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Aliyah from the Former Soviet Union: Contribution to the National Security Balance

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Aliyah from the Former Soviet Union: Contribution to the National Security Balance

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Of course, ideas and conclusions, presented in this paper are on sole responsibility of the author.

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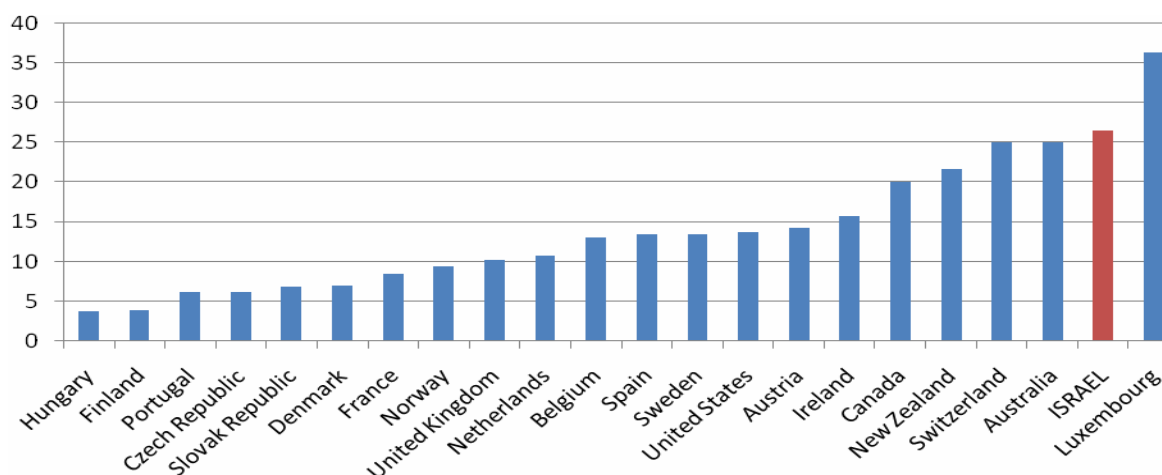
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Introduction

Israel is, by definition, a country of permanent immigration. Aliyah to Israel is a unique phenomenon that differs structurally from migration to other places. The “Law of Return” allows Jews and their families to immigrate permanently to Israel and receive citizenship, generally immediately. Jewish immigration is a central tenet and objective of the State and is actively encouraged as the major instrument of its nation-building policy. Thus, unlike many countries, Israel not only welcomes Jewish refugees and immigrants without limitation, the State helps them to adjust to their new setting through a comprehensive process of absorption. At present, more than a quarter of the current Israeli population and about a third of the labor force (not including temporary foreign workers) was born abroad (see Figure 1).

Figure 1: Israel Among Major Western Nations: Proportion of the Foreign-Born Among Total Population, 2007.



Source: OECD International Migration Outlook

The policy of the State of Israel towards immigrants has evolved since statehood, from emergency reception to the current institutional framework and a “basket” of benefits. Until 1968, responsibility for integration was largely in the hands of The Jewish Agency for Israel (JAFI). In 1968, the Ministry of Immigrant Absorption (MOIA) was created, and currently shares responsibility for integration with JAFI and other government bodies. The budget for the Ministry of Immigrant Absorption in 2008 was NIS 1.27 billion, about 0.2% of GDP, and many services for immigrants are provided through other government Ministries and agencies.

The Ministry of Immigrant Absorption, on the behalf of the Israeli government and assisted by private contributions from world Jewry, is responsible for providing government assistance to new immigrants and returning residents – from their first steps in the country to their integration into every area of life in Israeli society. This includes housing, Hebrew language classes, job training and placement assistance, and other social services.

The Ministry’s policy is to foster integration through concentrated investment in the following main processes:

- Identifying each new immigrant’s potential for growth and contribution.
- Developing appropriate opportunities for realizing such potential.
- Providing resources for personal, family, and community assistance, at a level of quality that meets the needs of new immigrants.

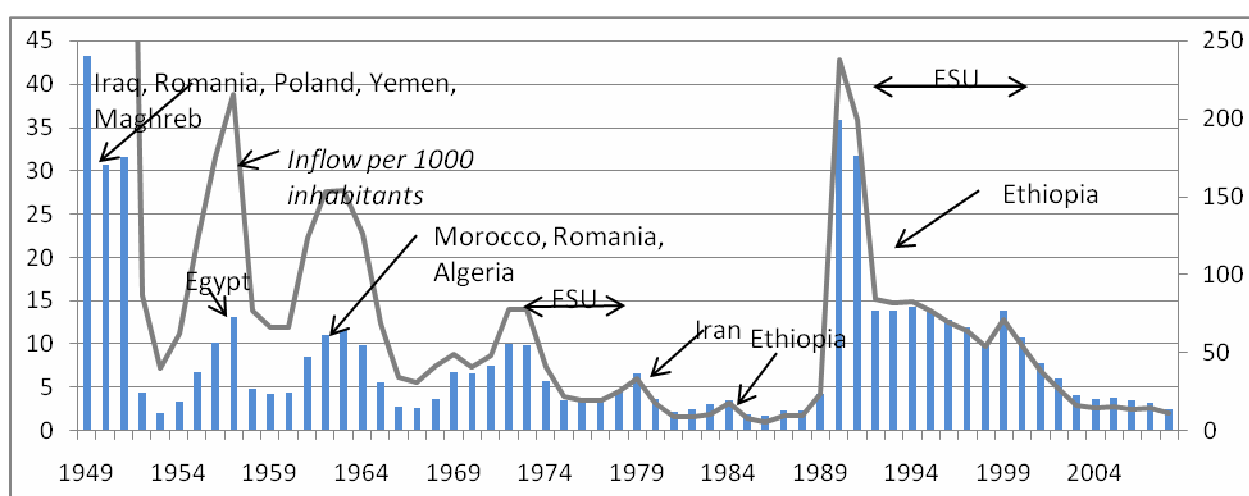
Chapter 1: Social, Political and Economic Picture

Israel in the Context of General Migration Trends

The immigration rate to Israel has varied throughout the country's history. The first of the two most significant waves followed independence, between 1948-1951. During the following years immigration declined to a trickle from 1973 until the unexpected and, in absolute terms, largest wave of immigration in 1990-1991. This was due to the end of restrictions on Jewish emigration during the course of the liberalization processes in the USSR, and the beginning of the mass Russian Jewish emigration that accompanied the breakup of the Soviet Union in the early 1990s (Figure 2).

Figure 2: Annual Influx of Permanent Immigrants (Olim), 1949-2008

In thousands (right axis), and per 1000 inhabitants (left axis), and main source countries during peak years.



Note: Influx per 1000 inhabitants in 1949-1951, not shown, was 262, 145 and 128, respectively.

Source: Israeli Central Bureau of Statistics, 2009

In fact, this phenomenon was a continuation of a long historical tradition. Since the 18th century, with the aliyah of Yehuda Hasid, Jews of Russian origin played an important, and for a time the central role in the history of Palestinian Jewry. It was they who created the overwhelming majority of the immigrants of the First (1882-1907); the Second (1907-1914) and the Third (1919-1924) waves of the Zionist aliyah. In later years, Jewish repatriation from Russia and the USSR varied in rate and frequency, but never ended, even during World Wars I and II. Overall, according to the Jewish Agency and Ministry of Immigrant Absorption data, some 1.1 million immigrants came to Palestine and Israel from the Russian empire/USSR/CIS during the twentieth century alone. This includes 52,350 immigrants with Russian Jewish roots that came before the establishment of the State of Israel, 37,451 from May 1948 to 1969; 149,740 in the 1970s, 28,763 in the 1980s, and 810,727 during the last decade of that century. In addition, more than 160,000 Russian-speaking Jews arrived in Israel between 2000-2009. As a result, approximately one-half of Israeli Jews are in some way related to Russia, the USSR and/or their successor states.

