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Period and duration effects on the value of housing among immigrants ☆

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Abstract

In the present paper, we apply Tobit estimation procedure to delineate the social mechanisms underlying the accumulation of housing assets among immigrant groups in Israel. Four waves of the Family Expenditure Survey are pooled into one file to conduct quasi-panel analyses. Two major questions are addressed: (1) whether period of immigration and length of residence in the host society independently affect the value of housing; (2) whether change over time in the value of housing differs across ethnic groups. We find that housing values of immigrants rise with the passage of time in the new country. Nevertheless, even after 30 years of residence in Israel, there is still a considerable gap in the value of housing between Israeli born and immigrants. Disparities in the value of housing among ethnic groups remain fairly stable throughout the years. Net of ethnicity and length of residence, value of housing is affected by the specific period of immigration. The findings are discussed in light of theories on immigration and inequality with focus on the unique context of Israeli society.

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1. Introduction

In recent years, a growing number of social scientists have called attention to patterns of inequality among immigrant groups in the housing market (e.g., Alba and Logan, 1992; Balakrishnan and Wu, 1992; Krivo, 1995; Lewin-Epstein et al., 1997; Lewin-Epstein and Semyonov, 2000; Myers and Lee, 1998). These researchers share the view that immigrants' advancement into home ownership is an indication of successful social and economic incorporation into the host society. Most studies on the topic have found considerable disparities among immigrant groups in the housing market. Specifically, immigrants of subordinate ethnic origin are characterized by lower rates of home ownership than immigrants of superordinate origin (Lewin-Epstein et al., 1997; Parcel, 1982; Oliver and Shapiro, 1995). From this vantage point, the housing market can be viewed as another dimension of social stratification and as a major source of ethnic inequality.

Whereas most of the literature on immigrants in the housing market has focused on differential rates of home ownership, very little work has been done on inequality in the value of housing. This neglect is unfortunate, since the value of housing is a much more sensitive measure of household wealth. For most families, housing assets are, in fact, the most important component of wealth and equity held by the household (e.g., Lewin-Epstein et al., 1997; Munro, 1988; Oliver and Shapiro, 1995; Thorns, 1981).

The present paper contributes to the literature on immigration and stratification by focusing on the social mechanisms underlying accumulation of housing assets among immigrants in Israel. Using Tobit estimation applied to quasi-panel data, we addressed the following questions: (1) whether immigrants are at a disadvantage in the housing market as compared to native-born; (2) whether the value of housing held by immigrants rises with the passage of time; (3) whether and to what extent disparities in the value of housing exist among immigrants of different ethnic origins; (4) whether and to what extent the ethnic disparities change over time, that is, whether ethnic inequalities in housing assets increase, decrease, or remain stable throughout the years; and (5) whether period of immigration and social policies affect opportunities to accumulate housing assets.

2. Theoretical considerations

For most families, equity accumulated in housing assets is the single most important component of wealth (Lewin-Epstein et al., 1997; Munro, 1988; Oliver and Shapiro, 1995; Thorns, 1981). In England, for example, researchers have estimated that residential housing constitutes 40–50% of the value of all assets, and in the United States, housing assets accounted in 1988 for 43% of the total net worth of all households (US Bureau of the Census

1992). Hence, the study of wealth [1] accumulated in housing is important for understanding the positions of households and social groups in the system of stratification.

Several explanations have been advanced in the literature for the disparities among groups in rates of home ownership and in the value of housing. The first explanation contends that inequality in the value of housing reflects differential levels of success in the labor market. The second suggests that inequality in housing assets is a result of discrimination in society and in the housing market. The third proposes that inequality in the housing market is influenced by state policies. These three explanations are by no means mutually exclusive but rather complementary, and are highly relevant for understanding inequality in housing value among immigrants, as will be demonstrated later in this section.

Income generated through labor market activity is often viewed as the main source for the financial resources needed for housing. Thus, human capital resources in the form of education, professional skills, employment stability, and earnings capacity are likely to increase the likelihood of owning a home. Studies carried out in the US (Alba and Logan, 1992; Krivo, 1995; Oliver and Shapiro, 1995) and other societies (Bourassa, 1994 for Australia; Lewin-Epstein et al., 1997 for Israel) have demonstrated that education, earnings, and socioeconomic status account, at least in part, for variations in home ownership and in the value of housing. Thus, we expect that the likelihood of home ownership as well as housing value will rise with human capital resources and earnings of the immigrants.

Notwithstanding the impact of labor market outcomes on housing opportunities, ethnic origin and race were also found to significantly affect the likelihood for home ownership and the value of housing. Studies on ethnic inequality have consistently observed that subordinate minorities such as blacks and Hispanics in the United States are less likely to own a home, and when they do, the value of their homes is considerably lower than that of the superordinate group (Horton and Thomas, 1998; Jackman and Jackman, 1990; Krivo, 1986; Oliver and Shapiro, 1995; Parcel, 1982). These studies suggest that discrimination in the housing market and residential segregation are major determinants of inequality in home equity between whites and blacks (Horton and Thomas, 1998; Oliver and Shapiro, 1995; Rosenbaum, 1994, 1996).

Social policies introduced by the state may also be important determinants of housing inequality. The impact of state policies on patterns of housing inequality was clearly demonstrated in societies such as the United States, Britain, and Israel, just to name a few examples (Forrest et al., 1990;

[1] It should be noted that the value of housing does not constitute net wealth, but is considered to be a good proxy of potential wealth of the household.

Lu-Yon and Kalush, 1994; Myers and Lee, 1998; Oliver and Shapiro, 1995; Saunders, 1990). Social policies that aim to alleviate economic hardships and facilitate home ownership are often implemented in a way that enhances inequality across social groups. For example, studies in Britain suggested that ethnic immigrants (from past colonies) are not given equal access to public housing when compared to native-whites (Holmans, 1987; Malpass and Murie, 1987). Similarly, researchers in Israel argued that European Jews were given preference by the public housing authorities when compared to North-African Jews (Elmelech and Lewin-Epstein, 1998; Inbar and Adler, 1977).

