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IMMIGRATION LABOUR MARKET IMPACT IN ISRAEL

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Abstract

Since the late 1980s Israel has experienced a dramatic influx of immigration from the Former Soviet Union (FSU). This paper considers if variations across local labour markets in the labour market outcomes of veteran Israeli population could be systematically related to the variations in the spatial concentration of the new FSU immigrants.

The study is based the 20 per cent sample of the Geographic version[i] of the 1995 Israeli Census and Small Area Statistics data from the 1983 and the 1995 Censuses and uses the Multilevel Linear Modelling technique.

The findings show that spatial concentrations of new immigrants are negatively associated with wages of all ethnic groups among veteran Jewish population in Israel. However, only Sephardic immigrants experience negative impact of the immigrant presence on their occupational standings. It emerges from the findings that immigration labour market effect is mediated by the opportunity structure of local labour markets as well as their ethnic composition.

1. Introduction

Immigrants have a profound impact on the labour market of the immigrant accepting society. Spatially concentrated patterns of immigrant settlement, as well as their segregation in particular occupations and braches of industry, makes their presence very noticeable for non-immigrant workers on the local labour markets level. Econometric theory suggests that influx of the immigrant labour force in the labour market leads, therefore, to the violation of equilibrium in the labour market, which results in the wage fall of non-immigrant workers with comparable skills; immigrants also may displace native-born workers in whole occupations and industries forcing the latter outside the labour force (Friedberg, 2001; Borjas, 2003). However, empirical findings about labour market impact of immigrants are not conclusive.

Since the late 1980s Israel has experienced a dramatic wave of immigration from the Former Soviet Union (FSU), which brought highly skilled immigrants to Israel who by the mid 1990s made up one-sixth of the Israeli population. Due to the small size of Israel, and the large size of the immigrant group, recent immigrants from the FSU are present in almost all Jewish

localities in Israel, in numbers that allow expecting that immigration labour market effect in Israel is large.

This paper attempts to improve existing research on the labour market consequences of immigration, especially highly skilled immigration, through an analysis of the impact of the proportion of the new-immigrant population in localities on the occupational and income attainment of various groups of Israeli sub-populations, net of factors characterizing local labour markets conditions and opportunity structures.

The main research question is if variations across local labour markets in the labour market outcomes of the veteran Israeli population could be systematically related to the variations in the spatial concentration of the new FSU immigrants, after accounting for variations in other characteristics of local labour markets that are responsible for the wage differences, such as opportunity structure of local labour markets.

To address this research question following research questions were considered:

- What are the variations between local labour markets in terms of the outcomes for workers? Are those variations the same for different groups of workers? Are there differences according to educational level, ethnicity and immigrant status?
- To what extent can spatial variations in the labour market outcomes of different groups of workers be attributed to the spatial variation differences between local labour markets in socio-demographic characteristic of workers?
- To what extent can spatial variations in the labour market outcomes of different groups of workers be attributed to the spatial variation differences between local labour markets in local labour market characteristics such as employment opportunities structure, etc?
- Are there other characteristics of local labour markets the affect variations in the labour market outcomes of different groups of different groups of workers?
- Is there association between the labour market outcomes of different groups of workers and the size of the new immigrant population in the local labour market? Is this association changes if characteristics of the local labour markets are taken into account?

The remainder of this paper is organized as follows:

The theoretical background on the labour market effect of immigration is presented in Section 2. In Section 3 the methodology of the current research is outlined. The empirical results are presented in Section 4, and they are summarized and discussed in Section 5.

2. Theoretical background

2.1 The immigrant labour market effect

The scope and direction of the immigration impact on the economic and occupational outcomes of the veteran incumbents of labour market depends on individual level characteristics of both the immigrants and the veteran population, as well as on the overall opportunity structure of the labour market. Immigrant populations tend to be concentrated both spatially and in particular sectors of industry and to change the skill composition of the labour market by increasing the supply of mostly unskilled labour. That, according to modern economic theory, leads to the violation of equilibrium in the labour market in the sense that employment rises, but at least in a short run, wages of native workers with comparable skills and who compete with immigrants in the labour market falls and immigrants displace some natives in employment (Friedberg, 2001; Borjas, 2003).

However, despite the theoretical expectations as well as popular believe that immigrants have negative impact on the wages and employment opportunities of native born population and even the statistical evidence that increase in immigration correlates with an increase in unemployment and economic inactivity among the native born population, especially among low skilled and unskilled (Centre for Immigration Research, USA, 2004), the findings of the extensive research on immigration labour market impact are not conclusive (cf. LaLonde and Topel, 1992; Altonji and Card, 1991; Borjas et al,1992; Friedberg and Hunt, 1995; Cohen and Hsien, 2000; Dustmann, et.al, 2005; Friedberg, 2001; Cohen-Goldner and Paserman, 2005). Although the majority of studies find that immigrants have a small negative impact on the labour market outcomes of the least skilled native population, the size of the effect is substantially smaller that might be expected. Econometric studies in Europe show a stronger negative effect on employment and wages than that reported in the US and Israel (De New and Zimmermann, 1994; Winter-Ebmer and Zweimuller, 1999; Hunt, 1992; Pischke and Velling, 1997).

Although between country differences in findings are not very large, still it is unclear whether they result from unsatisfactory research methodology or from genuine differences between the operations of the labour markets in those countries. Meanwhile, findings on the impact of immigration on the host country population meet well Borjas' description "the measured impact of immigration on the wages of native workers fluctuates from study to study, but seems to cluster around zero."(Borjas, 2003: 1335).

Attempts to account for these different findings have led to considerable criticism of the some of the basic assumptions of quantitative research in this area and of elements of its methodology (Borjas, 1990). For example, there are implicit assumptions of a fixed quantity of jobs in the labour market that are not reflected in reality. The influx of immigrants into the local labour market can create new jobs and additional demand for manpower, including low-skilled and semi-skilled labour force positions. Thus, urban economists and sociologists suggest that the arrival of immigrants in the labour market may boost development of both the service and manufacturing sectors (Sassen, 1988; Soja, 1989). Economic growth and the related increase in well paid native workers create a further demand for cheap labour force, i.e. they create additional jobs both for native population and immigrants (Waldinger,

1989). Thus, research on the effect of immigration on the labour market outcomes of the native population needs to take account of the overall labour market opportunity structure as well as changes in those opportunities, which may result from or coincide with the arrival of new immigrants. Furthermore, in an open economy native workers who are potentially or actually affected negatively by immigration can move to labour markets that are not affected by immigration, minimizing these effects (Filer, 1992; Hatton and Tani, 2005).

However, there is as yet no quantitative empirical research on the labour market impact of immigration that takes account of changes in the opportunity structure of the labour market or in the mobility of the native population, both spatial and in terms of its movement between different types of economic activity.

Sociological research offers interesting additional insights to the study of immigration labour market impact through introducing in the consideration the multi-ethnic dimension of the labour markets (Fosset et al, 1986; Model, 1997; Resenfeld and Tienda, 1999; Wilson, 1999). Sociological studies on the immigration labour market impact are often informed by the ethnic pluralism perspective (Lieberson, 1980) and often puts the issue of the labour market impact of immigration into the broader context of immigrant incorporation and interaction with different groups of the host country population. Additionally there are studies that consider how immigrant and non-immigrant population interact in segmented labour markets (Fosset et al, 1986; Model, 1997; Portes and Jensen, 1987 Semyonov, 1988).

In essence, sociologists see immigration labour market effect as potentially multidimensional, depending on the position of immigrants in the ethnic hierarchy existing in the labour market (Lieberson, 1980). As a result, immigrants may have a different effect on those groups in the labour market which are ranked by local employers either above or below them.

Indeed, empirical findings show that employers often prefer to hire immigrants rather than local ethnic minorities and as a result, immigrants may displace native-born ethnic minorities in whole industries. For example, Waters (1999) indicates that Black Caribbean immigrants are displacing native-born Black Americans in the food industry, because employers believe them to be more reliable workers.

Furthermore, empirical research shows that the labour market effect of immigrants indeed on degree of size of the local ethnic minorities and on the degree of the labour market segregation and segmentation. Thus, if the size of local ethnic minority is large enough to develop ethnic enclaves, if local ethnic minorities and new immigrants display a segregated residential patterns (Friesbie and Neidert, 1977; Burr, Galle and Fossett, 1991; Tieda and Lii, 1987), then immigration labour market effect is positive for the local ethnic minorities and the immigrants themselves. .

It is apparent that recognition of the multiethnic context of labour markets and taking into account of the number and size of ethnic groups among the non-immigrant population, along with consideration of the degree of labour market segmentation and segregation are very important in assessing the impact of immigration on the labour market.

2.2 The Multi-Ethnic Context of the Israeli Labour Market

Immigrant incorporation into a new society is by no means a one-directional process. Not only do immigrants need to adjust themselves in various ways to incorporate into a host society, but the host society also inevitably changes under the impact of immigration, especially if the immigrant influx is large. Immigrants get involved in the process of social interaction both with the institutions in the host society as well as with groups of the native born population of different characteristics and also with groups of immigrants who had previously arrived. Thus, there is a mutual influence between newcomers and veterans in many realms; cultural, social and economic alike. For example, immigrant incorporation into a society which is already ethnically mixed may change the established ethnic socio-economic hierarchy, enhancing the socio-economic opportunities of some native ethnic groups, while worsening opportunities for others subject to the relative socio-demographic characteristics of immigrant and native populations. Therefore, there is an ongoing interest in Western societies of how an influx of immigrants with different skill levels impact on the labour market opportunities and outcomes of various groups of the veteran population in the host society (e.g. Lieberson, 1980; Jencks, 2001; Borjas, 2004, 2005).

Here, one can hardly overestimate the suitability of the Israeli case for a study of the labour market effect of immigration. In the beginning of the 1990s, a massive wave of immigration from the Former Soviet Union (FSU) brought highly skilled immigrants to Israel who, by the mid 1990s, made up one-sixth of the Israeli population. Thus, the Israeli data provides a unique opportunity to study the labour market effect of a large and highly skilled group of immigrants on the different groups of the country's veteran population. Because of the small size of Israel, the large size of the immigrant group, and the relatively dispersed pattern of immigrant settlement, recent immigrants from the FSU are present in almost all regions of Israel, and in almost all Jewish localities in numbers that allow a quantitative measurement of the immigration effect.

Furthermore, due to the liberalization of the Israeli economy since the mid 1980s and its subsequent Westernization and globalization, Israeli patterns of immigrant absorption have become less specific but more universal and similar to that in other Western countries accepting immigrants. Therefore, one can argue that the experience of Israel - in incorporating the recent wave of the FSU immigrants and its subsequent consequences for the Israeli labour market - can shed some light on contemporary processes in Western European, particularly for economies that have received extensive labour migration from the new Eastern European country-members due to the recent enlargement of the European Union. Due to existing similarities in the educational and occupational profiles of the Eastern-European and the FSU immigrants, one can hardly overestimate the importance of an evaluation of the impact of the FSU immigrants on the Israeli labour market.