More importantly, the Jewish immigrants from Russia in fact became the formative core of the modern Jewish society in the Land of Israel/Palestine. It is difficult today to find any sphere in Israel where Russian Jews of different generations and their descendants would not play an important, if not a critical role.

The role of the latest wave of aliyah from the former Soviet Union to Israel is especially visible. The breakdown of the Soviet Union and subsequent mass Jewish emigration from the USSR and its successor states has turned Israel into the largest center of Russian-speaking Jewry in the world.

Today Israel is home to approximately 40 percent of former Soviet Jews, who make up more than 15 percent of the general Israeli population, and 17 percent of the country's Jewish population. (Tolts, 2009: 91-113).

Immigrants from the former Soviet Union are the second largest group, after native Israelis, of the Israeli Jewish population. The aliyah of this highly educated and professionally qualified group has made a great impact on various spheres of Israeli life, including the rapid development of the hi-tech and military industries, as well as educational, cultural, and health care systems, and the opening of new internal and external markets. At the same time, the immigration of hundreds of thousands of people with different cultural backgrounds became a challenging factor for Israeli society, further complicating its social and political controversies and diversity, and, no less important, contributing to the current tense ideological discussions about the future of Israel as the Jewish state.

In demographic terms, the contribution of the Jewish immigration from the former Soviet Union during the past twenty years to the balance of Israeli national security was realized in at least **three major areas:**

- ensuring a lasting Jewish majority,
- expanding the national pool of skilled labor
- shaping the country's center-periphery balance

"Russian" Aliyah and the Demographic- Security Balance

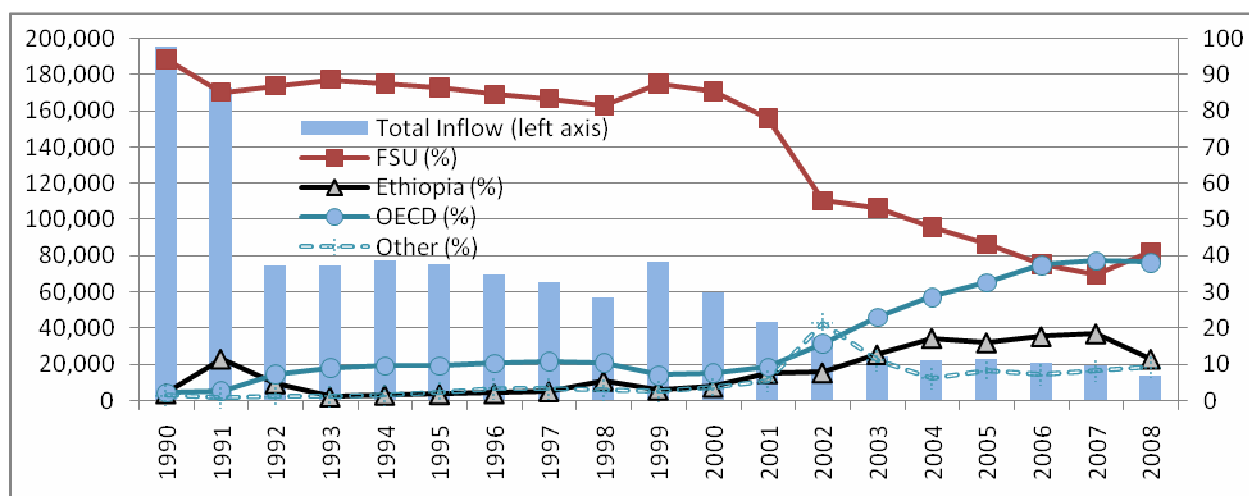
Beginning from late 1989 over 1.2 million immigrants entered Israel, some 85% from the former Soviet Union (FSU); an addition to the Israeli population of some 25%. Since 1990, Israel, now a country of over 7,100,000 people, has taken in more than one million people. In proportional terms, this is equivalent to the United States absorbing over 50 million new immigrants.

Israel's immigration rate in the early 1990s was higher than that of any Western country at the time; since then however, immigration has declined and during the past ten years was relatively low in scale. (Table 1, Appendix 1)

As was indicated above, during the past two decades aliyah to Israel had predominantly Russian Jewish features. (See Table 1) Close to 30% of immigrants from the Soviet Union arrived during the 2 years 1990-91 (375,000), and 540 000 more in 1992-2000. In 1998 the immigration rate was approximately 60,000; a drop from an average of 75,000 during the middle of the 1990's. In 1999 we witnessed an increase in immigration, and the year ended with the arrival of approximately 78,000 immigrants. However, since that time, immigration has been dropping annually by some 30%. In 2008, only 16,287 immigrants arrived, with only 5,838 of these originating in the former Soviet Union. However, in 2009, the trend of a constant drop in immigration numbers, including those of immigrants from the former Soviet Union again swung upwards, although still remains far behind the figures of the 1990's.

Figure 3: Decrease in the Influx of Immigrants Since 1990

Influx of immigrants, 1990-2008 (left axis), and country of origin (percentage of total flow, right axis).



Source: Israeli Central Bureau of statistics, 2009.

Data from the Central Bureau of Statistics for immigrants from the former Soviet Union from 1990 through 2001 shows the average immigrant age was 36 years old - 6 years older than the average for the general Israeli population. The median age of immigrants from the former Soviet Union during the years 1990—2001 was 33.7 years (CBS, 2002: 102). Due to a smaller number of children, the average age of this group was higher than among native Israelis. Only 26% of Russian olim are age of 20 or less, compared to 35% of Israeli Jews. (See Table I)

Table I: Age and Gender Composition of Immigrants from the Former Soviet Union 1989-2009

Age in 2009	Total number of immigrants	Gender	
		Male	Female
0-17	41,781	21359	20422
18-24	79,930	40709	39221
25-34	159,818	79862	79956
35-44	149,580	72957	76623
45-54	141,455	65576	75879
55-64	120,977	54321	66656
65+	177,906	69934	107972
Total	871,447	404718	466729

By the end of the period of the mass immigration of 1990s, it became clear that the Israeli Russian Jewish community (including both the immigrant and the Israeli-born population) is much younger than the urban population in Russia (CBS, 2005: 85, 103). Compared to the Jewish population of the post-Soviet republics, which exhibits a sustainable negative demographic balance due to low fertility and high mortality rates (in addition to assimilation and emigration), from the very beginning immigrants from the former Soviet Union in Israel showed positive natural population dynamics. The positive birth and mortality balance since 1998 was not less than 3,000 persons a year, and in 2006 reached 3,600 persons. Since 2001, the rate was, according to Tolts, three times higher than among the entire

Jewish population of the former USSR. It is clear that post-Soviet immigrants in Israel have their own basis for demographic reproduction.

Interpreting this and other available data brings us to a few important conclusions:

- Due to immigration from the former Soviet Union, Israel succeeded in preserving the traditional demographic balance between its Jewish and non-Jewish sectors at a ratio of 80:20. This balance is seen as a critical factor for ensuring the status of Israel as a Jewish, liberal, democratic and Western state.
- Russian Jewish immigration of the 1990's and 2000's has strengthened the national defense capacity of the State of Israel, both in a direct and an indirect way. New immigrants constitute a very substantial proportion of the soldiers and, in recent years, of the officers serving in the IDF, and are overrepresented in combat and technical units. Thus, the extent of their contribution to the maintenance of the country's security is hard to overestimate. On the other hand, mass aliyah from the USSR and post-Soviet satellite states substantially decreased the hopes of the Arab leaders to defeat Israel, or to damage it as a Jewish state.¹

Shaping the Skilled Labor Force

Due to Jewish immigration from the former Soviet Union, Israel received an influx of significant human capital. According to the Central Bureau of Statistics, (CBS) approximately 70% of immigrants from the former Soviet Union were employed before emigration. In Israel this trend persisted, and today the proportion of employed among this immigrant group is approximately 61.1%, which is higher than the ratio of employed among the general population. (See Table 2, Appendix 1). A comparison of outcomes between Jewish immigrants from the former Soviet Union immigrating to Israel and to Canada found that immigrants to Canada – who had been screened on the basis of their education and experience – ended up in higher status and wage occupations, while those in Israel entered the labor market more quickly (Lewin-Epstein et al, 2003: 389-420).