Theory and research on immigrants' incorporation and assimilation into the labor market (e.g., Borjas and Tienda, 1993; Poston, 1994; Raijman and Semyonov, 1995; Semyonov, 1996) as well as the housing market (e.g., Alba and Logan, 1992; Krivo, 1995; Myers and Lee, 1998) lead us to expect that the value of housing would rise both in absolute and relative terms with the passage of time in the new country. According to models of assimilation and succession (Chiswick, 1979; Neidert and Farely, 1985; Poston, 1994), immigrants enter society at the bottom of the stratification system. They tend to take the least desirable, low-paying jobs, and to live in poor neighborhoods. With the passage of time, however, immigrants are likely to experience upward social and economic mobility. They acquire language skills, knowledge of the new society, and access to information sources and networks. Consequently, they are able to attain better paying jobs and move up in the social system. After a long stay in the country, immigrants are in a better position to attain the necessary funds to purchase homes and housing of higher quality and value. According to this logic, they are expected to narrow the gaps in the housing market with native-born populations. Research on immigrants in Australia (Bourassa, 1994), United States (Alba and Logan, 1992; Krivo, 1995), and Israel (Lewin-Epstein et al., 1997) reaffirm the expectation that rates of home ownership among immigrants increase with passage of time.

The value of housing is also expected to be influenced by period of migration and by social policies (Lewin-Epstein and Semyonov, 2000; Myers and Lee, 1998). Period may represent a "vintage effect," in the sense that the conditions that exist at the time of immigration influence opportunities not only in the short run, but also in the long run. In other words, immigrant groups are "launched" into different trajectories, due to social and economic conditions that exist at the time of arrival. Period of immigration is associated not only with economic conditions, but also with state policies. Both may influence opportunities in the housing market, as observed in societies such as the US, Israel, and Britain (Forrest et al., 1990; Holmans, 1987; Malpass and Murie, 1987; Saunders, 1990).

Although state policies have often been referred to in studies of housing inequalities in North America, these studies are carried out largely within

the framework of a market economy. That is, inequality in housing is viewed more as a result of segregation and discrimination in a market economy than as a result of state policies. The role of the state is often more central in the case of Israel where the state is more dominant and where the housing market is strongly influenced by government policies (Lewin-Epstein et al., 1997; Lewin-Epstein and Semyonov, 2000).

In the following analysis, we examine the extent to which disparities in the value of housing among immigrant groups in Israel can be accounted for by socio-economic characteristics of immigrants, by length of residence, and by period of immigration. By doing so, we will be in a position to better understand the social mechanisms underlying the dynamic of wealth accumulation through housing among immigrants of different ethnic origins to Israeli society. Before proceeding with the data analysis, some background information about the Israeli context seems in order.

3. The Israeli setting

Israel is a multi-ethnic society inhabited by Jews and Arabs. [2] Whereas Arabs have lived in this region for generations, over half of the Jewish population in Israel are first generation immigrants, and the overwhelming majority of the other half are comprised of sons and daughters of immigrants. Some immigrants came to Israel from highly industrialized countries of North America and Western Europe; others arrived from Eastern and Central Europe. Yet, others immigrated from less developed countries in the Middle East and Africa such as Yemen, Iraq, Libya, Morocco or Ethiopia (e.g., Semyonov and Lerenthal, 1991; Tyree et al., 1987).

Three major geo-cultural groups are commonly distinguished in the Jewish population of Israel: Jews of European origin (mostly Ashkenazim), Jews of Middle-East origin, and Jews of North-African origin (the two latter groups are mostly Sephardim). These three geo-cultural groups of Jewish immigrants are ordered in a system of ethnic stratification, with European at top, North African at the bottom, and Middle Eastern in between. The former group is in an advantaged position with respect to major dimensions of social stratification including education, occupational status, income, and housing (Lewin-Epstein et al., 1997).

Before the establishment of the state (in 1948), most immigrants to Palestine came from central and East European countries. At the time, there was no central housing policy aimed at supporting integration of immi-

[2] Arabs constitute 20% of the Israeli population and lived in this region for generations. Since this study is concerned with immigration and housing, and since there is no Arab immigration to Israel, the Arab population is not included in the analysis.

grants into society. Following the war, survivors of the Holocaust along with refugees from the Muslim countries in the Middle East immigrated to Israel in massive numbers. Due to growing demand in the housing market and insufficient supply of dwellings in the central cities, the government implemented a comprehensive housing policy. Under this program, vacant housing units left behind by the Palestinian refugees (mostly in or near the larger central cities) were used to resettle the new immigrants (Golan, 1993; Morris, 1990). When all vacated Arab dwellings were occupied, the new immigrants were housed in temporary tent cities, mostly near existing cities and towns, that provided employment, education, and health services to the new immigrants (Matras, 1973). The temporary tent cities were later replaced by public housing constructed by the government. (Most of these public housing units were later purchased by the immigrants.) At the same time, many of the European immigrants, who received considerable sums as reparations from Germany, used them to purchase better housing units (Landsberger, 1969). Thus, these resources set the European immigrants apart from the other immigrants.

By the mid-1950s, the Government of Israel had implemented a different settlement program, which was designed to alter the spatial distribution of the population. This program set out to establish new communities in the periphery (known as development towns) to move populations away from the center and the coastal plain. Immigrants who arrived during this period (most of whom came from North African States, such as Morocco, Algeria, and Tunis) were directed to the newly established development towns (Golan, 1993; Gonen, 1975; Matras, 1973).

The peripheral development towns were characterized by limited industrial and occupational structure, and by cheap housing. The value of housing in the periphery remained low, since the government kept on adding new constructions in the development towns. Consequently, supply kept on growing, whereas demand was limited. The limited supply of housing in the center of the country coupled with extensive housing construction and comfortable subsidized mortgages in the periphery resulted in an increasing gap in the value of housing between the urban centers and the periphery, hence, between early arrivals and later arrivals.

