0.184*** (8.09)	0.040 (1.14)
number of single children 15-24	0.306*** (19.17)	0.129*** (4.87)	0.324*** (7.53)
number of married children 15-24	-0.305*** (-4.53)	0.359*** (6.19)	0.065 (0.44)
intercept	0.504*** (12.26)	-0.357*** (-3.77)	0.093 (0.77)

t-statistics in parentheses; \* 10% significance; \*\* 5% significance; \*\*\* 1% significance

Table 4. Estimation results of log-self-employment income by population group

Variable	native majority	minority	immigrant
age 35-49	0.281*** (10.81)	0.103** (1.96)	0.180*** (2.94)
age 50-69	0.448*** (10.67)	-0.115 (-1.01)	0.253*** (3.04)
high-school diploma	-0.059* (-1.91)	-0.007 (-0.16)	-0.015 (-0.18)
nonacademic higher education	-0.304*** (-6.91)	0.007 (0.09)	-0.069 (-0.80)
academic degree	-0.148*** (4.32)	0.042 (0.60)	-0.032 (-0.35)
academic occupation	0.850*** (13.71)	0.241** (2.18)	0.918*** (5.13)
professional occupation	0.597*** (9.69)	-0.012 (-0.11)	0.530*** (2.97)
managerial occupation	0.719*** (11.55)	0.605*** (5.81)	1.156*** (5.92)
clerical occupation	0.027 (0.41)	0.047 (0.37)	-0.113 (-0.57)
sales occupation	0.616*** (10.29)	0.192** (2.14)	0.566*** (3.22)
skilled occupation	0.534*** (8.73)	0.178** (2.06)	0.545*** (2.99)
unskilled occupation	0.273*** (3.51)	-0.133 (-1.04)	0.286 (1.39)
traditional manufacturing	0.260*** (4.38)	0.313*** (3.57)	0.127 (0.74)
modern manufacturing	0.117** (2.02)	0.161* (1.88)	0.224 (1.35)
private service industry	0.525*** (9.01)	0.249** (2.42)	0.252 (1.51)
public service industry	-0.016 (-0.27)	0.094 (0.98)	0.241 (1.48)
Jerusalem	-0.031 (-1.07)	-0.128* (-1.74)	-0.021 (-0.27)
North	-0.123*** (-5.50)	-0.020 (-0.37)	-0.189*** (-2.90)
South	-0.007 (0.80)	0.150* (1.66)	-0.146** (-2.29)

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Table 4 (*continued*)

Variable	native majority	minority	immigrant
medium-size locality	0.182*** (6.49)	0.108*** (3.07)	0.047 (0.56)
large-size locality	0.208*** (9.02)	0.212*** (3.9)	0.076 (1.09)
female	-0.158*** (-6.03)	-0.839*** (-6.5)	-0.283*** (-4.74)
intercept	9.227*** (38.58)	9.276*** (23.33)	8.885*** (16.43)
selection correction 1	1.661*** (5.76)	0.253* (1.72)	0.346 (0.74)
selection correction 2	-0.325*** (-5.08)	-0.352*** (-3.88)	-0.389*** (-3.65)
selection correction 3	1.358*** (3.95)	1.571*** (3.43)	1.190* (1.81)

t-statistics in parentheses; \* 10% significance; \*\* 5% significance; \*\*\* 1% significance

Table 5. Decomposition results of self-employment income gap, native majority versus other population group