Therefore, former Soviet immigrants that currently compose 17% to 18% of all employed persons substantially contributed to the Israeli labor force, especially among the professional sectors. Throughout the 1990's, more than half of all immigrants had at least 12 years of education, and almost one in five had 16 or more years. The average education of new immigrants from the former Soviet Union and Eastern Europe declined during the 1990's, perhaps because more highly-educated immigrants enjoy a greater return for immigrating sooner. In any event, more than 60% of former Soviet immigrants of the relevant age have received higher education, compared to the national Israeli average of 40%.

¹ Recently declassified Soviet archival documents show, that as far back as the late 1970s and 1980s the PLO leaders were very much concerned of the growing Soviet Jewish immigration to Israel, which, according to Arabs, substantially decreases their chances to re-gain control over the whole Land of Israel/Palestine. (Morozov, 1999) Thus, they requested from the CPSU Politburo to stop emigration of Soviet Jews for Israel. It is believed that the Soviet Authorities' inability to stop this emigration in the long run, was one of the most important factors that made the PLO leadership to accept the idea of the "two states solution" in 1988.

Table II: Education Levels of Immigrants from the Former Soviet Union, at the Time of Immigration

	Education					
	Total	Elementary	Secondary	Post-secondary vocational	Higher (academic degrees)	Other
Total, 1989-09	997604	253,030	392,100	155,506	167,931	29,037
Total, 2009	878691	220,110	341,470	141,690	147,546	27,875

According to data from the Ministry of Immigrant Absorption, the number of educated engineers that arrived in Israel from the Former Soviet Union since 1989, was, in absolute figures (110,000) three times larger than the number of local specialists. Further, due to the “wave of aliyah” of the 1990s, the country received more than 80,000 technicians, more than 35,000 teachers, approximately 17,000 scientists; about 40,000 medical doctors, dentists and nurses, as well as more than 60,000 qualified industrial workers.

Large numbers of immigrant professionals had to change their occupations in one way or another. In spite of this, during that decade immigrants composed 30% of all engineers; and even more electric and electronic engineers (45%), which were respectively, figures two and three times larger proportionally than the percentage of these same professions among the native Israeli population.

We can therefore conclude that the “technological revolution” of the 1990’s, the rapid growth of the GDP and the impressive expansion of the hi-tech industry, resulting in Israel’s emergence as a developed, post-industrial country by the end of the decade, is definitively identified by many Israelis as the result of the “aliyah wave” of that same decade.

Reinforcing the Periphery?

In the majority of the communities of the “world Russian Jewish Diaspora” post-Soviet Jews are normally concentrated in a limited number of largest cities. A research study, commissioned by the Center of Local Governments, demonstrated that the situation in Israel is different. According to this study, Russian-speaking immigrants, despite the fact that they predominantly came from big industrial and culture centers, prefer to settle in small and medium-size population centers (ASK, 2008).

Figure 4: Former Soviet Immigrants, According to Area of Origin

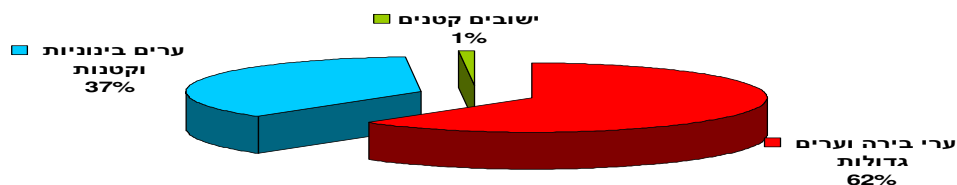
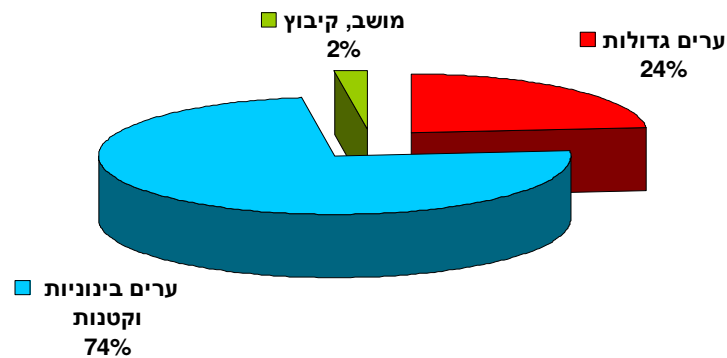
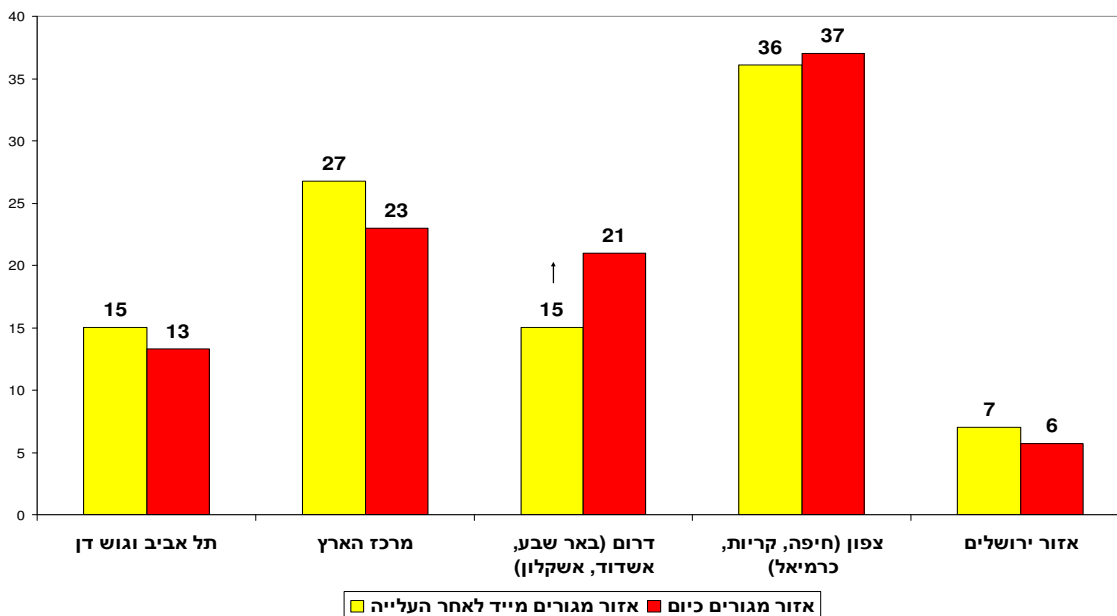


Figure 5: FSU Immigrants, according to Community in Israel



Even more striking is the tendency, even upon first arrival in communities located in the center of the country, for immigrants from the former Soviet Union to move to more peripheral areas, mainly in the South. The proportion of Russian-speaking immigrants, that during the course of their lives in Israel, change their place of residence, was, according to the CLG study, higher among the immigrants' age groups of 18-24 and 55-65. The results of this study correlate with the CBS data.

Figure 5: Dynamics of Resettlement of former Soviet Immigrants in Israel



Authors of the 2008 report, prepared by the New Israel Fund at the invitation of the Genesis Foundation, came to a different conclusion. According to their data, there are 41 cities with a 5000+ former Soviet immigrant population; in 27 cities, in which there are at least 3,500 former Soviet immigrants, they constitute 20% or more of the population. In

general, as the NIF believed, Russian-speaking immigrants are overwhelmingly concentrated in large urban areas (Kopelowitz 2008: 10-11)

According to our data, the real picture lies somewhere in between. Approximately half of the immigrants live in the relatively large Israeli cities (150,000 citizens and up), and only about a fifth of the Russian-speaking olim populate cities with a total population of a quarter million people or above. There are 30 cities in which predominantly Russian-speaking olim make up more than a fifth of the city's population, including 10 cities (Ashdod, Bat Yam, Ashkelon, Nazrat Illit, Kiryat Yam, Arad, Ma'alot-Tarshicha, Ariel, Sderot and Katzrin) where olim compose more than a third of the residents. Finally, there are only four big Israeli cities (Ashdod, Haifa, Beer Sheva and Bat Yam), where olim compose more than a quarter of the population (See Tables 3 and 4 in Appendix 1).