The gaps in housing value seem to have increased in recent years. With the collapse of the former Soviet Union, a massive flow of immigrants began arriving in Israel. The influx of these immigrants increased the demand for housing far beyond supply. Limited supply of housing in the center of the country (due to inelasticity of land-supply) coupled with reduced governmental subsidies has caused housing prices to rise far beyond the inflation rate.

Thus, time in the country had a multiple effect on the accumulation of housing assets of immigrants. First, *citra paribus* the earlier one came to Israel, the better was one's prospect of owning a home. Second, early arrivals

(who had higher chances for home ownership) were more likely to benefit from accelerated increase in the value of housing. This argument is in line with the argument advanced by Burbidge (2000), who asserts that the benefits of home ownership appear to increase the existing absolute differences of wealth by way of providing greater benefits to high-income groups.

4. Data and variables

4.1. Source of data and sample characteristics

Data for the present analysis were derived from four waves of the Family Expenditure Survey (FES) carried out in 1975–1976, 1986–1987, 1992–1993, and 1997 by the Israel Central Bureau of Statistics. These surveys provide detailed information on socioeconomic and demographic characteristics of adult household members and on the value of housing. The sampling frame for these surveys includes all households residing in urban localities and is representative of approximately 90% of all Jewish families in Israel.

For the purpose of the present analysis, the four surveys were compiled into one file. The analysis focuses only on Jewish households whose heads resided in Israel for at least one year. The unit of analysis in this study is naturally the household, since we are interested in the value of housing, which is an asset shared by all household members. The analysis is performed on a sample of 7087 immigrant households and 7364 households whose head was Israeli-born.

4.2. Variables

The dependent variable in the study is the *value of housing*—as an indicator of the assets accumulated in housing in constant US dollars (adjusted to December 1992). [3] The independent variables used to predict housing value include: *immigration status*, *period of migration*, *years since migration*, *ethnic origin*, and *Community of Residence*. The control variables are: household income, size of the household, age, education, employment status, and marital status of the head of the household. *Immigration Status* distinguishes immigrants (coded 1) from Israeli-born (coded 0). [4] *Period of migration* is defined by a set of dummy variables representing the four

[3] The value of housing is given in NIS in the original data set. We translated these values to constant US dollars for several reasons: (1) dollar terms are commonly used in the Israeli housing market. (2) The Israeli currency changed twice during the periods studied in this research. US inflation index in December 1975 was 36.43; in December 1986 it was 72.54; in December 1992 it was 93.12; and in June 1997 it was 105.2.

[4] For the purpose of the present study, persons who were younger than 15 when they immigrated to Israel were defined as native-born.

historical periods suggested by Semyonov and Lewin-Epstein: 'Before 1948', '1948–1960'—the first mass migration after establishment of the state, '1961–1988'—scattered migration, and 'after 1988'—influx of immigrants from the former Soviet Union. *Years since migration* is the number of years the head of household had resided in Israel at the time of the survey (Israeli-born were assigned 0 on this variable). *Ethnicity* is a set of dummy variables, which identifies three major groups of origin according to respondent's or father's continent of birth: Europe, Middle East, and North Africa. Ethnicity was assigned to immigrants according to the country of origin and to Israeli-born according to father's country of birth. *Community of residence* distinguishes between peripheral localities such as development towns (coded 1) and metropolitan urban centers (coded 0). *Household income* is measured in US dollars and pertains to income from all sources (see, footnote 3). *Household size* is based on the number of both adults and children residing in the household. *Age* (in years) and *education* (formal years of schooling) are given for the head of household. *Employment status* distinguishes between heads of households who are gainfully employed (coded 1) and those with no labor market income at the time of the survey (coded 0). Lastly, *marital status* is defined by dummy variables, which contrast households with unmarried male heads and female heads, separately, with married couples. [5]

5. Findings

5.1. Descriptive overview

The mean socioeconomic characteristics of immigrant groups, classified by geo-cultural origin, are presented in Table 1 (characteristics of Israeli born are presented in column 4 for the purpose of comparison). Rate of home ownership and value of housing for every group in each survey year are displayed in Appendix A. The data displayed in Table 1 and Appendix A reveal considerable differences among the three immigrant populations. First, the rate of home ownership is highest for Middle-Eastern immigrants (77%), followed by European immigrants (73%), and lowest for North-African immigrants (57%). Second, the value of housing is lowest for North-African

[5] Home ownership is an attribute of the household rather than of individuals. When the household is comprised of a couple (with or without additional members) the Israeli Bureau of Statistics designates the male as head of household. Hence, it is meaningless to compare home ownership of married couples with a male or female head. We are interested, however, in comparing single headed households to households with married couples and we want to distinguish (single) female-headed households from (single) male-headed households. Hence, we use an interaction term combining gender and marital status.

Table 1
Mean (SD) and proportions of variables employed in the analysis by origin and ethnicity

Variables	Immigrants from North Africa (1)	Immigrants from Middle East (2)	Immigrants from Europe–America (3)	Israeli-born[a] (4)
Value of owned housing (US$)	51497 (65750)	70226 (62851)	70638 (71751)	96722 (93233)
Owner	57%	77%	73%	78%
YSM	28.3 (10.8)	32.0 (12.9).	24.1 (16.9)	(15.0)[a] (19.8)
Periphery	52.6%	25.3%	23.9%	22.5%
Family size	3.8 (2.3)	3.3 (2.0)	2.6 (1.5)	3.8 (1.7)
FamInc (US$)	831.9 (1173.4)	752 (1040)	921.0 (1341.0)	1855 (1962)
Working?[b]	67.3%	63.7%	61.8%	91.2%
Education	8.0 (4.9)	8.0 (5.0)	12.2 (4.4)	12.7 (3.7)
Age	57.4 (13.0)	60.3 (13.4)	58.7 (16.0)	40.4 (11.8)
Age in immigration	29.1 (12.4)	28.4 (11.7)	34.7 (14.7)	—
Unmarried males	8%	10%	10%	7%
Unmarried females	22%	23%	23%	13%
Married	89.0%	86.0%	86.0%	92.0%
N	1062	1301	4824	7364

[a] Includes Israeli-born and immigrants who were younger than 15 at the time of arrival.
[b] 1—Yes; 0—No.