The study of the interaction between the newcomers and veteran workers in the context of local labour markets of different characteristics in terms of opportunity structure which they offer to workers could be very instructive for understudying how new immigrant affect the labour market opportunities of veteran workers in host countries.

Below we introduce the ethnic scene in Israel which the new FSU immigrants have been entering since the late 1980s and where they were interacting with the Israeli veteran population in the local labour markets of different characteristics in terms of opportunity structure which they offer to workers.

Research shows that within Israeli society, socio-economic cleavages were developing along three main lines –national identity (which is closely related to religion), immigration and ethnicity (see Smooha, 1978). However, while national identity and ethnicity were always considered to be the most important factors in establishing socio-economic cleavages, immigration was attributed inferior importance. Substantial socio-economic differences were developing between Arabs and Jews, and among the latter between the Jews of Sephardic and Ashkenazim origin, rather that between the first generation of immigrants and the Israeli born Jews. Thus, Sephardic Jews immigrants are inferior to the Ashkenazim immigrants according to their educational levels and professional skills, while the latter resemble very much the Israeli born Jews of the same origin by their socio-economic characteristics. On the other hand, Sephardic Jews of the second generation still lag behind their counterparts of Western origin educationally, socially and economically. For decades in Israel, successful assimilation and, in particular, successful assimilation of immigrants was a function mainly of immigrant origin and quality of human capital brought from abroad, rather than immigrant tenure in Israel (e.g. Lewin-Epstein and Semyonov, 1993; Haberfeld and Cohen, 1998b; Cohen and Haberfeld, 1998; Friedlander et al, 2002).

The system of ethnic socio-economic stratification in Israel, where Jews were performing better than Arabs, and Ashkenazim Jews were performing better that Sephardic Jews, emerged and developed during the early stages of the Israeli statehood. Despite the continuous arrival of immigrants to Israel from all over the world over the past fifty years, this system of ethnic socio-economic stratification remained rather stable and continues to be defined by two main factors – national identity and ethnicity. As recent as the year 2000, among the veteran Israeli population, Ashkenazim were still at the top followed by Sephardic in the middle and Arabs at the bottom (Cohen and Haberfield, 2003; Yaish, 2001).

However, while the inflow of new immigrants from the Former Soviet Union (FSU) since 1989 did not change the system of ethnic stratification among the veteran population, it undoubtedly added a new dimension by emphasizing the importance of the tenure in Israel and period of immigration.

Indeed, despite being as a rule of Ashkenazim origin and having good quality human capital, the new FSU immigrants found themselves occupationally and economically at the bottom of the labour market, in a position very similar to that of the Israeli Arabs. This signals that in the contemporary Israel the system of ethnic stratification today is different from that established before the arrival of new immigrants. The dimensions which shape that system are no longer defined only by distinguishing between Jews and Arabs on the one hand, and between the Sephardic and Ashkenazim Jews on the other. Tenure in the country and period of immigration are now more important determinants of the successful incorporation of immigrants into Israeli society than was the case before the 1990s.

However, it seems that insufficient tenure in Israel, imperfect transferability of human capital, the very large size of immigration and an overcrowded labour market were only partially responsible for the low labour market outcomes of those immigrants. What seems to be the most important factor is that the whole set of institutional factors in Israel in the 1990s was very different from that confronted by the previous waves of immigration to Israel. Thus, the very concept of immigrant absorption had changed and the absorption became "direct" - meaning not only that immigrants were free to make choices about their residence and employment; but the degree of state support also diminished significantly. To put it in other words, FSU immigrants were allowed to adjust their human capital according to the Israeli economy and the labour market unlike previous waves of immigrations, when the labour market was adjusting and changing according to new waves of immigration.

A significant part of substantial differences in the labour market outcomes between the new FSU immigrants and any group of the Jewish population are more likely to result from changes that occurred in Israel during the two decades separating those two major waves of Soviet immigration.

These changes included economic and political changes, as well as changes in the policy towards immigrants. Indeed, the recent FSU immigrants, unlike the previous waves of the Ashkenazim immigration to Israel, arrived in the liberalized economy with a loosely regulated labour market and their absorption was guided by free labour market forces to much larger extent than absorption of any other group of immigrants to Israel.

Spatial dimension of Ethnic Socio-Economic Inequality in Israel. In the late 1940s and through the 1950s-1970s, absorption policy was highly centralized and the Israeli government intervened directly in every aspect of immigrant absorption (Neuman, 1999) and provided new immigrants with housing, employment, and educational, health and welfare services.

> *The spatial patterns of the settlement of new immigrants were always under close supervision of the Israeli government from the earliest days of the Israeli statehood, and had been a substantial part of immigrant absorption policy in Israel. The government employed a strategy of population dispersion, motivated by political, economic and defence needs. Many immigrants were directed to newly established settlements in the country periphery and labour intensive industries were established there to provide the immigrants with employment. This policy of immigrant policy of the 1950s, had long term consequences by establishing and maintaining a spatial dimension to the system of ethnic stratification in Israel (e.g. Lipshitz, 1998). Thus, the highly skilled and educated population of Western origin was concentrated in the core area where a wide spectrum of professional and well-paid jobs was available. Simultaneously, the country's geographic periphery became also a socio-economic periphery, where low skilled and low-income population, manly of Sephardic origin, was concentrated and few job opportunities in labour intensive industries were available. Although this spatial pattern became less pronounced during subsequent decades due to internal migration, since the end of the 1980s the socially and economically weak population still remains concentrated in the periphery (Shachar and Lipshitz, 1981; Lipshitz, 1991; Lipshitz, 1998).*

For this reason, one can expect that the labour market impact of recent FSU immigrants on particular veteran ethnic groups of the Israeli population would depend on the socio-

economic characteristics, size and relative status of ethnic group which were present in the local labour market before the immigrants arrival as well as the overall opportunity structure of the local labour market.

Most of the research on the impact of contextual factors on the formation of a system of ethnic inequality in Israel between Jews of Sephardic and Ashkenazim origin considers the consequences of Government population dispersion policy on the assimilation patterns of Sephardic Jews (e.g. Spilerman and Habib,1976; Nahon, 1987; Lipshitz, 1991). Thus, an over-concentration of Sephardic Jews in the country's geographic periphery where labour market opportunities were limited for decades by employment in low-tech labour intensive industries is often held responsible for the low occupational and income attainment of this ethnic group.

Although the Israeli literature on the impact of the structure of labour market opportunities on ethnic differences in labour market outcomes is substantial, these differences are mainly perceived as differences in the occupational/industrial composition of local labour markets. No attention has been paid to the socio-demographic or ethnic composition of the local labour market and the possible impact that it might have on labour market outcomes of different groups of the population in general, and particularly of new immigrants. This is unfortunate given that in Israel a correlation between socio-demographic and ethnic spatial patterns and spatial patterns of labour market opportunities exist. It would then seem that the ethnic dimension of local labour markets seems to be very important when socio-economic inequality is considered.

2.3 Research on immigration labour market impact in Israel

There is a number of recent studies that address the issue of the immigration labour market impact in Israel. There are those of Friedberg (2001), Cohen-Goldner and Paserman, (2005), Cohen and Hsien, (2000), as well as earlier studies by Flag and Kasir (1992), Friedberg and Hunt (1995), Beenstock and Ben Menahem (1995), Eckstein et al., (1996), Sussman and Zakai (1998). The findings of these studies are inconsistent. Thus, Cohen and Hsien, (2000), and Cohen-Goldner and Paserman (2005) report a small adversary effect of immigrants on wages of native Israelis. Sussman and Zakai (1998) found that the influx of new immigrant physicians into the Israeli labour market improved the standing of native born physicians, because the former filled the positions of general practitioners and enabled the latter to advance to better paying private practice. Similarly, Eckstein et al., (1996) studied the nature of new immigrants' employment in engineering and other occupations that require a highly educated labour force, and found that the recent FSU immigrants usually fill low positions and are assigned basic tasks, pushing their Israeli colleagues up the occupational ladder into more prestigious and better paid jobs. Furthermore, Friedberg (2001) found that immigration has a positive effect on the wage growth of the veteran population, an effect which exists not only for the highly skilled but also for low skilled veteran population. Friedberg suggests that immigrants are taking routine positions from veteran Israelis, allowing upward job mobility for the latter not only in professional occupations but at all occupational levels. For example, the concentration of new immigrant workers in a particular

workplace allows the low skilled veteran Israelis to perform particular type of jobs, which were not available for them before – for example, low-level supervisory jobs in manual occupations. Hence, Friedberg argues that these findings point to the possibility of a complementarity between new immigrants and veteran workers in Israel. However, Cohen and Hsien, (2000), and Cohen-Goldner and Paserman (2004) who conducted a longitudinal study to investigate the impact of recent immigrants from the FSU, reported a short term adverse effect on the native population.

However, research on the immigration labour market impact in Israel usually ignores the multiethnic character of the Israeli population and its heterogeneity in terms of socio-economic characteristics, and considers how new immigrants impact on the veteran Jewish population without subdividing the latter by ethnic groups (Friedberg, 2001; Cohen and Hsien, 2000; Cohen-Goldner and Paserman, 2004). Therefore, the existing research overlooks possible differences in the impact of immigrants on groups of the veteran Israeli population of different socio-economic characteristics. However, a body of research evidence exists which shows that the labour market outcomes of ethnic groups, both minorities and majorities, might be affected by the ethnic composition of local labour markets (Friesbie and Neidert, 1977; Burr et al, 1991; Tieda and Lii, 1987). Similarly, a spatial concentration of new immigrants may have a different impact on the different ethnic groups of veteran incumbents in the labour market (Lieberson, 1980).

In the present research I address an existing gap and introduce the ethnic composition of local labour markets in a study of the impact of the structure of local labour market opportunities on ethnic gaps in labour market outcomes. Similarly, rather than considering only how new immigrants impact on the labour market outcomes of the Israeli population in general, I will consider the impact separately for each ethnic group in Israel. Based on the large body of existing research evidence on the differential impact of immigration on local labour markets of different ethnic compositions (Rosenfeld and Tienda, 1991; Wilson, 1999; Bean et al, 1999) one may expect that immigrants in Israel will have a different effect on the labour market outcomes of native/veteran minority groups of different socio-economic characteristics. Drawing on insights from different sociological approaches that address issues of immigration, minorities and the labour market, this study attempts to overcome the shortcoming of previous studies and consider how ethnic groups of different characteristics adjust and interact in the labour market.