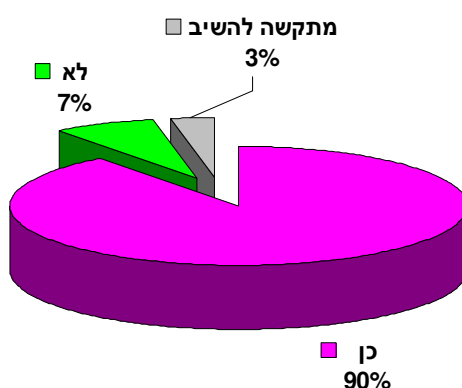
Authors of the CLG report insisted that the desire to be close to relatives and friends (i.e., social network self-help considerations) and availability of affordable housing were two main reasons for choosing the area of settlement. Russian-speaking immigrants demonstrated a desire to purchase an apartment of their own, as soon as they could, which, as will be demonstrated, promoted the real estate and construction boom in Israel in the 1990's, as well as stimulated the development of other areas of the economy and rapid growth of the national GDP. In social terms, this as a rule means a desire to acquire an apartment or a private house, which implies the wish to settle and to establish their families in Israel.

Table III: Main reasons for Choice of Area of Settlement

Reasons	% of all respondents
To be close to relatives and friends	56
Availability of Affordable Housing	29
Climate and Ecology Considerations	24
Developed Transport Infrastructure and Services	18
Education Opportunities	19
Accessibility to Major Employment, Educational and Cultural Centers	16
Local Employment Considerations	23
Nature	10
Health	7
Large concentration of Russian-speakers and Fellow Countrymen	2
Personal and Public security reasons	1
Other reasons	16

This picture is unlikely to change in the near future: approximately 80% of the immigrants, years after their arrival to Israel, remain in more or less the same location of their first arrival, and an overwhelming majority, according to the CLG's study, are satisfied with their choice (figure 5)

Figure 5: Are You Satisfied With Your Place of Departure?



The Myth of the "Russian Emigration from Israel"

The number of Israelis who consider emigration constantly rises, especially among the youth. (Fergo, 1989: 279; Ben-Sira, 1995: 198; Arian et al, 2009) In practical terms, however, emigration from Israel remains relatively low compared with most industrial nations. Emigration rates from Israel have ranged between 20-28,000 persons annually since 1990, although many of these Israelis later return, making net emigration rates fairly constant at about 12-18,000 annually. The total number of Israelis (emigrants and foreign-born to Israeli parents) currently residing abroad is estimated at between 700,000 to 800,000 persons, or 10% to 12% of the Israeli population (Levari, 2007). Emigrants to the United States are positively selected and have higher wages than native-born Americans with the same characteristics (Cohen and Habersfeld, 2001: 79–91). Israeli emigrants tend to be more educated than those who remain.

Emigration rates fluctuate mainly according to the economic situation and opportunities abroad, rather than the political situation in Israel. However, political circumstances also have an impact. According to Asher Arian, during 2007, which was the year of the "social echo" of the Second Lebanon War, 45% of young native-born Israeli Jews considered emigration. This number fell twice during the following two years, but still remained ominously high.

A nervous reaction of Israeli elites to these trends and their unwillingness to look for the source of problem among themselves encourages their attention to migration processes among a group that, by long-standing belief is less "rooted" in the country – relative to other immigrants. From this point of view, Russian-speaking immigrants, as the most recent wave of immigration, are, of course, "the first in line." As a result of this attitude, numerous articles appeared in the media, stigmatizing immigrants from the former USSR as future emigrants from Israel (Kennigstein, 2006). Nor was the academic world immune; a number of its representatives came to conclusions as a result of the influence of current trends of thought while other members disproved the theory using various arguments.²

However, a comparative study conducted by Shmuel Adler (2003), former director of the Planning and Research Division of the Ministry of Immigrant Absorption, totally disproved this stereotype. According to Adler, Russian-speaking immigrants demonstrated the smallest proportion of those who left country. Their numbers constituted three times less than the numbers of immigrants from the United States and Canada, and half than the numbers of French immigrants that departed. (The general picture per "year of wave of aliyah" is presented in Table 5, Appendix 1)

² See, for instance, discussion on the site of the Israeli Democracy Institute: Michael Philippov, "Why are the Russians Leaving Israel? Failed integration of the Russian Aliyah is not a natural, predictable process but a painful failure for Israel as a host society," *Israeli Democracy Institute*, 19/03/2008; Arnon Sofer, "The Russians Are Not Leaving Israel More Than Any Other Immigrant Group: Response to Michael Philippov," *Israeli Democracy Institute*, 16 April 2008, <http://www.idi.org.il/sites/english/OpEds>

Table IV: Data on Jewish Immigrants to Israel between 1.1.1989 - 30.6.2002, in Comparison With Those Who Left the Country During the Same Period and Did Not Return as of 30.6.2003, by Countries of Origin

	Total Number of Immigrants	Number that Departed Israel	Percentage Among The Immigrant Group That Departed
Total number of immigrants:	1,126,369	100,046	8.9%
USSR/CIS	936,658	70,543	7.5%
Great Britain	6,888	1,578	23.0%
France	22,371	4,052	18.1%
USA	28,297	7,412	26.2%
Canada	3,790	1,132	30.0%
Argentina	20,111	2,228	11.7%

Source: Adler, 2003

According to the Ministry of Immigrant Absorption data, the overall number of immigrants from the former Soviet Union that departed Israel during the period from the beginning of January, 1989 until the end of December, 2006, and have not returned as of the end of October 2009 (officially defined as "Israelis that permanently reside abroad"), is 87,367. Only 9.2% of the total number of 993,650 immigrants from the former Soviet Union who came to Israel in 1989-2009, subsequently left it during those years.

Comparison of this data with the real situation among emigrants from the former Soviet Union does not support the position of those who insist that these immigrants do not identify strongly with Israel and the country's values. Studies that were conducted during the first years of the "great wave of aliyah" demonstrated that feelings of solidarity with Israel were a fundamental and important element of the immigrants' Jewish identity. In other words, opinions about economically- rather than ideologically- motivated immigration from the former Soviet Union, which were prevalent in the Israeli media even during the late 1980's and the 1990's were greatly exaggerated (Reich, Dropkin and Wurmser, 1993: 445-446)

In a public opinion poll conducted by Majid Al-Haj and Elazar Leshem in 2000, and again in the summer of 2006, this trend remained consistent, even 10-15 years following the beginning of the "great wave of aliyah," despite the difficulties of absorption. (Al-Haj and Leshem, 2000: 13; Barkat, 2006). Yehudit Rosenbaum-Tamari introduces a similar idea: according to her data, 75% of immigrants from the former Soviet Union that immigrated between the years 1989-2004 would choose to move to Israel had they been given the choice again and repeat their previous choice to come to Israel. (Rosenbaum-Tamari, 2004). Finally, a sample polling of teenagers who moved to Israel during the years 1991-2006 which was initiated by the Ministry of Immigrant Absorption and conducted in 2008, revealed that approximately 90% of the respondents (mainly young people from the former Soviet Union) report that they are satisfied with their absorption and believe that they will stay in the country (Branovsky, 2010)

In terms of the inclination of Russian-speaking young people to leave Israel, the picture seems more complicated. During the early part of the century, there were few differences between them and veteran and native-born Israelis. However, as the majority of studies indicate, the majority of "potential emigrants" from Israel" (e.g. those who claim to be considering departure) do not, in fact, leave. Only a small number of those do proclaim their willingness or objective to emigrate do in fact act on their intentions.