immigrants ($51,497), whereas European and Middle-Eastern immigrants have higher mean value of housing ($70,000). When taking into account the different rates of home ownership, the disparities between North Africans and the two other groups in value of housing are considerably higher.[6]

The immigrant sub-populations differ not only by the rate of home ownership and value of housing, but also by socioeconomic characteristics. European immigrants are characterized by higher levels of education. They also have higher earnings than North-African and Middle-Eastern immi-

[6] It should be noted that the lower rate of home-ownership among Europeans as compared to Middle-Eastern immigrants is due to the last wave of immigrants from the former Soviet Union, as especially evident in the 1997 Survey. Furthermore, the value of housing owned by the recent immigrants from the former Soviet Union is substantially lower than that of all other groups. This has the effect of reducing the mean value of housing for the European group. For the surveys carried out in the 1990s, we were able to distinguish immigrants from the former Soviet Union, from all other immigrants from Europe. Separate analysis (not reported here) revealed that in 1992 and 1997 Russian origin had a strong negative effect on the value of housing (more pronounced than for North-African immigrants) whereas no differences were observed between other European immigrants and Middle-Eastern immigrants.

grants. Since Europeans are characterized by smaller families than the other two groups, the economic disparities between European immigrants and others are in fact more pronounced. The three groups do not differ significantly, however, in their age structure or marital status.

On average, immigrants from the Middle East had been in Israel longer than any other group (YSM = 32.0, SD = 12.9). Immigrants from Europe and North Africa had been in Israel, on average, 24.1 years (SD = 16.9) and 28.3 years (SD = 10.8), respectively. The values of YSM reflect to a great extent patterns of migration to Israel. Most immigrants from the Middle East arrived shortly after statehood in a relatively short interval. The immigrants from North Africa arrived a few years later in even a shorter interval. The Europeans, however, came in a few clusters: before statehood, immediately after statehood, and after the downfall of the former Soviet Union. (This is evident in the Europeans' low value for YSM coupled with high standard deviation.)

Patterns of immigration and settlement in Israel are reflected in spatial distribution in peripheral communities versus metropolitan centers. North Africans who were directed in disproportional numbers to development towns are concentrated in the periphery of the country (53.0% of them reside in the periphery). By contrast, Europeans as well as Middle Easterners are mostly concentrated in the major urban centers (about 75%). Whether and to what extent differential levels of housing value are affected by ethnicity, spatial distribution, period of immigration or by socioeconomic and demographic characteristics of immigrants will be established by the multivariate analyses, which are presented in the following sections.

6. Determinants of the value of housing

To estimate the independent effect of ethnic origin on the housing value net of socioeconomic characteristics, years since migration, and spatial location, several regression equations were estimated using the standard-zero, lower bound TOBIT regression procedure. The Tobit procedure is most appropriate for data with a censored dependent variable such as housing value. Figures for housing value are given only for home owners, whereas zero values are assigned to non-home owners. Assignment of zero values (as indicator of wealth) can be misleading, because it may under-estimate the actual wealth. The TOBIT model is appropriate for this type of dependent variable where some threshold sum (usually a substantial sum) is required to purchase a dwelling unit, and cases that do not reach the threshold (about 25% of our data) have a zero value on this variable. An additional important advantage of the TOBIT model is that it includes all cases in the analysis of the value of housing.[7]

[7] For a general discussion of the Tobit model, see Roncek, 1992 and Berk, 1983.

The following regression equation is of interest:

$$Y_i = X_i\beta + U_i$$

s.t.

$$Y_i > 0 \text{ iff } Y_i > C \text{ (which is the threshold sum) else } Y_i = 0.$$

Each X_i is a vector of exogenous variables, such as ethnicity, immigration status, years since immigration, period of immigration, and socioeconomic characteristics. Betas are vectors of Tobit regression coefficients and U_i is a vector of disturbances.

In Table 2, the estimated coefficients of the TOBIT regression models for each survey year, separately, are displayed. In each equation, housing value (only for immigrants) is taken as a function of ethnic origin, years since migration, place of residence, and socioeconomic characteristics.

The multivariate analysis reveals disparities in the value of housing between ethnic groups among immigrants to Israel. North Africans have lower housing values than the two other groups of immigrant net of socioeconomic and demographic characteristics. Whereas the disparities between North Africans and the other groups of immigrants are significant (with the exception of 1997), the disparities between Europeans and Middle-Eastern immigrants are not significant (with the exception of 1986–1987). The effect of years since migration on the value of housing is positive and significant in all equations. This finding is in line with the hypothesis that value of housing tends to rise with passage of time in the host society. The effect of YSM is most pronounced in the 1990s and least pronounced (though still highly significant) in the 1975–1976 survey.

The analysis further reveals a meaningful relationship between socioeconomic and demographic characteristics of households and housing assets. Years of education and family income all have a significant positive effect on the value of housing. In other words, other things being equal, and as expected, the value of housing tends to increase with education and earnings. Family size exerts a significant effect on the housing value in the 1992–1993 and 1997 surveys. In addition, residence in a peripheral (development) town and being unmarried have a negative impact on the value of housing.[8]

In Table 3, the models are re-estimated for the entire population comparing immigrants with Israeli born. To this end, we added to the set of predictors a dummy variable distinguishing between Israeli born (coded 1) and

[8] The coefficient for unmarried females changes over the years from a positive value in 1975–1976 to increasingly negative values. We tend to believe that this trend reflects the changing composition of this group from mostly widows to divorced and never-married women, including single mothers.