The system of socio-economic hierarchy in Israeli has not only a very apparent ethnic dimension but also a spatial dimension. That dimension was created in the early era of the Israeli statehood through the government policy of immigrant dispersion, which created a relationship between Sephardic ethnicity and residence in the geographic periphery (which turned out to be also a socio-economic periphery), which offered a limited range of employment opportunities. In Part 2 of the thesis the contextual level factors, such as the characteristics of the local labour markets are also added to the analyses. I attempt to consider whether the spatial dimension of ethnic-socio economic inequality is still relevant in Israel and whether it can explain part of the ethnic socio-economic disadvantage that remains unexplained by individual level factors. Furthermore, it is also considered how the

ethnic composition of local labour markets, and in particular, the influx into the local labour market of the new immigrants population has an impact on the ethnic socio-economic disadvantage of veteran groups of Israeli population.

In my choice of macro-level theoretical explanations of ethnic labour market inequality I was guided by the desire to account for a spatial dimension of ethnic inequality in Israel, resulting from spatial variation in labour market opportunities and a relationship, which exits between spatial patterns, labour market opportunities and ethnicity in Israel. Here, I used theories that relate to performance of ethnic groups with (a) the opportunity structures of the local labour market in terms of their employment/industrial composition, and (b) to the ethnic composition of local labour markets and to the nature of labour market competition among ethnic groups in multiethnic societies and (c) account for the impact that an influx of new immigrants in the local labour market might have on the performance of the veteran population and how this effect might vary according to the ethnicity of the veteran population

2.4 Hypotheses

Hypothesis 1. Ethnic queue. In accordance with the "Ethnic queue" hypothesis, the ethnic composition of local labour markets would have impact on the labour market outcomes of disadvantaged ethnic groups. Thus, higher percentage of Ashkenazim Jews in the local labour market would have a negative impact on the labour market outcomes of Sephardic immigrants net of the opportunity structure of local labour markets. To the contrary, higher spatial concentration of Sephardic Jews (both the Israeli born and immigrants) would have a positive effect on the labour market outcomes of Sephardic immigrants.

Hypothesis 2. Competition. Modified formulation - FSU immigrants would compete with veteran ethnic groups, which have a comparable skill level. Because immigrants vary significantly according to their skills, and enter highly skilled as well semi-skilled and unskilled occupations, they can compete with the veteran Israeli population from a variety of backgrounds and skill levels. However, due to the segmented nature of the Israeli labour market, they would negatively affect only those who are employed in segments with insecure forms of employment, i.e. Sephardic immigrants.

Hypothesis 3. Ethnic pluralism. The labour market impact of FSU immigrants would depend on the opportunity structure of the local labour market, and in particular on their ethnic composition. Thus, in local labour markets where Sephardic Jews are a majority and Ashkenazim Jews are a minority, immigrants would have a positive effect on the labour market outcomes of Sephardic Jews in labour markets where Sephardic Jews are a minority, whereas in local labour markets where Ashkenazim Jews are a majority, FSU immigrants would have a negative effect on the income and occupational attainment of Sephardic Jews.

Research in Israel (see for example, Lipshitz, 1990) shows that spatial residential patterns of the Israeli population are strongly related to ethnicity, and that socially weak ethnic groups are over-concentrated in geographic peripheries of the country. However, as the result of the government policy of immigrant dispersion, which lead to the over-concentration of socially and economically weak population, consisted predomintly of Orintal immigrants, in the

geographic periphery in Israel during the 1950s and the 19670s, and subsequaent establishing of low tech traditional industries in these regions to provide this population with jobs, while high-tech industries were developing in the country's central region were also socially and economically strong population of Ashkenazim immigrnats and the Inraeli born resided. Government population dispersion policy on the assimilation patterns of Sephardic Jews (e.g. Spilerman and Habib,1976; Nahon, 1987; Lipshitz, 1991). Thus, an over-concentration of Sephardic Jews in the country's geographic periphery where labour market opportunities were limited for decades by employment in low-tech labour intensive industries is often held responsible for the low occupational and income attainment of this ethnic group.

The geographic periphery in Israel coincides largely with the socio-economic periphery and thus, the opportunity structure of the labour market has a very explicit spatial dimension. of the immigrants during the Furthermore, the socio-economic inequality in Israel has a distinct ethnic character, and position in the system of socio-economic hierarchy is influenced not only by seniority in the country but also by a rather complicated mixture of factors such as religion, geo-cultural origin, period of arrival and tenure in Israel.

Jews of Sephardic and Ashkenazim origin considers the consequences of If so, one can expect that the ability of immigrants' to successfully compete in the labour market with native and/or veteran groups would depend on the ethnic composition of a local labour market, and on the relative rank which immigrants have among other ethnic groups in the local labour market. Similarly, immigrants would differentially affect the local population of different ethnic origins and of different socio-economic characteristics: ethnic composition of the local labour market and number and size of ethnic groups which are ranked above/below new immigrants would determine the immigration effect for each one of those ethnic groups.

3. Methodology, Data, and Variables

3.1 Methodology

Contextual level analyses and related problems of estimation. Contextual analyses examine the effect of the individuals' social environment (e.g. school; workplace; neighbourhood; local labour market, etc.) on the individuals' outcomes (attainment, attitudes, behaviour). In the contextual analyses the individual is a unit of analyses situated in the relevant context, and contextual (or macro) level data are appended to the individual level data. The development of the contextual analysis as a formal analytical method was stimulated by Blau (1960) and further formalized by Davis (1961). Although the contextual analyses proved itself as a valuable method of understanding of social reality and produced a sizable amount of research, it was also widely criticized (Houser, 1970; Barton, 1970; Farkas, 1974; Houser, 1974).

The main problem with the contextual analysis is that the contextual level data often could be analogues of the individual level independent variables (i.e. ethnicity of an individual and a percentage of ethnic minorities in the neighbourhood; or individual's educational level and a percentage of unskilled workers in occupation, etc.) Therefore, individual and contextual level variables may correlate. If a level of correlation between the individual and contextual level data is high it produces three common methodological problems in the contextual analysis, namely the specification and measurements errors, multicullinearity and simultaneity (Stipak and Hensler, 1982). However, the problem could not be solved by omitting the individual level variables from the analysis and considering only the contextual level variables impact on the dependent variable. Omitting the individual level variable lead to the misleading results (Stipak and Hensler, 1982).

Additional problem that is related to the estimation of the immigration effect is that the same factors may influence both immigrant spatial concentration and labour market outcomes of native workers. As a result the former and the latter will correlate even in the absence of the genuine effect of immigration. For example, immigrants may be concentrated spatially in the area of social deprivation (e.g. due to availability of cheap housing) and produce negative relationship between immigrant concentration and outcomes of natives; or, to the contrary, immigrants can be attracted to the areas with fast economic growth, and in this case the correlation between the immigrants concentration and outcomes of natives will be positive. A number of other problems that produce biased estimates in the study of immigration impact (e.g. internal migration of native population) were identified earlier in theoretical review. The main way to solve those problems in the literature is to use instrument variable for the spatial concentration of immigrants. The instrument variable for the size of immigrant population is estimated by regression that uses as predictors the indicators, which are not related to the current economic situation in the local area and, hence, labour market outcomes of workers are independent from the impact of those predictors (Dustmann et al, 2004). Thus, for example, historical pattern of settlement of immigrant were not subject to recent positive economic shocks and hence, second-generation ethnic minorities spatial concentration can be used for the estimation of instrument variable of immigrant spatial concentration (Dustmann et al, 2004).

In this research, however, I adopt an alternative approach and consider how actual spatial concentration of immigrants impacts local labour markets while controlling for the potential sources of biased estimation of immigration effect, which were identified in the literature review. Thus, the immigration labour market effect is estimated after controlling for a) socio-demographic characteristics of individuals; b) over-all opportunity structure of local labour markets; c) changes in that opportunity structure over time; d)ethnic composition of localities; d) changes in ethnic composition of localities veteran population over time.

In this study principal component analysis was used to produce reduce the number of local labour market characteristics and to also to avoid the problem of multiculleniarity between the individual and aggregate level variables (see Appendix).

3.2 Data

This research is based the 20 per cent sample of the Geographic version[ii] of the 1995 Israeli Census as well as small area statistics data from the 1983 and the 1995 Censuses.

The aggregate data on the level of residential localities with more that 2000 residents were merged with the individual level data.

The size of the sub-sample used in the study is 73,632 respondents who live 55 residential localities.

Unit of analysis:

- Level of individuals – employed Israeli men with non-zero wages (income from employment) and for whom values of variables such as occupation, age, education and number of working hours per week are not missing.
- Local Labour Markets – Residential localities with more than 2000 inhabitants.

3.3 Variables

Dependent variables:

Dependent variables are presented in the Figure 1

Figure 1 about here

Independent variables:

In order to control for the current opportunity structure of the local labour markets I use characteristics of the local labour market in 1995 such as their ethnic composition, the socio-demographic profile of their population, and employment opportunities. The local labour market level data for this time point is derived from the 1995 Israeli Population Census Small Area Statistics. These variables are presented in column two of Figure 2.

I also included in the study several variables, which reflect changes in the local labour market which follow from (or coincide with) the arrival of immigrants. Thus, I incorporate into

the study two time points about which local labour market level data are available. The first time point is 1983, which is approximately 6 years before the mass immigration from the FSU to Israel began; the local labour market data for this time point is derived from the 1983 Israeli Population Census Small Area Statistics. The second time point is 1995, which is six years after the start of the mass immigration from the FSU, and the corresponding local labour market level data are derived from the 1995 Israeli Population Census Small Area Statistics.

The data available to follow up the changes which occurred in the local labour markets between the two time points are identified in column three of Figure 2.

Figure 2 about here

Figure 3 about here

Figure 4 about here

4. Results

4.1 Explanation of between locality variance in labour market outcomes for different ethnic groups of the Israeli working population

Model 1 (column 1 in Table 1) does not include explanatory variables and thus shows the total amount of the level one and the level two variance of the dependent variable to be explained by the multilevel model. This model shows that for all ethnic groups, individual wages vary significantly between localities. (i.e. the between-locality variance is different in a statistically significant way from zero and on average, 10% of the total variance in monthly wages follows from differences between localities). The amount of the total variance in the individual wages that follows from between-locality differences varies for different ethnic groups and ranges from 4%-5% of the total variance in the dependent variable, respectively for FSU immigrants and Sephardic Jews, and to 8% - 10% of the total variance for the Ashkenazim origin Jews and the third generation of Israeli born Jews.

The total amount of variance of the dependent variable – monthly income – is significantly larger for Ashkenazim Jews and the third generation of Israeli born, than for Sephardic Jews and FSU immigrants. Similarly, the portion of the variance which can be attributed to the differences between local labour markets is larger for the former ethnic groups. This means that the income of a socially and economically weak population is less differentiated by their individual characteristics, and varies less according to the characteristics of the local labour markets than the income of the socially and economically strong population. (See Model 2 in column 2 of Table 1)

Thus, on average, 75% of between locality variance can be accounted for by individual level characteristics and that percentage is higher for Jews of Ashkenazim origin and the third generation of Israeli born (81% to 82%), lower for Jews for Sephardic origin (from 65% to 67%), and lowest for FSU immigrants (50%). This means that income attainment of the new FSU immigrants and (although to a smaller extent) of Jews of Sephardic origin depends less on their human capital than Jews of Ashkenazim origin.