Variable	minority				immigrant			
	Attributes	Coefficients	Interaction	Total	Attributes	Coefficients	Interaction	Total
total, before selectivity correction	-0.003 (-0.10)	0.016 (0.78)	0.184*** (5.44)	0.197*** (11.22)	0.038 (1.51)	0.137*** (5.43)	0.069*** (2.72)	0.244*** (9.78)
total, after selectivity correction	-0.075* (-1.92)	0.431 (1.00)	0.270*** (6.60)	0.625 (1.45)	0.027 (1.00)	0.446 (0.76)	0.045 (1.57)	0.518 (0.89)
age 35-49	-0.012* (-1.94)	0.092*** (3.03)	-0.021*** (-2.98)		-0.014*** (-2.76)	0.048 (1.53)	-0.008 (-1.50)	
age 50-69	-0.025 (-1.01)	0.114*** (4.60)	0.120*** (4.59)		0.031*** 2.97	0.057** (2.08)	0.024** (2.06)	
high-school diploma	0.000 (0.16)	-0.010 (-0.99)	0.000 (0.77)		-0.000 (-0.09)	-0.008 (-0.48)	-0.000 (-0.11)	
nonacademic higher education	0.003 (0.60)	-0.018** (-2.43)	-0.012** (-2.41)		0.000 (0.34)	-0.020 (-1.20)	0.002 (1.02)	
academic degree	0.001 (0.09)	-0.059*** (-3.50)	-0.047*** (-3.48)		0.013 (0.79)	-0.124** (-2.40)	0.044** (2.38)	
academic occupation	0.021** (2.16)	0.068*** (4.73)	0.053*** (4.64)		-0.022*** (-2.6)	-0.015 (-0.36)	0.002 (0.35)	
professional occupation	-0.001 (-0.11)	0.028*** (4.60)	0.050*** (4.69)		-0.010** (-2.09)	0.010 (0.36)	-0.001 (-0.35)	
managerial occupation	0.016*** (4.79)	0.005 (0.94)	0.003 (0.94)		0.031*** (4.43)	-0.019** (-2.10)	-0.012** (-2.03)	
clerical occupation	0.001 (0.37)	-0.000 (-0.14)	-0.001 (-0.14)		-0.002 (-0.57)	0.005 (0.67)	0.002 (0.66)	
sales occupation	0.001 (0.74)	0.088*** (3.90)	0.002 (0.77)		-0.026*** (-2.79)	0.013 (0.27)	-0.002 (-0.27)	
skilled occupation	-0.021** (-2.04)	0.117*** (3.35)	-0.042*** (-3.30)		0.011** (2.04)	-0.002 (-0.06)	-0.000 (-0.06)	

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Table 5 (Continued)

Variable	minority				immigrant			
	Endowments	Coefficients	Interaction	Total	Endowments	Coefficients	Interaction	Total
unskilled occupation	-0.000 (-0.69)	0.009*** (2.64)	0.001 (0.87)		-0.002 (-1.22)	-0.000 (-0.06)	0.000 (0.06)	
traditional manufacturing	-0.011*** (-3.07)	-0.012 (-0.50)	0.002 (0.50)		0.003 (0.72)	0.022 (0.73)	0.003 (0.72)	
modern manufacturing	-0.015** (-1.86)	-0.015 (-0.43)	0.004 (0.43)		0.001 (0.62)	-0.025 (-0.61)	-0.001 (-0.46)	
private service industry	0.031** (2.41)	0.027** (2.33)	0.034** (2.33)		0.015 (1.49)	0.044 (1.55)	0.016 (1.53)	
public service industry	0.011 (0.98)	-0.014 (-0.98)	-0.013 (-0.98)		-0.028 (-1.47)	-0.093 (-1.48)	0.030 (1.48)	
Jerusalem	0.003* (1.65)	0.015 (1.24)	-0.003 (-1.20)		0.000 (0.26)	-0.001 (-0.11)	0.000 (0.11)	
North	0.010 (0.37)	-0.073* (-1.73)	0.049* (1.73)		-0.003 (-1.60)	0.015 (0.96)	0.001 (0.86)	
South	0.010* (1.65)	-0.008 (1.50)	-0.009 (-1.50)		0.009** (2.22)	0.028** (2.19)	-0.010** (-2.14)	
medium-size locality	-0.014*** (-3.04)	0.020 (1.64)	-0.010 (-1.63)		-0.001 (-0.55)	0.023 (1.51)	-0.003 (-1.37)	
large-size locality	0.050*** (3.88)	-0.001 (-0.08)	-0.001 (-0.08)		-0.015 (-1.08)	0.091* (1.78)	-0.026* (-1.77)	
female	-0.135*** (-6.34)	0.106*** (5.10)	0.109*** (5.08)		0.035*** (4.46)	0.054* (1.90)	-0.015* (-1.88)	
intercept		-0.048 (-0.10)				0.343 (0.58)		

t-statistics in parentheses; \* 10% significance; \*\* 5% significance; \*\*\* 1% significance