Table 2
Unstandardized regression coefficients (SEs) from Tobit models predicting value of housing (immigrants only) by survey year[a]

Variables	Survey year			
	1975–76	1986–87	1992–93	1997
Ethnicity				
North Africa[b]	−21899.9*	−15138.9*	−16305.8*	−17271.4
	(4487.0)	(3870.8)	(6793.7)	(10057.7)
Europe–America[b]	−1631.5	8098.2*	1182.7	461.9
	(3412.9)	(3172.6)	(5594.8)	(7349.7)
YSM[c]	1168.4*	1358.1*	2432.1*	3167.2*
	(117.1)	(110.2)	(54.2)	(192.7)
Periphery[d]	−17269.4*	−26245.3*	−28912.2*	−13571.4*
	(3318.7)	(2834.9)	(4635.0)	(5275.4)
Family size	143.9	1380.7	5517.5*	7583.0*
	(903.7)	(864.8)	(1514.6)	(2002.8)
FamInc[e]	23.8*	11.5*	13.4*	22.7*
	(3.5)	(1.4)	(1.6)	(1.9)
Working[f]	−12836.0*	−4910.5	−9094.1	−9642.4
	(3549.2)	(3281.6)	(5595.6)	(6970.3)
Education	2524.3*	2022.7*	2896.8*	2386.0*
	(300.6)	(267.1)	(460.0)	(637.7)
Age	−382.9*	−197.7	334.9	−438.7[a]
	(124.5)	(125.5)	(200.0)	(223.1)
Marital status				
Unmarried Male[g]	−41561.2*	−31018.0*	−21257.9*	−42499.4*
	(10038.0)	(5004.5)	(7883.9)	(8853.6)
Unmarried female[g]	34687.8*	−10956.1*	−15560.6*	−18990.4*
	(10371.3)	(3270.4)	(5330.4)	(6198.8)
Constant	18820.0	−4887.6	−58372.1	−37983.3
	(10182.4)	(9953.8)	(16694.2)	(19369.6)
Log likelihood	−10977.1	−19131.6	−18182.7	−16403.4
N	1281	2072	1900	1834

[a] Data source: Family Expenditure Surveys (FES) of the Israeli Central Bureau of Statistics.
[b] Contrasted with Middle-Eastern origin.
[c] Years since migration.
[d] Development towns = 1.
[e] Total earnings from work, in (December) 1992 US dollars.
[f] 1—Yes.
[g] Contrasted with married persons.
* $p < .01$.

immigrants (coded 0). The findings demonstrate that the value of housing owned by immigrants is significantly lower than the value of housing owned by Israeli born and the difference generally increases over the years. Whereas the difference between immigrants and Israeli born in 1975–1976 is 11,424 US dollars, the gap in the value of housing between immigrants and Israeli

born in 1997 is 31,680 US dollars.[9] Apparently, even after 30 years of residence in Israel (which is the average number of years, since arrival of immigrants in Israel), there is still a considerable gap in the value of housing between Israeli born and immigrants.

The findings in Table 3 reaffirm conclusions observed in Table 2 with regard to ethnic disparities in the value of housing among immigrants. When both immigrants and Israeli-born are included in the analyses, we find that North Africans own homes of lower values than others in all four surveys. For example, the value of housing of North Africans is lower by $32,751 than that of Middle-Easterners in 1992–1993 and by $25,622 in 1975–1976. The findings also reaffirm conclusions with regard to the effect of years since migration (estimated as compared to Israeli-born). The value of housing tends to increase with years since migration. (The effect of YSM is most pronounced in the 1997 survey and least pronounced in the 1986 survey.) The longer the immigrant has resided in Israel, the higher is the expected value of housing. For example, the value of housing owned by immigrants who has been in Israel for 10 years by 1997 was $11,210 higher on average than the value of housing of most recent immigrants. Similar to previous findings, the data in Table 3 suggest that housing values tend to rise with family size, education, family income, and age, but tend to be lower in peripheral places.

7. Do ethnic disparities change over time?

Although the results presented thus far suggest, rather strongly, that immigrants' housing assets tend to increase with passage of time, it is not clear, yet, whether the rate of increase varies by ethnicity. Thus, in the analysis presented in Table 4, we estimate (only for immigrants) the effect of YSM on housing values.[10] The regression models 1, 2, and 3 pertain to each ethnic group separately and model 4 is estimated for the pooled data set with interaction terms for ethnicity and YSM to test whether the differences between ethnic groups in the rate of increase of housing value are significant.

The results of the analysis demonstrate, rather clearly, that housing value tends to rise with the passage of time for each immigrant group. The rise in housing value is most pronounced for Europeans (2361 US$ per year) and least pronounced for Middle-Eastern immigrants (1504 US$ per year). Yet, the differences between the coefficients are not statistically significant. The coefficient estimates of the interaction between YSM and

[9] The gap is somewhat larger in 1992–1993, but this is a result of the mass immigration from the former Soviet Union, which peaked during this year.

[10] It should be noted that three dummy variables representing survey year were also added as control variables to the models.

Table 3
Unstandardized regression coefficients (SEs) from Tobit models predicting value of housing (total population) by survey year[a]

Variables	Survey year			
	1975–76	1986–87	1992–93	1997
Ethnicity				
North Africa[b]	−25622.2*	−19938.7*	−32751.0*	−39510.8*
	(3717.7)	(3205.8)	(4999.8)	(7401.8)
Europe–America[b]	−5247.2	1014.4	−16927.4*	−30655.9*
	(2825.5)	(2627.3)	(4011.7)	(5495.9)
YSM[c]	756.9*	399.9*	908.8*	1121.6*
	(89.6)	(71.3)	(95.6)	(125.0)
Israeli-born[d]	11424.1*	22738.9*	34408.3*	31680.0*
	(2993.2)	(2679.0)	(3955.7)	(5454.5)
Periphery[e]	−16470.8*	−24001.6*	−33906.1*	−29195.9*
	(2862.7)	(2341.9)	(3401.2)	(4260.5)
Family size	2638.7*	3806.4*	6319.4*	8374.5*
	(725.1)	(673.8)	(986.3)	(1337.3)
FamInc[f]	31.1*	15.9*	15.7*	15.9*
	(3.0)	(.9)	(1.0)	(.9)
Working?[g]	−15923.0*	1669.6	868.2	22112.0*
	(3260.0)	(3066.2)	(4569.3)	(5917.8)
Education	2821.7*	2537.1*	3473.3*	3704.2*
	(264.9)	(236.5)	(359.1)	(526.4)
Age	195.0	1032.1*	2073.4*	2261.9*
	(103.9)	(99.0)	(142.7)	(176.5)
Marital status				
Unmarried male[h]	−43335.0*	−39647.5*	−23579.2*	−62970.9*
	(6794.9)	(4530.0)	(6022.5)	(7489.9)
Unmarried female[h]	37092.3*	−9262.7*	−14345.6*	−30312.1*
	(7327.4)	(2994.4)	(4228.9)	(5290.7)
Constant	−13580.0	−67741.7	−123050.5	−145006.9
	(8361.0)	(7933.0)	(11862.9)	(15211.3)
Log likelihood	−17762.0	−40841.1	−41640.5	−39105.3
N	1990	4219	4154	4076