Model 3 includes also the percentage of new immigrant households in localities of residence. The variable explains 10% of the total locality level variance when the whole Jewish veteran population is considered. The percentage of the variance explained by this variable is smaller for Jews of Sephardic origin (from 4% to 5%) and larger for Jews of Ashkenazim origin and the third generation of Israeli born (7%-8%) as well as for new FSU immigrants (8%).

Model 4 accounts also for the ethnic composition of the localities. The latter is responsible for a smaller percentage of the between-locality level variance among Jews of Ashkenazim origin and the third generation Israeli born (2%), and for a much larger share of the between locality level variance among Jews of Sephardic origin (10% to 12%) and the new FSU immigrants (8%). This means that while income attainment of socially-and economically strong ethnic groups are more sensitive to the presence of the local labour markets of the new FSU immigrants, and less sensitive to the presence and size of the groups of the veteran Jewish population, the situation is opposite for Jews of Sephardic origin, who are less sensitive to new immigrants, but depend more on the established ethnic group balance

in the labour market. Finally, Model 5 controls for the local labour market type and quality (it includes five factors obtained and described in the previous section). It appears that similarly to the ethnic composition of the local labour market, the type of labour market also affects differently the income attainment of ethnic groups of different socio-economic status. Indeed, if the type of the local labour market is responsible for 16% of the total between locality level income variance among the new FSU immigrants and for 10%-12% of that among Sephardic Jews, for Jews of Ashkenazim origin and for the third generation of Israeli born only 5%-8% of the total between locality level variance can be attributed to the type of the local labour market.

Table 1 about here

Table 2 about here

Table 3 about here

The small amount of the between locality level variance which is explained by some of the local labour market level variables for some ethnic groups makes one wonder if the additional variance explained by a particular variable is statistically significant, relatively to that explained by the model which does not include the variable. Indeed, one can see that an additional amount of the between locality level variance explained by Model 3, which includes the variable "percentage of new immigrant households in the locality" relative to Model 2, is statistically non-significant for Sephardic Jews and FSU immigrants. The amount of between locality level variance explained by Model 4, which includes variables describing the ethnic composition of the localities "percentage of the new immigrant households in the locality" relative to Model 3, is statistically non -significant for FSU immigrants and Jews of Ashkenazim origin and the third generation Israelis.. Finally, the amount of between locality level variance explained by model 5, which includes variables describing the type of local labour market relative to Model 4, is statistically non-significant for Jews of Ashkenazim origin and the third generation Israelis. However, it is well known that tests of significance of between locality variance, which are based on standard errors, are not very reliable when on the one hand within locality sample sizes for different ethnic groups vary significantly, and there are also many localities with small samples[iii]. In this case, the likelihood statistics are preferred because the likelihood frame of the inference takes full account of the effect of the varying sample size (see for example Iannelli, 2004). A consideration of the differences between the likelihood values (-2LL in Table 5.1) for two models - namely Models 3 and 4 - in which the second model includes the variable "percentage of new immigrant households in locality" shows that for immigrants of Sephardic origin, for Israeli born Jews of Sephardic origin and for FSU immigrants, the likelihood statistic is statistically significant.

Table 4 about here

The result presented in Tables 2 and 3 show that altogether the variables which reflect the local labour market conditions explain a statistically significant amount of between locality variance for the dependent variable "odds of escaping blue collar occupations" only for three ethnic groups, i.e. for the Ashkenazim Jews, the third generation of the Israeli born and the

recent FSU immigrants. Among the latter variables, those, which describe the type of local labour market, explain the largest amount of between locality variance. At the same time the local labour market level variables explain a statistically significant amount of between locality variance of the dependent variable "odds of having academic/managerial or professional occupations" not only for the latter three ethnic groups but also for Sephardic immigrants.

4.2 Local labour market characteristics and their impact on wages and occupational standing of different ethnic groups

Let us now consider how the local labour market ethnic composition and type has an impact on individual wages for different ethnic groups (Table 4). There are two ethnic composition variables which have a statistically significant net[iv] impact on the individual wages of some ethnic groups. Thus, an increase in the size of the Israeli born population is negatively associated with the wages of the Israeli born Jews of Ashkenazim origin and third generation Israeli born, while the odds of these ethnic groups having a higher occupational standing are positively associated with the spatial concentration of Ashkenazim immigrants. The Israeli born Jews of Sephardic origin enjoy higher wages in local labour markets where the concentration of the first generation of Sephardic immigrants is higher, while a concentration of Ashkenazim immigrants in the locality has a negative impact on the occupational standing of Jews of Sephardic origin, both for the Israeli born and immigrants. Similarly, the spatial concentration of Ashkenazim immigrants negatively affects the occupational standing of former FSU immigrants.

Among the factors representing the type of local labour market, factor 1, which describes the socio-economic and demographic composition of the labour market, accounts for the majority of the variance which can be attributed to local labour market conditions and have a positive and strong impact on the wages of all veteran ethnic groups (Table 1). This means that living in localities where the population possess high socio-economic status, has a positive impact on the net individual wages of all ethnic groups. On the contrary, factor 2, which indicates a degree of changes in the characteristics and employment opportunity structure of local labour markets has a positive net impact on the wages of the Israeli born Jews (of any origin) only, which is most likely because very few new immigrants and first generation Sephardic Jews live in such localities - many of which are relatively new and highly selective "community settlements". Further, factor 3 characterizes local labour markets with a high proportion of manufacturing jobs and high unemployment and has a negative impact on the wages of new FSU immigrants who are over-concentrated in such type of labour markets, but also on the wages of Israeli born Jews of Ashkenazim origin.

Table 5 about here

4.3 Immigration impact on wages

Now let us consider how the variable “the percentage of the new immigrant households in the locality” has an impact on the wages of other ethnic groups and the new immigrants themselves, before and after controlling for the local labour market opportunity structure in terms of its type and ethnic composition (see Table 5 and 8).

The estimated parameter of the variable which is obtained by Model 3 is negative and statistically significant for the whole veteran Jewish pupation, as well as for all subgroups of that population and for the FSU immigrants themselves. Nevertheless, the magnitude of the impact is smaller for FSU immigrants and Jews of Sephardic origin, than for other group of the Israeli Jewish population. Controlling for the ethnic composition of local labour markets (Model 4) removes the statistical significance of the immigration impact from the Israeli born Jews of Sephardic origin, and lessens the magnitude of the impact of the variable for other ethnic groups.

Finally, controlling for the type of labour market (Model 5) further reduces the magnitude of the impact of the percentage of new immigrants on the wages of the Jews of Ashkenazim origin (the first and the second generation of immigrants) and the third generation Israeli born, and results in an insignificant impact for FSU immigrants. At the same time, controlling for the type of local labour market increases the magnitude of the negative impact of the percentage of new immigrants on wages of immigrants of Sephardic origin.

To summarize, a higher concentration of new immigrants in the local labour market is associated with lower wages for all labour market incumbents. However, a part of this association results from new immigrant concentration in labour markets where firstly, socially and economically disadvantaged ethnic groups are concentrated, and secondly where local labour market conditions are unfavourable. Moreover, for some ethnic groups, such as Israeli born Jews of Sephardic origin and FSU immigrants, the negative association between low economic outcomes of the ethnic group members and immigrant spatial concentration disappears or becomes statistically insignificant if the local labour market opportunity structure is taken into account.

However, the opportunity structure of the local labour market in terms of its ethnic composition, its socio-economic and demographic profile, and employment structure is only partly responsible for the negative association between the presence of new immigrants in the labour market and the wages of the three ethnic groups of the veteran Jewish population: – the immigrants of Ashkenazim origin, the immigrants of Sephardic origin, the Israeli born Jews of Ashkenazim origin and the third generation Israeli born – the net impact of the variable “percentage of new immigrant households in the locality” on wages of these three ethnic groups estimated by Model 5 is negative and statistically significant.

Is it possible to conclude from these findings that new immigrants have a negative impact on the wages of the veteran groups of population? Controlling for the type of population in the local labour markets in terms of its ethnic, socio-demographic, economic and employment composition indicates that the findings indeed show a negative labour market impact of immigration rather that merely reflecting the fact that immigrants have restricted access to

the localities where the most affluent population lives. However, as I mentioned already, the aim was to conduct analysis with an additional control for the fact that immigrants are not randomly distributed throughout Israeli localities, but over-concentrated within the localities with poor opportunity structures, and thus, the new immigrant spatial pattern correlates with spatial patterns of socially and economically disadvantaged populations. To explore the possibility that the negative association between the concentration of immigrants and the income of Jews of Ashkenazim origin and third generation Israeli born results from the fact that immigrants are excluded from localities where members of the former group live; so called community localities[v] and "old" prestigious localities in the country core areas (where almost no new immigrants live) were excluded from the analysis, therefore the analysis was restricted only to large central cities and small peripheral and/or development towns where immigrants are well represented.

I repeated the analyses on the remaining localities and obtained results similar to those presented in this section. Furthermore, the three largest Israeli cities - Tel Aviv, Jerusalem and Haifa were excluded from the obtained subset of localities to make sure that the results could not be influenced by these localities, and then again repeated the analysis, obtaining similar results.

This allows me to conclude that, in general, immigrant spatial concentration has a negative impact on the wages of the veteran Jewish population.

1. Immigrants negatively affect wages of veteran Jews, except for second generation AA immigrants.
2. For the latter, the concentration of immigrants in the locality is negatively associated with wages, but after controlling for the ethnic composition of localities and for the quality of localities, the negative effect disappears.
3. For all other ethnic groups of the veteran Jewish population, an increase in the relative size of the immigrant population of 1% decreases the wages of the native born from 0.03 to 0.04 log units. The control for the ethnic composition and the quality of localities reduce the negative impact of immigrants on Ashkenazim immigrants and on Israeli born Jews of Ashkenazim origin (or the third generation of the Israeli born) substantially but induces the negative impact of immigration on immigrants of Sephardic origin.

4.4 Immigrant spatial concentration and occupational outcomes

In this study I also consider how the spatial concentration of new immigrants has an impact on the occupational attainment of the working Jewish population. The findings are summarised in Tables 6-8.