Thus, available data proves that the last wave of Russian immigrants in Israel is quite rooted in the Land of Israel. A less than 10% level of emigration from Israel is, according to accepted sociological norms of migration, an indicator of the great success of this immigrant group in integrating into the host community.

Russian Jews and Israel: Who Saved Whom?

We may conclude that the contribution of the former Soviet Jews, as a socio-demographic group, is obvious and very significant. Experts believe however, that the positive impact was mutual. The estimates show that, by the beginning of 2004, there were about 1.6 million “core” Jews (by self-identification) worldwide who originated in the former Soviet Union, of whom approximately one-tenth, primarily in Israel, had become part of the “core” Jewish population as a result of migration. (Tolts, 2008) About one-half of these “core” Jews were living in Israel, less than one-quarter remained in the former Soviet Union, and the remainder were mainly in the United States and Germany. There were approximately 0.8 million Jews and their descendents in Israel who had arrived from the former Soviet Union since 1970. Perhaps a fifth of them had previously not identified themselves, nor were they seen by Soviet officials, as Jews.

Jews who immigrated to Israel not only escaped the dramatic reduction in fertility characteristic of the former Soviet population as a whole and Jews in particular, but their life expectancy also rose considerably. Between 1999-2004 the total fertility rate among former Soviet Jewish immigrants was 1.7-1.8; that is, it was double the post-Soviet level of Jewish fertility in the former Soviet Union (about 0.9) and approached the level of the total fertility rate of non-religious Israeli Jews. At the same time, according to Mark Tolts' estimate, this indicator for non-Jewish immigrants from former Soviet republics in 2002-2003 was as low as approximately 1.3, and even lower in 2004 – about 1.2; thus, it remained similar to the low level of post-Soviet Slavic populations in their home countries. However, 73 percent of former Soviet immigrants that arrived in Israel beginning from 1990, and were still living here by the end of 2004, are Jews. Therefore, the vital balance of immigrants from the former Soviet Union in Israel as a whole is decisively positive.

An estimate shows that if in 1999 the total fertility rate among this immigrant group had been as low as that found for Jews in the former Soviet Union as a whole in the period of the mid-1990s and onwards (0.9) the number of births among them would have been lower by 4,100. Moreover, if in 1999 the life expectancy at birth among this immigrant group had been as low as that found for Jews in the former Soviet Union (70.1 years for males and 73.7 years for females according to life-expectancy tables for the Soviet Jewish population for 1988-1989) the number of deaths among them would have been higher by 4,000. Thus, they would have had a decisively negative balance of births and deaths.

Therefore, as was demonstrated by Tolts, the arrival of the Jewish immigrants from the former Soviet Union resulted in tens of thousands of additional births and postponed approximately the same number of deaths – as opposed to the demographic decline in the former Soviet Union due to the dramatic decrease of fertility rates and relatively low life expectancy. From the demographic point of view, the post-Soviet aliyah is a great success of Zionism.

Chapter 2: Immigration and Economic Growth: Successes Stories and Successes Factors

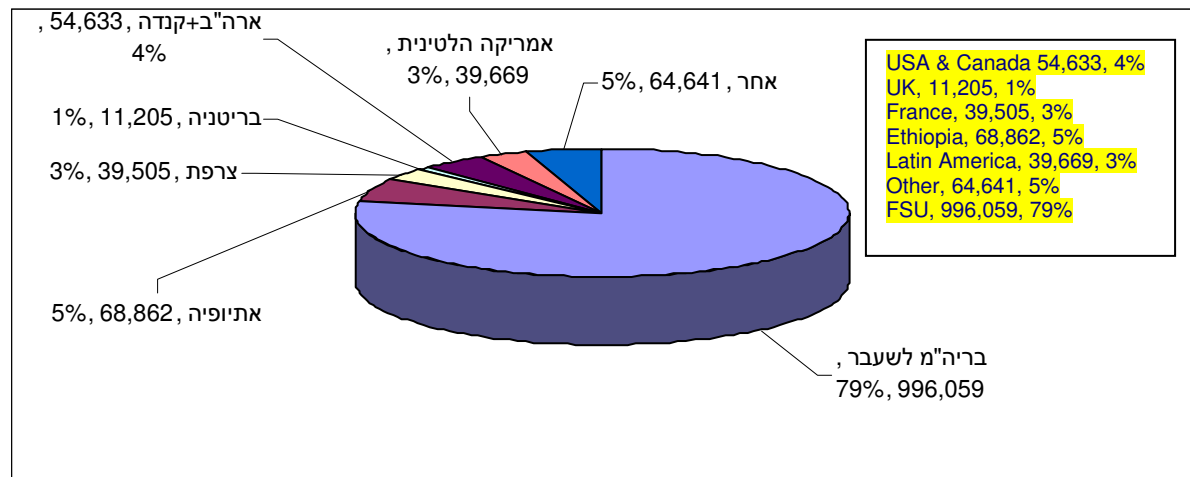
Israel's economic growth since the 1990's is a success story that typifies the world experience of last decades of the 20th century.

Israeli Experience vis-à-vis World Trends

The phenomenon of rapid economic development of nations at the expense of cheap labor is well known. The most prominent examples of industrialization in the twentieth century are the USSR and the Peoples Republic of China, whose economic gains were based primarily on an ongoing supply of cheap labor. In both cases, this cheap labor was obtained from the internal population migration from villages to industrializing urban centers (Gaidar, 2005). Other examples include the United States and Canada, which experienced tremendous industrial expansion during the 19th century because of a massive influx of an immigrant labor force. Brenner (1998) relates that an influx of immigrants that were religiously and culturally compatible with the local population provided the necessary conditions for the "German economic miracle" of 1948 through the 1950's. A study conducted by the United Nations (2006) demonstrates that a migration of skilled personnel boosts both current (transfer of capital) and long-term economic development (human capital growth, experience and capital gain).

The example of Israel proves this general trend. At the beginning of the 1990's the Israeli economy was in relatively good shape, following its emergence from years of runaway inflation during the 1980's. An Economic Stabilization Plan was implemented and the economy was opened to the globalization of capital (in the early 1990's restrictions were lifted on the flow of capital within the economy). Despite these measures, by the end of the 1980's the economy was unable to achieve growth. The massive wave of immigration in the early 1990's led to the rapid growth of private consumption and investment in construction, and the expansion of the labor supply.

Figure 2.1: Number of Immigrants According to Country of Origin during the Past Twenty Years

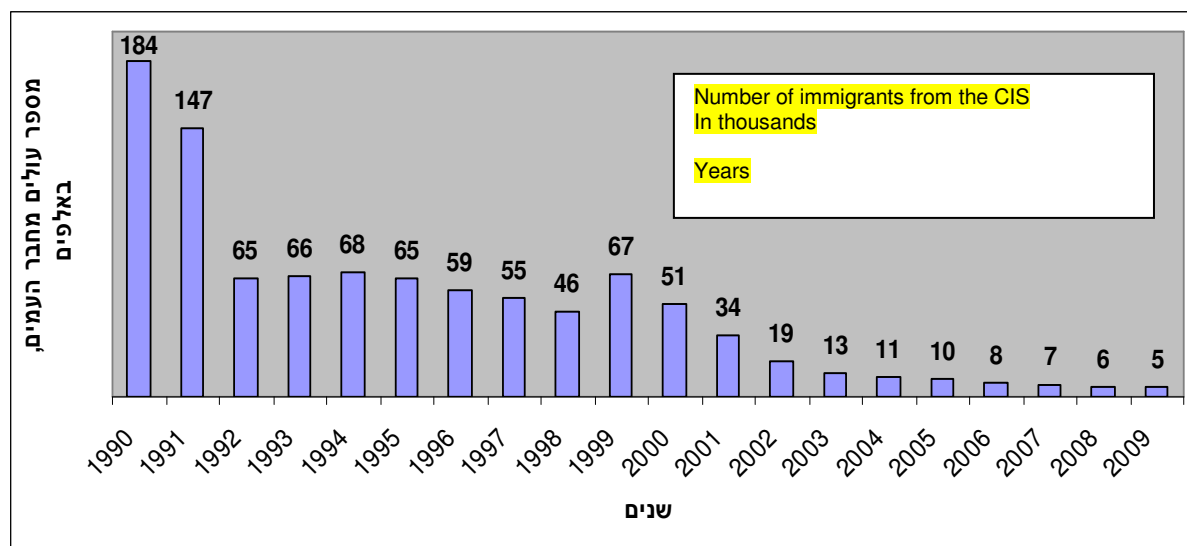


Source: Date of Information Systems Department, Ministry of Immigrant Absorption

According to the graph, the total number of immigrants from the former Soviet Union between 1989 and 2009 was 996,000 individuals. The majority of immigrants came from Russia and Ukraine, which together accounted for more