[a] Data source: Family Expenditure Surveys (FES) of the Israeli Central Bureau of Statistics.
[b] Contrasted with Middle-Eastern origin.
[c] Years since migration.
[d] Israeli born = 1.
[e] Development towns = 1.
[f] Total earnings from work, in (December) 1992 US dollars.
[g] 1—Yes.
[h] Contrasted with married persons.
* $p < .01$.

ethnicity (in column 4) are not significant at conventional levels of statistical tests. Apparently, the rise in housing value for all ethnic groups over the years was quite similar. This finding implies that gaps in the housing

Table 4
Unstandardized regression coefficients (SEs) from Tobit models predicting value of housing (1) North-African immigrants, (2) Middle-Eastern immigrants, (3) European immigrants, and (4) All immigrants[a]

Variables	(1) North Africans	(2) Middle Eastern	(3) European Americans	(4) All immigrants
Ethnicity				
North Africa[b]				−33313.5*
				(9579.1)
Europe–America[b]				−8641.9
				(6535.5)
YSM[c]	2237.8*	1504.9*	2361.7*	2018.5*
	(333.9)	(194.8)	(89.1)	(183.9)
YSM*North Africa				439.5
				(296.6)
YSM*Europe–America				328.9
				(188.6)
Periphery[d]	−35619.8*	−29771.3*	−18643.2*	−24267.9*
	(5305.0)	(4387.9)	(2819.7)	(2220.5)
Family size	−2789.3	2171.5	6630.8*	2918.9*
	(1575.8)	(1218.7)	(1011.9)	(708.5)
FamInc[e]	17.5*	13.9*	17.5*	17.7*
	(2.6)	(2.2)	(1.0)	(.9)
Working?[f]	−8387.3	−1346.8	−10330.1*	−9157.6*
	(7624.3)	(5184.5)	(3170.4)	(2614.3)
Education	4307.8*	887.4[a]	2617.3*	2542.8*
	(665.8)	(416.1)	(278.7)	(222.7)
Age	−534.8	75.7	−61.1	−179.8[a]
	(300.7)	(200.8)	(110.5)	(93.0)
Marital status				
Unmarried male[g]	−27088.0[a]	−25566.3*	−20041.7*	−24037.5*
	(11501.9)	(6567.6)	(3937.4)	(3322.3)
Unmarried female[g]	−21654.4*	−4957.1	−8739.0*	−11327.2*
	(7810.6)	(5196.6)	(2973.3)	(2489.3)
Surveys				
1975–1976 Survey[h]	−38362.6*	−42202.1*	−18028.8*	−23511.8*
	(11602.8)	(6482.3)	(3568.8)	(3083.9)
1986–1987 Survey[h]	−48924.3*	−56191.4*	−29459.5*	−36066.0*
	(8437.6)	(5296.7)	(3030.7)	(2553.9)
1992–1993 Survey[h]	−11436.3	−16560.1*	−5385.1	−7147.5*
	(8031.8)	(5371.0)	(2987.7)	(2530.1)
Constant	12601.1	28395.6	−32403.5	−2181.1
	(26272.0)	(15768.9)	(9528.9)	(9786.7)
Log likelihood	−7683.0	−12099.8	−45426.0	−65400.2
N	1022	1244	4821	7087

[a] Data source: Family Expenditure Surveys (FES) of the Israeli Central Bureau of Statistics.
[b] Contrasted with immigrants from Middle-East.
[c] Years since migration.
[d] Development towns = 1.
[e] Total earnings from work, in (December) 1992 US dollars.
[f] 1—Yes.
[g] Contrasted with married persons.
[h] Contrasted with 1997 survey.
* $p < .01$.

value among ethnic groups observed shortly after arrival did not disappear, even after many years in Israel. Thus, we must reject the hypothesis that the rate of increase in value of housing over time differs across ethnic groups.

8. Does period of immigration affect the value of housing?

Notwithstanding the impact of the time in the host society (YSM), it is expected that the value of housing may also be influenced by period of immigration. At the outset of this paper, we suggested that period of immigration may represent economic and market conditions as well as social and housing policies at the time of arrival. Using a quasi-panel design, the four surveys are pooled to separate the effects of duration in the country from the effects of the specific period of immigration. By pooling the data from the four surveys, we are able to construct a synthetic cohort analysis in which period of migration is distinct from the years of residence in Israel.

Following the discussion in the "Israeli Setting" section, we distinguish among four major periods: Before 1948; 1948–1960; 1961–1988; and after 1988. These distinct periods were added to the models as a series of dummy variables. Two sets of equations are estimated. The first set pertains to the immigrant population and the second set pertains to the total population. For each set, two models are estimated: one, which excludes YSM (1a and 2a) and the other with YSM included (1b and 2b). Each model estimates the value of housing as a function of ethnicity, socio-demographic characteristics, and period of migration.[11] The coefficient estimates of the Tobit regression equations are presented in Table 5.[12]

In all models, period of migration has a distinctive effect on the value of housing. From all equations, it is evident that immigrants who arrived at earlier periods accumulated more wealth in housing assets than late arrivals (the most disadvantaged groups are those who arrived after 1988). When contrasting equations with and without YSM, we are able to evaluate the separate effect of years since migration and period of migration. The most

[11] Model 1 (immigrants only) includes a set of dummy variables for ethnic origin and a set of dummy variables for the period of immigration. The reference category for ethnic origin is the Middle-East and for period is 1968–1988. Model 2 (for both immigrants and Israeli-born) includes set of dummy variables, representing four periods of migration (reference category is Israeli-born) and three dummy variables representing immigrants' ethnic origin (reference category is Israeli-born). Since we found no significant interaction between YSM and ethnicity among immigrants, these interaction variables are not included in the regression equations.