The results of multilevel modelling show that after controlling for the ethnic composition of the locality and the local labour markets conditions, immigrant spatial concentration does not have a statistically significant impact on the occupational outcomes of any group of the Jewish veteran population with the exception of Sephardic immigrants. The percentage of new immigrants in the local labour market has a negative impact on the likelihood of Sephardic immigrants having academic/ managerial/professional occupations and this

impact remains negative and statistically significant once the local labour market ethnic composition and its type is accounted for. Moreover, controlling for the type of local labour market increases the magnitude of the negative impact of immigration on the likelihood of Sephardic immigrants having academic, managerial or professional occupations. In a rather similar way, while the gross impact of immigration on the odds of Sephardic immigrants escaping blue collar occupations is statistically insignificant, the net impact obtained after controlling for both the ethnic composition and the type of local labour market is statistically significant and negative. As outlined in the previous section, the pattern of the relationship between new immigrant spatial concentration and the wages of Sephardic immigrants is similar to the relationship between new immigrant spatial concentration and the occupational attainment of the latter ethnic group, i.e. controlling for the type of residential locality increases the magnitude of the negative impact of immigration on their outcomes.

Table 6 about here

Table 7 about here

Table 8 about here

5. Summary and Conclusions

In this paper I explored the - impact of the proportion of the new-immigrant population in a locality on the occupational and income attainment of various groups of Israeli sub-populations, net of factors characterizing local labour market conditions and opportunity structure. The study was carried out using a multilevel regression analysis technique.

The methodology employed in this research is based on a number of important developments. First, I referred to the fact that the empirical evidence surrounding immigration labour market impact is neither consistent nor conclusive. For this reason I began with an attempt to reconsider and to integrate critically both theoretical and empirical knowledge, which was accumulated up-to date in the field of sociological and econometric studies of immigration labour market effects. Based on existing research, I analysed possible sources of estimation bias of the direction and magnitude of the immigration impact on the labour market outcomes of the veteran population, and attempted to design a methodology, which took into account the source of errors and allowed to estimate the net immigration labour market impact.

Thus, I argued that for the Israeli case the best level of analysis of the immigration labour market effect is the local labour market level, if some important steps that allow controlling for the local labour market type and conditions are secured. It emerges from existing research in the field that the immigration labour market effect is mediated by factors such as local labour market conditions and changes in these conditions, which could be related to the immigration influx; socio-demographic and ethnic compositions of the local labour market and changes in the latter which follow from internal migration of the veteran population out-of and into-the-immigrant affected labour markets. Controlling for local labour market level parameters is especially important when a system of socio-economic inequality has a spatial dimension, i.e. when socially and economically weak groups of the population (as is the case in Israeli, socially and economically weak ethnic groups such as Sephardic immigrants, the recent FSU immigrants and the Israeli Arabs) are spatially over-concentrated in particular towns, districts and regions of the country.

The findings show spatial concentration of new immigrants are associated negatively with higher wages of all groups of veteran Jewish population. However, only Sephardic Jews experience a negative net impact of new immigrant concentration on their occupational standing.

The findings also show that local labour market conditions are indeed important mediators between immigrant spatial concentration and the economic and financial outcomes of the veteran incumbents of the labour market. Moreover, the factors which account for types of local labour markets impact differently on the relationship between new immigrant spatial concentration and labour market outcomes of different ethnic groups. Thus, controlling for the type of local labour market reduces the negative association between the size of the new immigrant population and the income of higher status ethnic groups (Ashkenazim immigrants and Israeli born Jews), while controlling for the type of local labour market increases the degree of a negative impact of immigration on wage and income attainment of Sephardic immigrants.

These findings are in accord with research hypothesis 2, which assumes that immigrants compete with the veteran Israeli population of different skill levels and negatively affect the labour market outcome of both higher and lower socio-economic status groups. However, higher status ethnic groups in Israel usually have regular and protected forms of employment and thus they experience a negative impact of immigration on their wages only. Sephardic immigrants, though, who are more frequently employed in the secondary labour market, are less sheltered from the competition of new immigrants and as a result lose out financially and occupationally from this competition.

The findings also confirm research hypothesis 3, derived from an ethnic pluralism perspective. Thus, the findings show that the impact of new immigrants on the labour market outcomes of Sephardic immigrants is mediated both by the presence of higher status ethnic groups in the local labour market and by the quality of the local labour market. This finding should be considered in the light of an historical pattern of over-concentration of Sephardic immigrants in the socio-economic and geographic periphery of Israel. The evidence that Sephardic immigrants are less negatively affected by new immigrants in peripheral localities rather than in more central localities could mean that they are more occupationally segregated in peripheral localities where developed ethnic occupational niches are sheltered well from competition with newcomers. However, in more central localities with a larger population of higher status ethnic groups, Sephardic Jews participate in open occupational markets and enter into direct competition with new immigrants. Bean et al., (1999) reported similar findings and argued that occupational segregation between local ethnic minorities and immigrants reduces competition among them. Similarly, Model (1997), Resenfeld and Tienda (1999), Wilson (1999) and Semyonov (1988) have shown that when minorities have both occupational and spatial segregation and are employed either in the ethnic economy, or in the “ethnic –state sector”, or in any other type of ethnic occupational niche, they are sheltered from competition with new immigrants

The findings are also in accord with findings of researchers who work in ethnic pluralism and ethnic queue perspectives who argue that the presence of a small sized dominant population and a large sized ethnic minority in an area has a positive impact on labour market outcomes of both minority group members and immigrants. My findings suggest that the presence of a small sized dominant ethnic group (immigrants of Ashkenazim origin) and a large sized minority population (immigrants of Sephardic origin) together have a positive impact on labour market outcomes of both new immigrants and members of minority ethnic groups (Jews of Sephardic origin) and confirms the earlier findings of Friesbie and Neidert (1977) and Burr et al (1992).

How sure one can be in the claiming effect of immigration? Could it be an artefact as one described by Borjas (2004)? Borjas found that immigrants who completed their PhD studies in the US and naturalized in the US thereafter have negative impact on wages of the equally qualified American born. Borjas was arguing that part of negative association between high percentage of the foreign born of the above characteristics and the wages of the US born can be attributed to the fact that the foreign born enter occupations that are relatively low paid and therefore these are occupations that native born take less willingly creating by that

a high demand for immigrant work force. For example, most foreign born PhD graduates enter academic jobs, while the US born Ph.D. graduates prefer private sector. In this research unlike Borjas who conducted his analyses on the national economy level, using jobs as the aggregate units of analyses, we conduct the analyses on the level of local labour markets. Control for the overall opportunity structure of the local labour markets, which in turn are responsible should was aimed to solve the problem that Borjas describes.

Another possible correlates of high wages should be mentioned - immigrants are attracted to high wage labour market and may be not all characteristics that are define high wage level labour market are accounted for. Internal migration of non immigrant workers is also not accounted for in this research – not only immigrants but native born also may be attracted to a higher wage labour market, while those who are negatively affected by immigrant influx might leave the labour market (Filler, 1992).

Despite the limitations and questions which remain open this study considers the issue of the immigration impact on the Israeli labour market in a more comprehensive and systematic way that it has been done before through a consideration of 150 local labour markets across Israel and including in the study control for other characteristics of the local labour market s that might be responsible for across labour market variations in the outcomes.

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Figures and Tables

Figure 1: Dependent variables

Ethnic categories for which multilevel analyses is conducted (separately for each ethnic category)	*1. FSU immigrants* *2. Sephardic immigrants* *3. Ashkenazim immigrants* *4. Inraeli born of Sephardic origin* *5. Israeli born of Ashkenazim origin (second, third or higher generations)*
Dependent variables	
Natural logarithm of monthly wages (in what follows, I refer to wages as "income"). Occupational destination:	Blue collar occupation (occupational categories V to X according to the one digit standard classification of the Israeli Bureau of Statistics) Academic/professional/managerial occupations (occupational categories 0 to II according to the one digit standard classification of the Israeli Bureau of Statistics). *Routine white collar occupations and associated professional and technical* (occupational categories 1, III, IV according to the one digit standard classification of the Israeli Bureau of Statistics).

Figure 2: Independent Variables

Characteristics of localities	**1995**	**Changes between 1983 and 1995**
Current ethnic composition of the local labour market:	% of Israeli born in the locality	V
	% of Sephardic immigrants in the locality	
	% of Ashkenazim immigrants in the locality	
	% of the recent FSU immigrants in the locality	V
Current occupational and industrial composition of the local labour markets:	% working in academic, managerial and professional occupations in the locality	V
	% in blue collar occupations in the locality	V
	% in manufacturing in the locality	V
	% in finance in the locality	
	% public services in the locality	
Current employment opportunities of the local labour market:	% in the annual labour force in the locality	V
	% unemployed in the locality	
	% with part time work	
	% working in the locality of residence.	
Current socio-demographic profile of local labour market:	% with higher secondary education in the locality	
	% with below secondary education in the locality	
	% with high income (upper decile) in the locality	
	% with low income (lowest decile) in the locality	V
Size of the locality	size of the locality population	

Figure 3: Income multilevel equations (Model 5 – full model) adopted from Rasbash et al 2002

$Ln(income)_k = \beta_{0, locality, individual} + \beta_{kx} X + \beta_{kz}(Z)$

k-one of five ethnic groups

X – the vector of the individual level variables

Z- the vector of the local labour market level variables

β_x -fixed vector of individual level variables slopes

β_z -fixed vector of locality level variables slopes

$\beta_{k,o, locality, individual}$ -random intercept

. $\beta_{k,o, locality, individual} = \beta + u_{k,o,locality} + e_{k, o, locality, individual}$

$[u_{k,o,locality}] \sim N(0, \Omega_u)$: $\Omega_U = [\Omega_{u0}]$

$[e_{k,o,locality}] \sim N(0, \Omega_e)$: $\Omega_e = [\Omega_e]$

$\Omega_U + \Omega_e$ – total variance;

Ω_U-between locality variance; Ω_e-individual level variance

$u_{o,locality}$ are the locality (local labour market) level normally distributed departures from the average across localities with mean 0 and variance Ω_{u0}

($\beta + \beta_x + \beta_z$); $e_{k,o, locality, individual}$ –individual level normally distributed departures from the locality average across individual with mean 0 and variance Ω_{e0}

Figure 4: Binary equations of occupational destination (Model 5 – full model) adopted from Rasbash *et al* (2002)

The full models is

$Y_{Knij} = \pi_{Knij} + e_{0Knij}$

(standard assumption is that the response Y_{Kni} is distributes as Binomial $(1, \pi_{Knij})$, e_{0Knij} have a variance $\pi_{Knij}(1-\pi_{Knij})$)

Y_{Knij} – is an observed binary response (0,1) whether or not a respondent (i) in locality (j) have occupation Y_n. π_{Knij} is the probability that individual i (who belongs to ethnic groups K) in a locality j will have a particular occupation Y_K.

Logit $(\pi_{Knij}) = \beta_{\iota knj} CONSTANT + \beta_{knij} X_{Knij} + \beta_{knij} Z_{Knij}$

$\beta_{\iota knj} = \beta_{\iota kn} + u_{1knj}$

$\beta_{\iota knj}$ indicates that the intercept is random and changing at the level of locality.