than 30% of all immigrants from former Soviet republics. It is noteworthy that immigrants from the former Soviet Union who immigrated during the past two decades today account for approximately 14% of Israel's total population³.

Figure 2.2: Number of Immigrants from the FSU According to Year of Aliyah (in thousands), 1990-2009



Source: Date of Information Systems Department, Ministry of Immigrant Absorption

The early 1990's were characterized by massive waves of immigration, which subsequently stabilized at an annual rate of 60,000 individuals until the year 2000. Over the two decades in question, two salient characteristics mark the immigrants from the former Soviet Union: approximately 47% were between the ages of 19-49; approximately 53% were women.

In Macro-economic planning the volume of financial and physical capital imports could relatively easily be estimated and planned. In contrast, it is difficult to evaluate in a county like Israel, with its open immigration policy under the Law of Return, (which does not allow the selection of preferred human capital) the volume and composition of the human capital imports. The employment absorption problem therefore cannot be solved by simply expanding the economy according to the preferences of local economic factors, since the necessary expansion must be directed in a manner that will conform as much as possible to the skills of the immigrants. Therefore the expansion of the economy had to be in those areas of the economy that are orientated in those goods and services which could utilize the human capital to a maximum.

In order that the immigrants be prepared to enter the job market and be able to utilize to the utmost their human capital, the Ministry of Immigrant Absorption in conjunction and coordination with other Government Ministries, but mainly the Ministry of Labor and Social Affairs, offers a wide variety of programs to facilitate the immigrant finding a suitable position in the labor market in Israel.

Some positive results of the economic and public policies that were based on this understanding were obvious already by mid. 1990s. During the second half of the 1990's, the Israeli economy experienced a surge in labor productivity and total overall productivity, which was driven primarily by the manufacturing sector. This surge in productivity coincided with the full absorption and integration into the workforce of highly skilled immigrants from the

³ Israel's population as of 2009 is 7.3 million. The figure of 14% is exclusive of the second generations that were born in Israel and deaths in the course of the years.

former Soviet Union, which had very large numbers of scientists, engineers, physicians, nurses and technical workers, as well as musicians and professionals in other humanitarian field.

In its 1995 report, the Bank of Israel summarized the development of the economy since 1990 as follows:

Since the beginning of the decade⁴ the economy has grown at a rapid pace, and the GDP has expanded by 42% in the past six years. This is an impressive achievement that has brought the per-capita GDP to a level not much lower than the average in Western countries, and which we seek to emulate. During these years, the economy has absorbed a large wave of immigration, with significant success in the area of employment. The unemployment rate, which at the start of the process had peaked, then rapidly contracted. Unemployment has declined to less than the level seen immediately before the immigration wave, approaching substantially full employment. The economy has also registered success in the area of inflation: The current annual inflation rate, amounting to approximately 10%, is lower than the inflation rate that prevailed at the beginning of the decade.⁵

Regressions (1) and (2) Table 1 (see Appendix 2, and tables 2.1. and 2.2 with respective comments in Appendix 2) demonstrate statistically significant interrelation between the influx of immigrants and GDP growth. The Granger Test, presented in Appendix 2, shows statistically significant probability of causal relations: immigrant influx caused both general and per capita GDP growth.

Immigration has contributed several advantages to Israeli society. Further in this paper we will discuss its effects in three main areas: entrepreneurship, employment, and absorption of scientists.

Employment and Socio-economic Status

Everywhere in the world Russian Jews tend to join the labor market as soon as possible and that was also the case of the "Big Aliyah" of the 1990s in Israel.

As it was mentioned above the rate of participation in the labor force of these immigrants is high, and their occupational structure is extremely professional-intensive (though there was a noticeable drop in the proportion of professionals since 2000). (Adler, 2007) In 2004, the rate of labor force participation of immigrants who arrived since 1990 aged fifteen years and above was higher than among the non-immigrants (58.1% compared to 54.9 %), and it was even higher four years later. (Table 2.1) The unemployment rate in 2004 however was the same (10.4 %).

Table 2.1: Immigrants of the 1990 and After, Aged 15 and over, by Civilian Labor Force Characteristics (2008)

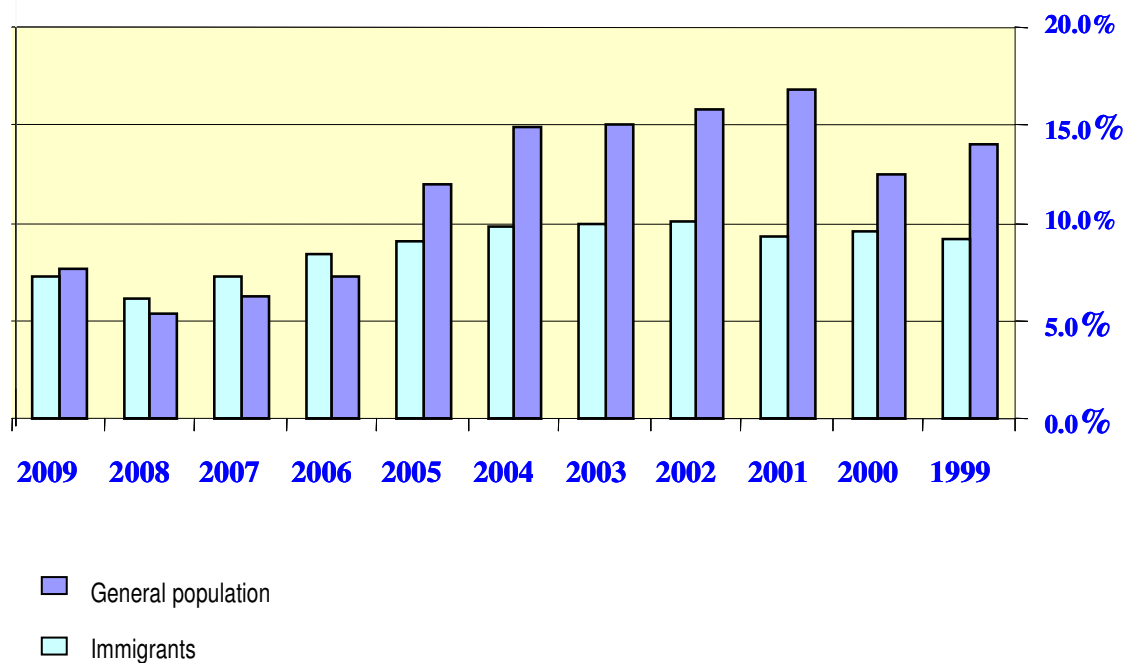
FSU Immigrants Labor Force participation	Females	Males	Total	Females	Males	Total
	נשים	גברים	סך הכול	נשים	גברים	סך הכול
	<i>Percentages</i>			<i>Thousands</i>		
Total	100.0	100.0	100.0	486.0	398.6	884.6
Not in civilian workforce	41.7	35.5	38.9	202.7	141.6	344.3
In civilian workforce	58.3	64.5	61.1	283.3	257.0	540.3

⁴ Referring to the beginning of the 1990s.