[12] To address the difference of values of homes in the different surveys due to the inflation rate both in American and Israeli currencies in the housing market, we added three dummy variables, indicating the year of survey to control for this effect. The negative effects for periods indicate that the value of housing in 1997 was higher than those in previous periods.

noticeable finding resulting from the comparison between Eqs. (1a) and (1b) and Eqs. (2a) and (2b) suggests that when years since migration are taken into account, the most advantageous period of migration was immediately after statehood (1948–1960) and the most disadvantaged period is after 1988. The findings are consistent when the analysis is performed only on the immigrant population and when immigrants are compared to Israeli-born. The findings in Table 5 underscore the importance of period of migration and seem to reflect housing market conditions that prevailed during different periods. We will elaborate on this issue in Section 9.

It should be noted, however, that Tobit coefficients in fact over-estimate the real difference of housing value between the groups. To obtain more accurate estimates of the effect of independent variables in the Tobit model, we employ the following decomposition formula:

$$T = [1 - zf(z)/F(z)f(z)^2/F(z)^2],$$

where $F(z)$ represents the fraction of the population, which owns a home.[13]

Decomposition of the coefficients in Table 5 reveals that the effect of an independent variable on the value of housing for those who own a home is approximately .51 and .54 of the total coefficient estimate in models 1 and 2, respectively. Hence, the coefficient should be corrected by these factors. For example, in Eq. (1b), the real difference in the value of housing between immigrants who arrived after 1988 and those who arrived between 1961 and 1988 is as follows:

$$-\$64,873 * .51 = -\$33,085.$$

The corrected coefficient for the difference between those who arrived after 1988 and the Israeli-born in Eq. (2b) is:

$$-\$59,740 * .54 = -\$32,260.$$

One should keep in mind that this group of recent immigrants had been residing in Israel for at most about eight years at the time of the last survey. It is not surprising therefore that they were unable to accumulate much wealth in the form of housing assets.

Net of period of immigration, ethnicity exerts a significant effect on the value of housing in both models. Other things being equal, the lowest value of housing is observed for immigrants of North-African origin and the highest value of housing is observed for immigrants of European or American origin. When immigrants are compared to Israeli-born and when years since migration are taken into account (Eqs. (1b) and (2b)), the differences between groups are significant at conventional levels of statistical testing.

[13] For a general discussion of the components of the Tobit coefficients, see McDonald and Moffit, 1980.

Table 5
Unstandardized regression coefficients (SEs) from Tobit models predicting value of housing, immigrants only (1), total population (2)[a]

Variables	Immigrants only		Total population	
	(1a)	(1b)	(2a)	(2b)
Ethnicity				
North Africa[b]	−20066.1*	−21828.6*	−16406.5	−61700.6*
	(3311.0)	(3305.0)	(7675.5)	(9136.1)
Europe–America[b]	6307.1	6983.2*	5035.5	−37149.7*
	(2660.3)	(2650.9)	(7343.2)	(86701.0)
Midde East[b]			896.9	−43063.4*
			(7612.8)	(9000.2)
YSM[c]		1387.4*		1278.6*
		(163.3)		(139.6)
Migration period[d]				
Before 1948	47227.6*	5630.1	18852.1*	−3781.9
	(3305.6)	(5882.6)	(7554.0)	(7939.6)
1948–1960	33364.9*	10050.1*	3538.5	1712.4
	(2346.5)	(3589.1)	(7302.7)	(7310.0)
1961–1988			−20977.9*	−2978.3
			(7343.4)	(7600.6)
After 1988	−89366.3*	−64873.3*	−100390.0*	−59740.4*
	(3423.5)	(4450.3)	(7847.9)	(9010.9)
Periphery[e]	−24649.0*	−23328.3*	−26750.0*	−25840.7*
	(2185.6)	(2183.0)	(1801.5)	(1800.6)
Family size	2705.7*	2797.6*	6645.0*	6796.6*
	(694.0)	(691.4)	(517.2)	(516.3)
FamInc[f]	15.3*	15.3*	15.4*	15.5*
	(.9)	(.9)	(.5)	(.5)
Working?[g]	−5478.7	−6421.4*	7527.2*	7353.3*
	(2578.7)	(2571.2)	(2309.8)	(2304.8)
Education	2455.8*	2613.3*	3353.3*	3395.5*
	(220.6)	(220.6)	(190.7)	(190.3)
Age	−50.9	−232.9*	1286.4*	1211.2*
	(89.3)	(91.6)	(66.0)	(66.3)
Marital status				
Unmarried male[h]	−23414.3*	−23136.5*	−36302.7*	−35889.5*
	(3276.2)	(3265.2)	(2929.8)	(2923.7)
Unmarried female[h]	12626.3*	−12311.4*	−13750.5	−13284.0*
	(2454.4)	(2446.1)	(2187.5)	(2183.7)
Survey year				
1975–1976[i]	−76614.0*	−53314.2*	−54876.2*	−37121.7*
	(3335.4)	(4299.0)	(2689.7)	(3307.9)
1986–1987[i]	−69043.5*	−57840.8*	−53650.0	−46525.3*
	(2768.1)	(3051.0)	(2064.4)	(2201.0)
1992–1993[i]	24174.7*	−19431.7*	−19601.2*	−16861.9*
	(2596.7)	(2644.5)	(1951.8)	(1970.1)
Constant	58408.8	32281.5	−34454.8	−37067.3
	(8196.7)	(8735.2)	(5679.8)	(5676.3)
Log likelihood	−65302.3	−65266.2	−140527.5	−140485.5
N	7087	7087	14,439	14,439

Table 5 (*continued*)

[a] Data source: Family Expenditure Surveys (FES) of the Israeli Central Bureau of Statistics.
[b] Contrasted with Middle-East immigrants in models (1a) and (1b), and with Israeli-born in models (2a) and (2b).
[c] Years since migration.
[d] Comparison group in model 1, 1961–88 period and in model 2, Israeli-born.
[e] Development towns = 1.
[f] Total earnings from work, in (December) 1992 US dollars.
[g] 1—Yes.
[h] Contrasted with married persons.
[i] Contrasted with Survey year 1997.
[*] $p < .01$.