X_{Knij} is a vector of independent variables on the level of individuals

Z_{Knij} is a vector of independent variables on the level of localities

β_{Knij} -fixed vector of individual level variables slopes

β_{Knij} -fixed vector of locality level variables slopes

$[u_{1Knj}] \sim N(0, \Omega_u)$: $\Omega_U = [\Omega_{Ul}]$

Ω_U-between locality variance

$[e_{0KNIJ}] \sim N(0, \Omega_e)$: $\Omega_e = [1]$

Ω_e—between individual level variance; always set to 1 in this model.

Table 1: Multilevel analysis results – the amount of total variance of the dependent variable "Natural Logarithm of Monthly Income", explained by independent variable

		Model1 No explanatory variables	Model2 Human capital	Model3 % new immigrants	Model4 Ethnic composition	Model5 Type of locality
Jews, not new immigrants	Level two variance (localities)	**[0.057(.009)]**	**[0.014(.003)]**	**[0.008(.001)]**	**0.005(.001)**	**0.002(.000)**
	Level one variance (individuals)	**[0.505(.003)]**	**[0.377(.002)]**	**[0.377(.002)]**	**0.377(.002)**	**0.377(.002)**
	% of locality level variance of total variance	**10%**				
Among them:	% of total between locality variance explained		**75%**	**10%**	**5%**	**5%**
	-2*loglikelihood	**121177.1**	**104659.4**	**104620.4**	**104587.8**	**104531.0**
Israeli born of Ashkenazim origin	Level two variance (localities)	**[0.050(.009)**	**[0.009(.002)]**	**[0.005(.001)]**	**[0.004(.001)]**	**[0.000(.000)]**
	Level one variance (individuals)	**[0.563(.006)]**	**[0.418(.005)]**	**[0.418(.005)]**	**[0.418(.005)]**	**[0.418(.005)]**
	% of locality level variance of total variance	**8%**				
	% of total between locality variance explained		**82%**	**8%**	**2%**	**8%**
	-2*loglikelihood	**36945.6**	**32036.1**	**32002.4**	**31996.6**	**31944.4**
Israeli born of Sephardic origin	Level two variance (localities)	**[0.021(.003)]**	**[0.007(.002)]**	[0.006(.001)]	**[0.004(.001)]**	**[0.002(.001)]**
	Level one variance (individuals)	**[0.364(.004)]**	**[0.299(.004)]**	[0.299(.004)	**[0.299(.004)]**	**[0.299(.004)]**
	% of locality level variance of total variance	**5%**				
	% of total between locality variance explained		**67%**	**5%**	**10%**	**10%**
	-2*loglikelihood	**26021.1**	**23188.4**	**23173.4**	**23145.0**	**23114.7**
I generation immigrants Sephardic origin	Level two variance (localities)	**[0.026(.005)]**	**[0.009(.002)]**	[0.008(.002)]	**[0.005(.001)]**	**[0.002(.001)]**
	Level one variance (individuals)	**[0.461(.006)]**	**[0.352(.004)]**	[0.352(.005)]	**[0.351(.005)]**	**[0.351(.005)]**
	% of locality level variance of total variance	**5%**				
	% of total between locality variance explained		**65%**	**4%**	**12%**	**12%**
	-2*loglikelihood	**27214.7**	**23620.21**	**23607.2**	**23583.5**	**23541.9**
I generation immigrants Ashkenazim origin	Level two variance (localities)	**0.059(.011)**	**0.011(.003)**	**0.007(.001)**	0.006(.001)	**0.003(.001)**
	Level one variance (individuals)	**0.562(.007)**	**0.412(.006)**	**0.412(.005)**	0.412(.005)	**0.412(.005)**
	% of locality level variance of total variance	**10%**				
	% of total between locality variance explained		**81%**	**7%**	2%	**5%**
	-2*loglikelihood	**28664.6**	**24681.1**	**24654.3**	24648.3	**24625.4**
FSU immigrants	Level two variance (localities)	**[0.012(.003)]**	**0.006(.002)**	0.005(.001)	0.004(.001)	**0.002(.001)**
	Level one variance (individuals)	**[0.288(.004)]**	**0.236(.003)**	0.236(.005)	0.236(.005)	**0.236(.003)**
	% of locality level variance of total variance	**4%**				
	% of total between locality variance explained		**50%**	8%	8%	**16%**
	-2*loglikelihood	**16282.6**	**14226.0**	14217.7	14204.5	**14181.3**

Table 2: Multilevel analysis results – the amount of total variance of dependent variable "Probability of escaping blue collar occupations" explained by independent variable on the different level of analysis.

		Model1 No explanatory variables	Model2 Human capital	Model3 % new immigrants	Model4 Ethnic composition	Model5 Type of locality
Jews, not new immigrants	Level two variance (localities)	**[0.171(.036)]**	**[0.042(.013)]**	[0.040(.013)]	[0.038(.013)]	**[0.024(.010)]**
	Level one variance (individuals)	**[1.00(.00)]**	**[1.00(.00)**	[1.00(.00)]	[1.00(.00)]	**[1.00(.00)]**
	% of total between locality variance explained		**75%**	1%	1%	**7%**
Among them: Israeli born of Ashkenazim origin	Level two variance (localities)	**[0.293(.062)]**	**[0.077(.023)]**	[0.040(.034)]	[0.045(.036)]	**[0.000(.000)]**
	Level one variance (individuals)	**[1.00(.00)]**	**[1.00(.00)]**	[1.00(.00)]	[1.00(.00)]	**[1.00(.00)]**
	% of total between locality variance explained		**74%**	13%	0%	**13%**
Israeli born of Sephardic origin	Level two variance (localities)	**[0.110(.039)]**	**[0.072(.032)]**	[0.063(.029)]	[0.057(.028)]	[0.053(.027)]
	Level one variance (individuals)	**[1.00(.00)]**	**[1.00(.00)]**	[1.00(.00)]	[1.00(.00)]	[1.00(.00)]
	% of total between locality variance explained		**35%**	8%	5%	4%
I generation immigrants Sephardic origin	Level two variance (localities)	**[0.049(.021)]**	**[0.024(.015)]**	[0.022(.014)]	[0.019(.014)]	[0.011(.011)]
	Level one variance (individuals)	**[1.00(.00)]**	**[1.00(.00)]**	[1.00(.00)]	[1.00(.00)]	[1.00(.00)]
	% of total between locality variance explained		**51%**	4%	6%	16%
I generation immigrants Ashkenazim origin	Level two variance (localities)	**[0.320(.090)]**	**[0.072(.036)]**	[0.071(.036)]	[0.057(.033)]	**[0.011(.018)]**
	Level one variance (individuals)	**[1.00(.00)]**	**[1.00(.00)]**	[1.00(.00)]	[1.00(.00)]	**[1.00(.00)]**
	% of total between locality variance explained		**78%**	0%	4%	**14%**
FSU immigrants	Level two variance (localities)	**[0.033(.016)]**	**[0.027(.015)]**	0.022(.013)	[0.013(.011)]	**[0.000(.000)]**
	Level one variance (individuals)	**[1.00(.00)]**	**[1.00(.00)]**	1.00(.00)	[1.00(.00)]	**[1.00(.00)]**
	% of total between locality variance explained		**18%**	15%	27%	**39%**

Table 3: Multilevel analysis results – the amount of total variance of dependent variable "Probability of having academic/professional/managerial occupations", explained by independent variable on the different

		Model1 No explanatory variables	Model2 Human capital	Model3 % new immigrants	Model4 Ethnic composition	Model5 Type of locality
Jews, not new immigrants	Level two variance (localities)	**[0.556(.084)]**	**[0.127(.025)]**	**[0.063(.020)]**	[0.046(.016)]	**[0.027(.011)]**
	Level one variance (individuals)	**[1.00(.00)]**	**[1.00(.00)]**	**[1.00(.00)]**	[1.00(.00)]	**[1.00(.00)]**
	% of total between locality variance explained		**77%**	**12%**	3%	**3%**
Among them: Israeli born of Ashkenazim origin	Level two variance (localities)	**[0.338(.068)]**	**[0.066(.020)]**	[0.063(.020)]	[0.046(.016)]	**[0.027(.011)]**
	Level one variance (individuals)	**[1.00(.00)]**	**[1.00(.00)]**	[1.00(.00)]	[1.00(.00)]	**[1.00(.00)]**
	% of total between locality variance explained		**80%**	1%	5%	**6%**
Israeli born of Sephardic origin	Level two variance (localities)	**[0.238(.052)]**	**[0.045(.020)]**	[0.042(.019)]	[0.039(.019)]	[0.022(.014)]
	Level one variance (individuals)	**[1.00(.00)]**	**[1.00(.00)]**	[1.00(.00)]	[1.00(.00)]	[1.00(.00)]
	% of total between locality variance explained		**81%**	1%	3%	7%
I generation immigrants Sephardic origin	Level two variance (localities)	**[0.358(.075)]**	**[0.077(.028)]**	[0.042(.020)]	[0.022(.015)]	**[0.009(.011)]**
	Level one variance (individuals)	**[1.00(.00)]**	**[1.00(.00)]**	[1.00(.00)]	[1.00(.00)]	**[1.00(.00)]**
	% of total between locality variance explained		**78%**	10%	6%	**4%**
I generation immigrants Ashkenazim origin	Level two variance (localities)	**[0.453(.085)]**	**[0.098(.029)]**	**[0.063(.022)]**	[0.056(.020)]	**[0.019(.011)]**
	Level one variance (individuals)	**[1.00(.00)]**	**[1.00(.00)]**	**[1.00(.00)]**	[1.00(.00)]	**[1.00(.00)]**
	% of total between locality variance explained		**78%**	**8%**	2%	**8%**
FSU immigrants	Level two variance (localities)	**[0.253(.059)]**	**[0.087(.030)]**	[0.062(.021)]	[0.046(.021)]	**[0.036(.018)]**
	Level one variance (individuals)	**[1.00(.00)]**	**[1.00(.00)]**	[1.00(.00)]	[1.00(.00)]	**[1.00(.00)]**
	% of total between locality variance explained		**66%**	10%	6%	**4%**

Table 4: Impact of the variable "percentage of the new immigrant households in locality" on (a) natural logarithm of monthly wages; (b) probability of avoiding unskilled occupations; (c) probability to have academic, professional, managerial (APM) occupations. Estimated parameters (standard errors in parenthesis statistically significant estimates in bold).