⁵ Quoted in Giladi, 1998

The immigrants comprised 18.8% of the employed during 2004, when they were 17.8 % of the population 15+. On the other hand they comprised 18.9 % of the unemployed. (CBS, 2005) The level of unemployment among all former Soviet immigrants in 1990-1999 was higher than among the veteran population. Thanks to the improving market conditions of that decades and Government involvement in the field, especially continual and focused activity of the Employment Division of the Ministry of Immigrant Absorption, there has been a turnaround in these figures. This was a sharp decrease from the unemployment rate among the immigrants who arrived in 1990-91 of 38.5% in the last quarter of 1991 to 7.8 % in 2004 (compared to 10.4%. among the non-immigrants) and some 6% in 2008.

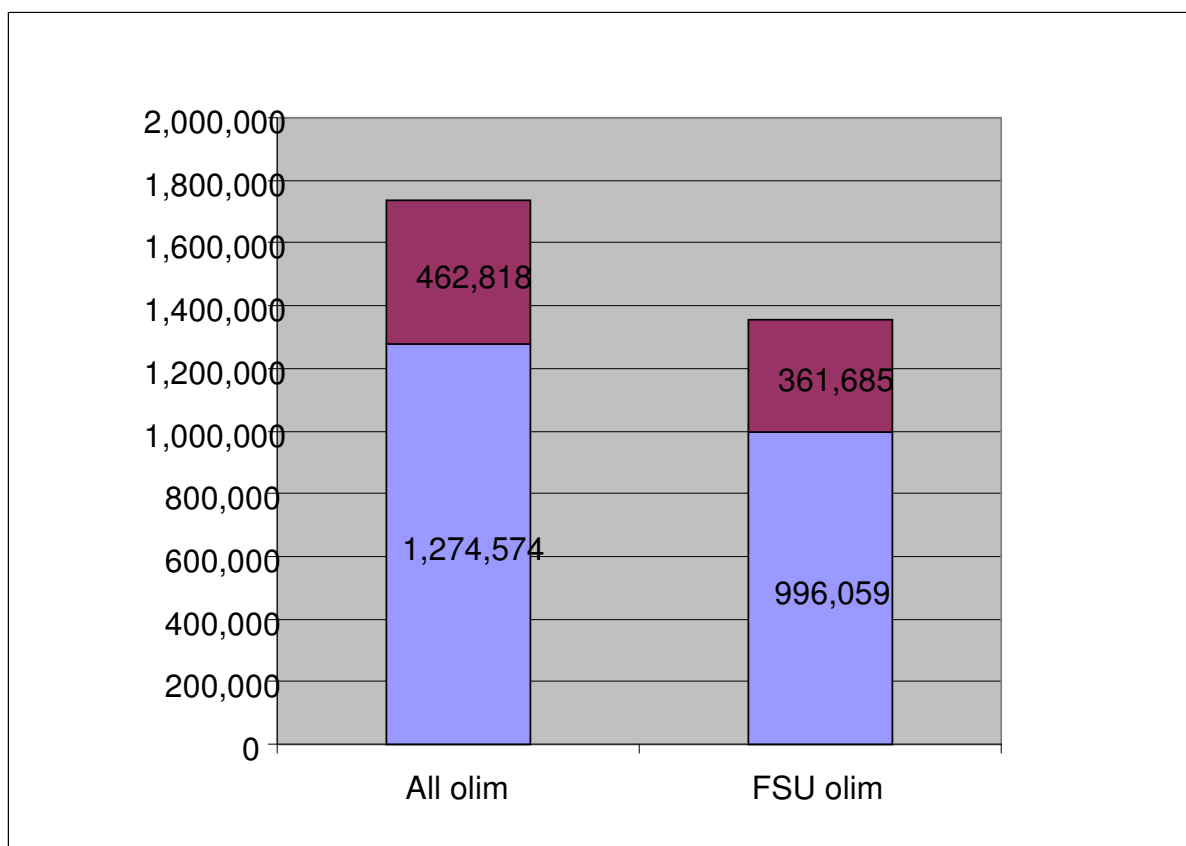
Figure 2.3: Unemployment Figures Among Immigrants and the General Population



Over 60% of the FSU immigrants who were employed prior to their immigration had scientific, academic, technical or other professional degrees (though only some 70% of them were employed in the FSU in positions demanding such degrees). (Damian and Tamari, 2006) Among the Israeli workforce in 1989, prior to this wave of immigration, only 24.5 % were employed in these professions. (CBS, 1990)

The total number of academics among immigrants from the former Soviet Union during the past twenty years totaled 360,000, representing 36% of the total number of immigrants from the former Soviet Union in the past two decades. Academics originating from the former Soviet Union account for 78% of all new immigrant academics during the past twenty years.

Figure 2.4 Total numbers of technical engineers and academics among all immigrants and among immigrants from the former Soviet Union– 20 years of aliyah



Source: Information System Department of the Israeli Ministry of Immigrant Absorption.

Various studies carried out during the past years have shown a high professional commitment of FSU immigrants and their wish to retain the occupation in which they worked prior to their immigration. (Flug et al, 1997:434) The studies also show that immigrants' satisfaction with their job in Israel is considerably higher among those working in their original occupation or in an occupation close to their original one, as well as a significant correlation between over all satisfaction in the country and satisfaction with their job. (Leshem, 2005) However, during 2004, fifteen years on the beginning of the "Great Russian Jewish immigration", only 21.6 % of the total immigrants were employed in these professions while among the total population this figure increased to 28.8 %. (CBS, 2005) That means, only some 35% of the FSU immigrants worked in Israel in their profession abroad or a similar profession, though many of those went through a downgrading process within this professional grouping (e.g. engineers working as junior engineers or technicians, physicians working as nurses etc.).

At first, the Soviet immigrants were disproportionately employed in manufacturing. However, following an initial adjustment period, they progressively moved into occupations involving higher levels of responsibility where their skills could be put to more effective use. This has led some observers to comment that the high level of skills brought by the wave of immigration was one of the main reasons for the fast growth of Israel's economy during the 1990's. According to this logic, a cheap, well-educated and well-trained labor force encouraged both direct foreign investments (see Regression 3; Table 1 Appendix 2) in general and private (business) expenditures in research and development (R&D) specifically (see Regression 4; Table 1 Appendix 2). These factors, combined with the immediate availability of almost unlimited resource of tens of thousand professionals in the relevant fields, that came with the

Soviet Jewish immigration wave (see Table 3 Appendix 2), made Israel world technological superpower and promoted progressive development in other field of the national economy.

Other experts argue that this is true only as regards the hi-tech sector, where data indicate a positive relationship and suggest a corollary between technology-based enterprise and a skilled immigrant workforce. As they point out to the contrary, the ratio of immigrants was negatively correlated to output and productivity in low-tech industries. (Paserman, 2008). In other words, the potential of more than half of the 90,000 trained engineers and technicians from the former Soviet Union, who were unable to find suitable jobs in relevant fields, and thus were encouraged to find other employment, mainly in low-tech industry and the service sector, was never utilized.

The reasons for the failure to benefit from this source of human capital are obvious. Even in such countries as Switzerland, Belgium or Austria – countries whose economies are traditionally based on machine-assembly, it would have been impossible to provide jobs to 110 thousand engineers and almost 71 thousand technicians, according to their specialization in their country of origin. Almost 40 thousand economists and bookkeepers had little chance of finding employment in their field. This was due to the differences between the economic systems in their former countries and their new home (see Figure 1). It was similarly impossible to place almost a quarter million teachers into teaching positions, even had they spoken fluent Hebrew. To all this may be added the simultaneous challenges of typical immigration problems, such as the difficulties of adapting to a new language and culture, the challenges of the job search, and a radically different socio-economic and political system (similar to problems of adapting in post-communist countries in transition). These difficulties were further exacerbated by professional skills that were poorly suited to the demands of the Israeli job market. Finally, the fact that a significant number of immigrants from the former Soviet Union were obliged to occupy low-paying positions was, in a sense, predetermined by flaws in traditional institutional frameworks.