Similar to what we observed in previous analyses, years of schooling and family income are positively related to the value of homes. As expected, highly educated individuals with earnings' potential and those with high earnings are more likely than others to purchase dwellings of higher value, as do married couples. Family size has a positive effect on housing value. It is possible that large families accumulated higher values of housing as a response to their greater need for space. Residence in a peripheral community reduces the value of housing net of everything else. Apparently, value of housing in a peripheral town is lower as a result of state policies. The government consistently provided cheap housing in these towns for disadvantaged populations (mostly to attract people to move from the center to the periphery). The unattractiveness of peripheral towns coupled with a large supply of housing units kept the value of housing considerably lower than housing in the urban centers. Finally, the findings demonstrate, once again, that the value of housing among immigrants increases with the passage of time in Israel. The effect of YSM on housing value is positive and significant in Eqs. (1b) and (2b). The results reported here firmly support the hypothesis that housing assets tend to rise with passage of time in the host society.[14]

9. Discussion and conclusions

The present research addresses five major questions regarding inequality in the accumulation of housing assets among immigrants within the context

[14] When comparing models for immigrants ((1a) and (1b)) with models for the total population ((2a) and (2b)), two notable differences are observed. Age has a positive effect on the value of housing in the total population, but a negative effect in the immigrant population. While age is generally associated with accumulation of assets, among immigrants it is a liability. Being economically active is positively related to housing assets in the total population, but has a negative effect among immigrants. This reflects the older age structure of the immigrant population and the fact that a disproportionate number of immigrants (compared to the native-born) are retired. While they are not presently working, they accumulated housing assets during the life course.

of Israeli society: (1) whether immigrants are at a disadvantage in the housing market as compared to native-born; (2) whether the value of housing held by immigrants rises with the passage of time as compared to native-born populations; (3) whether and to what extent disparities in the value of housing exist among immigrants of different origins in Israel; (4) whether and to what extent ethnic disparities in the value of housing change over time, that is, whether the disparities increase, decrease, or remain stable throughout the years; and (5) whether period of immigration and social policies affect opportunities to accumulate housing assets.

The general finding that emerges from the data analysis is that immigrants are at a disadvantage in the housing market as compared to native-born. The rate of home ownership as well as the value of housing owned by immigrants are considerably lower than those of native-born Israelis. Although value of housing assets owned by immigrants tends to rise with the passage of time (similar to other immigrant societies, such as US, Canada or Australia), the gap between native-born and immigrants remains substantial, even after 30 years of residence in Israel (which is the average number of years since the arrival of immigrants in Israel).

The data reveal considerable ethnic disparities in the value of housing (among both immigrants and Israeli-born). Other things being equal, families of North-African origin own housing of lower value than Middle Eastern and European households. These ethnic gaps do not decline, let alone vanish, over the years. The relative advantage of European immigrants can be partly explained by the use of reparations from Germany (which many received) to purchase housing assets (Landsberger, 1969). As to the disparity between immigrant groups from the Middle East and North Africa, we may attribute it in part to family assets at the time of arrival. Immigrants from the Middle East, most of whom came from Iraq, were able to transfer parts of their wealth to Israel before their arrival. Gat (1989) and Hillel (1985) noted the fact that large sums were smuggled to Israel during 1950 through different plans, which were carried out before Jewish assets in Iraq were frozen. It is quite possible that these assets provided immigrants from the Middle East with better opportunities in the housing market as opposed to North-African immigrants.

The impact of period of immigration on the housing value should be understood within the context of Israeli society. Different period effects are closely related to different housing, immigration, and social policies. Immediately following the war for independence, housing opportunities were available as a result of the large number of vacated housing units, following the flight of Palestinians. During this period, the state took it upon itself to construct housing units for the immigrants. Most of the immigrants who benefited from these policies were the European immigrants and to some extent Middle Eastern. Since housing construction during early phases was concentrated in or near urban centers, they attracted many immigrants.

Ever since, the rise in housing prices outpaced inflation, especially in urban centers, and thus, immigrants who already possessed a house benefited from the rise in prices.

By the mid-1950s, however, the state focused its efforts on developing the peripheral regions. Immigrants who arrived in the late 1950s and the 1960s (mostly North Africans) were usually directed to peripheral communities where housing values have been considerably lower than those in the urban centers. Immigrants who arrived in the end of the 1980s from the former Soviet Union (mostly Europeans) found it difficult to buy homes. At that time, government involvement in the housing market sharply decreased. Instead, immigrants received a lump sum of cash (''absorption basket'') and could use it to purchase housing. As a result of inflation, growing demand for housing, prices rose substantially benefiting those who already owned their homes.

The findings presented in this paper demonstrate that the housing market constitutes an important arena for structuring social and ethnic inequalities. Ethnic disparities in housing assets are affected not only by socio-economic characteristics of the household, such as education and income, but also by duration in the country, place of residence, and period of immigration. From this vantage point, housing values and differential rates of home ownership can be viewed as another dimension of social stratification and as a major source of ethnic inequality in society.

Appendix A. Percent owners and mean housing value (US$) classified by survey year and ethnic origin

Survey year		North Africa	Middle East	Europe/ America	Native-born
1975–1976	Percent ownership	38	72	76	77
	Mean housing value in US$	20,533	42,659	52,276	58,443
1986–1987	Percent ownership	52	74	80	79
	Mean housing value in US$	31,981	47,898	58,236	66,739
1992–1993	Percent ownership	72	80	72	80
	Mean housing value in US$	72,894	91,015	85,516	106,848
1997	Percent ownership	67	80	65	75
	Mean housing value in US$	88,917	100,444	79,124	127,222

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