Dependent variables:	Model 3 % of immigrants	Model 4 Ethnic composition	Model 5 Characteristics of localities
Veteran Jewish population (N=62757)			
Wages	**-0.03(.01)**	**-0.05(.01)**	**-0.03(.01)**
AMP occupations	**-0.17(.04)**	**-0.15(.04)**	-0.02(.05)
Unskilled occupations	0.03(.03)	**0.10(.05)**	-0.05(.06)
Among them:			
Israeli born: II generation of Ashkenazim immigrants or III gen. (N=18181)			
Wages	**-0.07(.01)**	**-0.05(.01)**	**-0.04(.02)**
AMP occupations	**-0.18(.04)**	**-0.16(.05)**	0.04(.08)
Unskilled occupations	0.01(.08)	*0.21(.12)*	*0.21(.15)*
Israeli born: II generation of Sephardic immigrants (N=15628)			
Wages	**-0.04(.01)**	-0.00(.01)	-0.00(.02)
AMP occupations	**-0.10(.04)**	-0.04(.06)	-0.02(.08)
Unskilled occupations	**0.11(.056)**	0.12(.07)	0.05(.10)
Sephardic Immigrants (N=13898)			
Wages	**-0.04(.01)**	**-0.02(.01)**	**-0.05(.02)**
AMP occupations	**-0.12(.05)**	**-0.12(.06)**	**-0.17(.08)**
Unskilled occupations	0.05(.04)	0.03(.05)	**-0.15(.07)**
Ashkenazim Immigrants (N=15050)			
Wages	**-0.06(.01)**	**-0.05(.02)**	**-0.04(.02)**
AMP occupations	**-0.16(.04)**	**-0.16(.06)**	0.01(.08)
Unskilled occupations	-0.01(.06)	0.12(.09)	-0.03(.11)
FSU immigrants (N=10875)			
Wages	**-0.03(.01)**	**-0.03(.01)**	-0.01(.01)
AMP occupations	**-0.15(.04)**	**-0.18(.06)**	-0.06(.09)
Unskilled occupations	0.04(.03)	0.02(.05)	-0.07(.06)

Table 5: Prediction of Income (Dependent variable: Natural logarithm of monthly wages). Estimated parameters (standard errors in parenthesis, statistically significant estimates in bold) of locality level characteristics. Impacts of individual level variables are not presented. Results of Multilevel Analysis for four ethnic groups of veteran Jewish population.

	All veteran Jewish population			**Israeli born of Ashkenazim origin**			**Israeli-born of Sephardic origin**			**Ashkenazim immigrants (excluding the FSU new immigrants)**			**Sephardic immigrants**		
	Model3	**Model4**	**Model5**	**Model3**	**Model4**	**Model5**	**Model3**	**Model4**	**Model5**	**Model3**	**Model4**	**Model5**	**Model3**	**Model4**	**Model5**
	Estimated parameters std. err. in parenthesis)			Estimated parameters (std. err. in parenthesis)			Estimated parameters (std. err. in parenthesis)			Estimated parameters (std. err. in parenthesis)			Estimated parameters (std. err. in parenthesis)		
% FSU immigrants	**-0.06(.01)**	**-0.04(.01)**	**-0.03(.01)**	**-0.07(.01)**	**-0.05(.01)**	**-0.04(.02)**	**-0.03(.01)**	-0.00(.01)	-0.00(.02)	**-0.06(.01**)	**-0.05(.02)**	**-0.04(.02)**	**-0.04(.01)**	**-0.02(.01)**	**-0.05(.02)**
Change % Israeli born Jews		0.01(.01)	-0.01(.01)		0.00(.01)	**-0.03(.01)**		**0.02(.01)**	-0.01(.01)		0.01(.01)	0.02(.02)		0.01(.01)	0.02(.02)
% Ashkenazim immigrants		**0.05(.02)**	**0.03(.01)**		**0.04(.02)**	0.02(.02)		0.01(.02)	0.01(.02)		-0.01(.03)	0.02(.02)		0.00(.00)	-0.00(.02)
% Sephardic immigrants		-0.01(.02)	0.00(.02)		0.01(.02)	0.00(l02)		**0.07(.02)**	**0.06(.02)**		**0.04(.02)**	.02(.02)		**0.07(.02)**	0.01(.02)
Factor 1			**0.08(.01)**			**0.09(.01)**			**0.06(.01)**			**0.08(.02)**			**0.11(.02)**
Factor2			**0.02(.01)**			**0.03(.01)**			**0.02(.01)**			0.00(.01)			0.01(.01)
Factor3			**-0.02(.01)**			**-0.03(.01)**			-0.01(.01)			-0.00(.02)			-0.02(.02)
Factor4			0.00(.01)			0.01(.01)			-0.02(.01)			**0.03(.01)**			0.00(.01)
Factor5			-0.01(.01)			0.00(.01)			0.01(.01)			-0.01(.02)			0.02(.02)
Total N	62757			18181			15628			13898			15050		

Table 6. Prediction of occupational attainment (probability of being in academic/professional, managerial occupations). Estimated parameters **(log odds ratios; standard errors in parenthesis, statistically significant estimates in bold)** of locality level characteristics. **Impacts of individual level variables are not presented.** Results of multilevel analysis for four ethnic groups of veteran Jewish population.

	All veteran Jewish population			**Israeli born of Ashkenazim origin**			**Israeli-born of Sephardic origin**			**Ashkenazim immigrants (excluding the FSU new immigrants)**			**Sephardic immigrants**		
	Model3	**Model4**	**Model5**	**Model3**	**Model4**	**Model5**	**Model3**	**Model4**	**Model5**	**Model3**	**Model4**	**Model5**	**Model3**	**Model4**	**Model5**
	Estimated parameters std. err. in parenthesis)			**Estimated parameters (std. err. in parenthesis)**			**Estimated parameters (std. err. in parenthesis)**			**Estimated parameters (std. err. in parenthesis)**			**Estimated parameters (std. err. in parenthesis)**		
% FSU immigrants	**-0.16(.04)**	**-0.15(.04)**	-0.02(.05)	**-0.18(.04)**	**-0.19(.05)**	0.04(.08)	**-0.10(.04)**	-0.06(.06)	0.05(.10)	-0.16(.04)	**-0.16(.06)**	0.01(.08)	**-0.12(.06)**	**-0.12(.06)**	**-0.17(.08)**
Change % Israeli born Jews		0.00(.02)	**0.09(.04)**		-0.01(.03)	0.02(.06)		0.02(.04)	-0.01(.09)		0.00(.04)	0.09(06)		0.02(.05	-0.07(.08)
% Ashkenazim immigrants		0.03(.07)	-0.02(.06)		**-0.23(.08**)	**-0.13(.09)**		-0.08(.08)	0.05(.12)		**-0.14(.09)**	-0.05(.08)		-0.08(.07)	**-0.19(.08)**
% Sephardic immigrants		**-0.22(.07)**	-0.08(.06)		0.05(.08)	-0.03(.08)		0.04(.08)	0.08(.13)		-0.02(.08)	-0.13(.09)		0.10(.08)	0.11(.10)
Factor 1			**0.27(.04)**			**0.25(.06)**			**0.21(.07)**			**0.32(.06)**			**0.24(.07)**
Factor2			-0.00(.03)			0.04(.04)			-0.07(.05)			0.01(.05)			0.03(.05)
Factor3			**-0.09(.04)**			**-0.19(.07)**			-0.01(.07)			-0.13(.07)			0.09(.07)
Factor4			**0.08(.03)**			0.02(.05)			0.04(.05)			0.07(.05)			0.09(.05) - 0.09(.06)
Factor5			-0.08(.05)			-0.08(.07)			0.05(.06)			-0.10(.06)			
Total N		62757			18181			15628			13898			15050	

Table 7: Prediction of occupational attainment (probability of escaping blue collar occupations). Estimated parameters (log odds ratios; standard errors in parenthesis, statistically significant estimates in bold) of locality level characteristics. Results of multilevel analysis for four ethnic groups of veteran Jewish population.

	All veteran Jewish population			Israeli born of Ashkenazim origin			Israeli-born of Sephardic origin			Ashkenazim immigrants (excluding the FSU new immigrants)			Sephardic immigrants		
	Model3	**Model4**	**Model5**	**Model3**	**Model4**	**Model5**	**Model3**	**Model4**	**Model5**	**Model3**	**Model4**	**Model5**	**Model3**	**Model4**	**Model5**
	Estimated parameters std. err. in parenthesis)			**Estimated parameters (std. err. in parenthesis)**			**Estimated parameters (std. err. in parenthesis)**			**Estimated parameters (std. err. in parenthesis)**			**Estimated parameters (std. err. in parenthesis)**		
% FSU immigrants	0.03 (.03)	0.10(.05)	0.05(.06)	0.01(.08)	***0.21(.12)***	***0.21(.12)***	0.11(.06)	0.12(.07)	0.05(.10)	-0.01(.06)	0.12(.09)	-0.03(.11)	0.05(.04)	0.03(.06)	**-0.15(.07)**
Change % Israeli born Jews		0.05(.04)	0.04(.06)		**0.23(.11)**	**0.26(.13)**		-0.01(.06	-0.01(.09)		0.14(.11)	0.09(.13)		-0.06(.05)	-0.07(.08
% Ashkenazim immigrants		0.20(.07)	0.17(.08)		0.13(.13)	**0.29(.15)**		0.11(.10)	0.05(.11)		-0.07(.12	-0.10(.11)		0.03(.07)	-0.10(.08
% Sephardic immigrants		0.07(.07)	0.02(.07		.21(.13)	0.27(.17)		0.12(.10)	0.08(.13)		0.17(.12	0.19(.14)		0.09(.08)	0.11(.10
Factor 1			0.05(.05)			**0.40(.11)**			0.04(.08)			0.12(.09)			-0.05(.07)
Factor2			0.02(.04)			0.01(.08)			0.02(.06)			0.07(.08)			0.03(.05)
Factor3			0.18(.05)			0.04(.14)			0.10(.09)			0.16(.11)			**0.24(.07)**
Factor4			0.03(.04)			0.07(.08)			0.03(.06)			-0.06(.06)			0.00(.04)
Factor5			0.03(.05)			**0.17(.08)**			-0.03(.09)			**0.17(.08)**			0.02(.06)
Total N		62757			18181			15628			13898			15050	

Table 8: Results of multilevel analysis for the recent FSU immigrants for three dependent variables. (unstandardized estimated parameters; standard errors in parenthesis, statistically significant estimates in bold)

	Natural logarithm of monthly wages			**Probabilities of escaping blue collar occupations**			**Probabilities of having AMP occupation**		
	Model3	**Model4**	**Model5**	**Model3**	**Model4**	**Model5**	**Model3**	**Model4**	**Model5**
Individual level variables	Estimated parameters (std. Err. in parenthesis)			Estimated parameters –log odds ratios (std. err. in parenthesis)			Estimated parameters-log odds ratios (std. err. in parenthesis)		
% FSU immigrants	**-0.03(.01)**	**-0.03(.01)**	-0.01(.01)	0.04(.03)	0.02(.05)	-0.07(.06)	**-0.15(.04)**	**-0.18(.06)**	-0.06(.09)
Change % Israeli born		0.01(.01)	0.00(.02)		-0.08(.06)	-0.10(.07)		-0.06(.07)	-0.10(.09)
% Ashkenazim immigrants		-0.52(.02)	-0.02(.02)		0.07(.07)	0.09(.06)		**-0.23(.09)**	**-0.22(.09**)
% Sephardic immigrants		-0.02(.02)	-0.01(.02)		0.07(.07)	0.14(.08)		0.01(.09)	-0.07(.11)
Factor 1			**0.05(.01)**			0.11(.06)			**-0.22(.06)**
Factor2			-0.00(.01)			0.03(.05)			0.09(06)
Factor3			**-0.04(.02)**			0.10(.06)			**-0.15(.08)**
Factor4			**-0.02(.01)**			-0.03(.04)			0.03(.05)
Factor5			0.01(.02)			**0.11(.05)**			-0.07(.08)
Total		10875			10875			10875	

Appendix: Characteristics of local labour markets: results of exploratory principal component analysis

I considered 21 local labour market characteristics, which reflect the demographic, occupational and industrial composition of localities , as well as changes that occurred at least in part of localities' characteristics between the mid 1980s and mid 1990s , which were reduced to five principal components by means of principal component analysis. These five principal components explain 82% of total variance (results presented in tables A2.1 and A2.2). In what follows, I refer to these components as factors.

Factor 1 explains 40% of common variance. It loads positively on the high percentage of participation in the labour force, the high percentage of the population with academic/professional occupations and with the second academic degree, as well as the high percentage employed in finance, the high percentage of those with secondary education and high income (Table A2.2). At the same time, this factor loads negatively on localities where there is a high percentage of the population with blue collar occupations, and a high percentage of low educated and low income population.

This factor reflects a dimension of prestigious localities with a socially and economically strong veteran population, the majority of whom are employed in salariat jobs versus localities with a socially and economically weak population. It differentiates between "old" prestigious localities mostly in core areas of the country with affluent populations (the highest positive values of the factor) and old "stagnated" localities where the population with low socio-economic characteristics is concentrated, many of which are "old" development towns in the country peripheral towns (the largest negative values of the factor).

Factor 2 explains 16% of the total variance and loads positively on variables which express the above average growth in characteristics such as a growth in the percentage of academic, professional and managerial jobs, a growth in the percentage of jobs in finance, and a growth in the percentage of jobs in public services. Thus, this factor indicates that local labour markets which are rapidly developing with post-industrial features in terms of their occupational and industrial structures, and differentiates mostly between old Jewish localities whose characteristics are stable over time and small localities which are rapidly improving in terms of the characteristics of their population. Thus, among the former are both affluent localities as well as many old peripheral development towns (the largest negative values of the factor), and among the latter are many small community settlements.

Factor 3 explains 10% of the total variance and points to localities which are disadvantaged in terms of their labour market opportunity structures. It loads negatively on large localities, and positively on localities with a high percentage of the population in blue collar occupations, also on localities with a high and increasing percentage of the population in the manufacturing sector, and with high unemployment (Table A2.2).

Factor 4 explains another 8% of the variance and positively loads on large sized localities with a high and increasing percentage of the population working in the locality of residence. Finally, Factor 5 explains 7% of the total variance and positively loads on localities where there is a large population growth, and negatively loads on localities with a high percentage

of the population working in finance. Factors 4 and 5 are poorly interpreted but remain left in the analysis for the sake of completeness.

The association between factors which describe the socio-demographic, occupational and industrial composition of local labour markets and variables which describe the ethnic composition of local labour markets.

Table A2.3 presents the correlation coefficients among the factor which describe the socio-demographic, occupational and industrial composition of the local labour markets and variables which describe the ethnic composition of local labour markets. Factor scores were estimated though Regression Method (available in the SPSS statistical package); the produced scores have mean of 0 and a variance equal to the squared multiple correlation between the estimated factor scores and the true factor values, One can see that concentration of immigrants of Ashkenazim origin and native Israeli-born Jews correlates highly and positively with Factor 1, which means that these ethnic groups of the Israeli population are concentrated in "old" prestigious localities with socially and economically strong populations. Note that spatial concentrations of the new FSU immigrants and Sephardic immigrants also have a positive, although weaker correlation with Factor 1.

The concentration of Ashkenazim immigrants and Israeli born Jews also correlates positively (although on a smaller magnitude) with Factor 2, which indicates "new" rapidly developing community settlements resided mostly by these ethnic groups (all other Jewish ethnic groups correlate negatively with Factor 2).

Factor 3 indicating localities with disadvantaged employment opportunity structures, correlate strongly and positively with a concentration of the new FSU immigrants as well as with the concentration of immigrants from Asia and Africa; this factor correlates strongly and negative with the concentration of Ashkenazim origin immigrants and the Israel born Jews.

A consideration of the correlation between ethnic spatial concentration and Factors 4 and 5 shows that new immigrants' spatial concentration does not always correlate with that of the Sephardic immigrants but also, in come cases, with socially and economically strong groups of the Israeli veteran population.

Finally, one can see from the last column in Table A2.3 that the percentage of the new immigrant population correlates negatively with a positive increment in the relative size of the Israeli born population in the locality (the respective figure is –0.60). This shows that new immigrants and Israeli born Jews moved in different directions, and in fact Israeli born Jews moved out of the localities which were entered by immigrants. Thus, during the mid 1980s-mid 1990s, Israeli born Jews moved out from large central localities where they were traditionally concentrated (the correlation coefficient between the variable "change in the percentage of Israeli born Jews" and Factor 4 is large and negative both before and after controlling for the new immigrant influx in the locality: the respective figures are –0.53 and –0.27) and entered mostly small affluent localities, most of which are communal settlements, ether traditional (to a lesser extent: the correlation coefficient with Factor 1 in the last column of Table A2.3 is 0.19) or newly developed (to much larger extent: the correlation coefficient with Factor 2 in the last column of Table A2.3 is 0.45).

Table A2.1 Principal component analysis of 21 characteristics of Israeli localities. Percentage of total variance explained

Component	Initial Eigenvalues		Extraction Sums of Squared Loadings		Rotation Sums of Squared Loadings	
	Total	% of Variance	Total	% of Variance	Total	% of Variance
1	8.45	40.3	8.45	40.25	5.42	25.79
2	3.37	16.0	3.37	16.04	4.31	20.51
3	2.14	10.2	2.14	10.18	3.46	16.49
4	1.72	8.17	1.72	8.17	2.30	10.95
5	1.52	7.26	1.52	7.26	1.71	8.16
6	0.75	3.56				
7	0.56	2.67				
8	0.52	2.46				
9	0.42	1.99				
10	0.32	1.52				
11	0.26	1.25				
12	0.23	1.08				
13	0.22	1.06				
14	0.14	0.65				
15	0.11	0.52				
16	0.09	0.41				
17	0.07	0.34				
18	0.04	0.21				
19	0.03	0.15				
20	0.03	0.15				
21	0.02	0.09				

Table A2.2. Principal component analysis of 21 characteristics of Israeli localities. Rotated Component Matrix[1]

	Principal Components				
	1	**2**	**3**	**4**	**5**
% in annual labour force	.821				
Work in the locality of residence				.877	
% in academic, managerial and professional occupations	.628	.545			
% in blue collar occupations	-.697		.617		
% in public services					
% in manufacturing			.916		
% in finance	.640				-.507
% part-time work		.502			
% low income (lowest decile)	-.852				
% high income (highest decile)	.625				
% low schooling (up to primary)	-.939				
% higher secondary (matriculation certificate)	.958				
Size of locality			-.571	.519	
% unemployed			.715		
CHANGES IN THE CHARACTRISTICS OF LOCALITIES BETWEEN 1983-1995					
Change in % in manufacturing			.703		
Change in % in finance between		.668			
Change in % in public services		.861			
Change in academic, managerial and professional occupations		.922			
Change in size of locality					.890
Change % work in the locality of residence				.673	
Change in % part time work		.821			

[1] Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 7 iterations.

Table A2.3: Correlation between the factor scores2 and spatial concentrations of ethnic groups of Jewish population

	% FSU immigrants	% Israeli born	% Sephardic immigrants	% Ashkenazim immigrants	Change in % Israeli born	Change in % Israeli born[3]
Factor 1	0.30	0.70	0.50	0.80	0.08	0.19
Factor 2	-0.20	0.10	-0.20	0.10	0.25	0.45
Factor 3	0.70	-0.40	0.40	-0.20	0.10	0.11
Factor 4	0.20	-0.10	-0.10	0.10	-0.53	-0.28
Factor 5	0.20	0.20	-0.00	-0.30	0.10	0.27
% FSU immigrants	1	-0.10	0.40	0.20	-0.61	
% Israeli born		1	0.40	0.60	0.40	
% Sephardic immigrants			1	0.30	-0.40	
% Ashkenazim immigrants				1	-0.03	
Change in % Israeli born					1	

[2] Factor Scores were estimated by Regression Method available in the SPSS statistical package. The produced scores have mean of 0 and a variance equal to the squared multiple correlation between the estimated factor scores and the true factor values.

[3] Partial correlations, controlling for the percentage of new immigrants households in a locality

Footnotes

[i] As the **geographic version** dataset contains detailed geographic codes down to code of locality (localities with 2,000 and more inhabitants) and statistical area. However, socio-economic and demographic variables, such as age, country of birth, occupation, economic branch, years of schooling, and income incomes are extensively grouped. Such variables as years of schooling, age, age at immigration and income from work consists of sufficient number of categories (10 and more) to allow to turn the ordinal level variable into ratio ones, through representing each category by its mean value. That allows more convenient interpretation of the results of regression analysis.

[ii] As the **geographic version** dataset contains detailed geographic codes down to code of locality (localities with 2,000 and more inhabitants) and statistical area. However, socio-economic and demographic variables, such as age, country of birth, occupation, economic branch, years of schooling, and income incomes are extensively grouped. Such variables as years of schooling, age, age at immigration and income from work consists of sufficient number of categories (10 and more) to allow to turn the ordinal level variable into ratio ones, through representing each category by its mean value. That allows more convenient interpretation of the results of regression analysis.

[iii] Although 150 Israeli residential localities are included in the analysis, 54% of the Israeli Jewish population lives in a few large localities and among the latter a half (27 % of Jewish population) live in three large cities – Jerusalem, Tel Aviv and Haifa. The rest of the Jewish population is dispersed throughout the small to medium size localities (see Table A4.1 in Appendix4)

[iv] i.e. estimated by Model 5, which controls for type of local labour market

[v] To this end I excluded from the analysis the localities where the percentage of new immigrants is lower that 9% (these localities represent the lowest quartile of the variable “percentage of new immigrant households in locality”).