This conclusion can also serve as a partial explanation of the obvious socioeconomic paradox. As was illustrated by Eckstein and Weiss (2003), throughout the 1990's immigrants gradually succeeded in improving their position in the job market because of their contribution to the rapid growth of the Israeli economy. Authors of the report submitted to the OECD Secretariat (OECD, 2009), who summarized various studies' results, insisted that regardless the negative societal prejudices mass Soviet Jewish immigration generally did not make any negative impact on natives. On the contrary, researchers discovered an initial positive effect on native employment due to increased consumption, as well as the fact that although native wages and return to capital fell during the peak immigration but returned to prior levels by 1997. (According to a study, 10% increase in the share of immigrants lowers natives' wages in the short run by 1-3%, but that this effect disappears after 4-7 years).

However, the disparity in salaries between immigrants from the former Soviet Union and those of native-born Israelis remained static. Eckstein and Weiss, and Cohen-Goldner and Paserman (2004) explain this significant residual gap by the fact that a substantial proportion of highly educated immigrants failed to apply their knowledge and skills in Israel, and were engaged in low-level employment, subsequently losing self-respect and suffering an erosion of their professional qualifications and capabilities.

A study conducted by the Ministry of Immigrant Absorption in 2007 (Rosenbaum-Tamari and Gindin, 2007) demonstrated that normally the wages and income of immigrants from the former Soviet Union positively correlate with age, length of residence in Israel, and educational level. However, even following a decade and a half since the beginning of the "great wave of aliyah" wages and income remain much lower than those of the veteran Israeli population. The question to be considered is, how, if at all, this gap can be closed.

Table 2.II: Economic absorption indices – New immigrants versus the veteran population (2007)

	Immigrants	Veterans
Net Household Income	%	%
Up to NIS 5,000	41	13
NIS 5,001-7,000	14	10
NIS 7,001-10,000	25	32
NIS 10,001-12,000	11	22
NIS 12,000+	9	23
Employment Status		
Employed	61	68
Looking for work	9	7
Not employed and not looking for work	30	25
Percentage of unemployed among those belonging to the workforce	13	9

Source: Rosenbaum-Tamari and Gindin, 2007

Entrepreneurship

It is widely believed that the solution had to be provided by the private sector. (Friedman, 1994) In a developing economy that is undergoing economic liberalization, business entrepreneurship, mainly among small- and medium-sized businesses, creates workplaces more efficiently and rapidly than do other sectors.

Accordingly, Israeli governmental bodies in general, and the Ministry of Immigrant Absorption in particular, worked to encourage business entrepreneurship among new immigrants during the era of mass immigration from the Soviet Union. In accordance with a decision of the Government of Israel, the Ministry of Immigrant Absorption promoted and approved a temporary directive that grants special assistance to immigrants from former Soviet Union. Assistance, among other things, included encouragement and incentives to those with entrepreneurial qualifications to establish independent businesses in Israel, such as, a rental subsidy, an acclimation grant and a broad basket of services in the areas of employment and business entrepreneurship. A successful business enterprise creates a long-term base for the occupational, economic and social absorption of an immigrant within Israeli society. Numerous projects in this sphere, including the preparation of business plans, disbursement of funding by the Business Development Fund for New Immigrants (Loan Fund), courses, seminars, continuing education and workshops on business entrepreneurship, served to further this goal.

Results were quite impressive. According to the Ministry of Absorption and Israeli Entrepreneurs' Association data, 68% of immigrant businesses survive in the course of the first five years of their activities, contrary to the average of the 50% of the small businesses in Israel. (MOIA, 2010)

So, it is not surprising that the character of the immigrants' businesses has changed over the years. In the past, 90% of applications to the Loan Fund were for the establishment of new businesses and 10% for the expansion of existing businesses. Today, approximately 60% of applications to the Loan Fund are for the expansion of existing businesses and 40% for the establishment of new businesses. The type of businesses has changed as well. In the past, the majority of applications involved delicatessens and other small businesses, while in recent years; applications have

branched into diverse areas, demonstrating that the absorption of new immigrants into business entrepreneurship has been highly successful.

During the past twenty years, immigrants from the former Soviet Union have been the leaders in business entrepreneurship among the immigrant population. Approximately 15,000 immigrant entrepreneurs from the former Soviet Union (out of a total of 18,000 entrepreneurs who have applied for aid) received loans from the Fund for the Self-Employed Immigrant, on a scale of NIS 320 million.

On average, every business established has created 2.5 employment positions, meaning that 37,000 jobs were added to the economy during the past two decades. To this should be added the number of entrepreneurs who have established businesses in Israel without the support of the Ministry's Entrepreneurs Division. In the absence of data, it is not possible to estimate the number of workers that have been added to the economy, but the conclusion is that tens of thousand jobs have been created in the wake of the immigration from the former Soviet Union over the past twenty years.

Business entrepreneurship among new immigrants is also a success story in psychological terms, since all the studies have shown that when a new immigrant succeeds in business he perceives his absorption as successful – even more so when the business provides others with a living and reinforces their vocational security as well as their economic and social security.

Absorption of Scientists from the Former Soviet Union

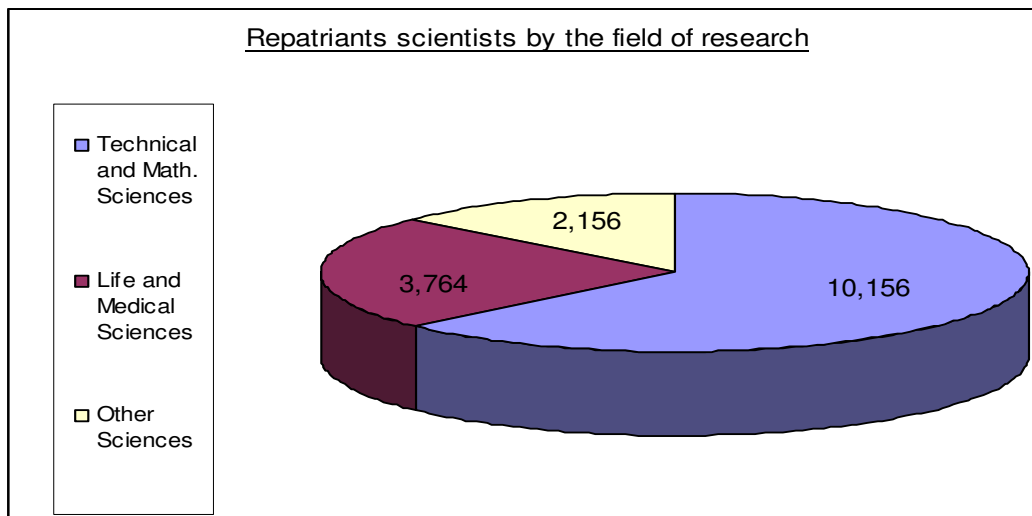
The total number of scientists who immigrated to Israel between 1989 and 2007 is 16,076 individuals. Almost half (7,735) came to Israel between 1990 and 1993 (Table 2.I.). 14,838 are immigrants and 1,238 are returning Israeli residents. Among all immigrant scientists, 92.4% came from the former Soviet Union, 4% are from the United States and Canada, and 3.6% are from the rest of world. The majority of new-immigrant and returning-resident scientists work in technical and mathematical sciences (Table 2.III.)

Table 2.III: New immigrant and returning resident scientists by field of research

Field of research	Numbers	%%
Technical and Mathematical. Sciences	10,156	63.2%
Life and Medical Sciences	3,764	23.4%
Other fields of Science	2,156	13.4%
Total	16,076	100.0%

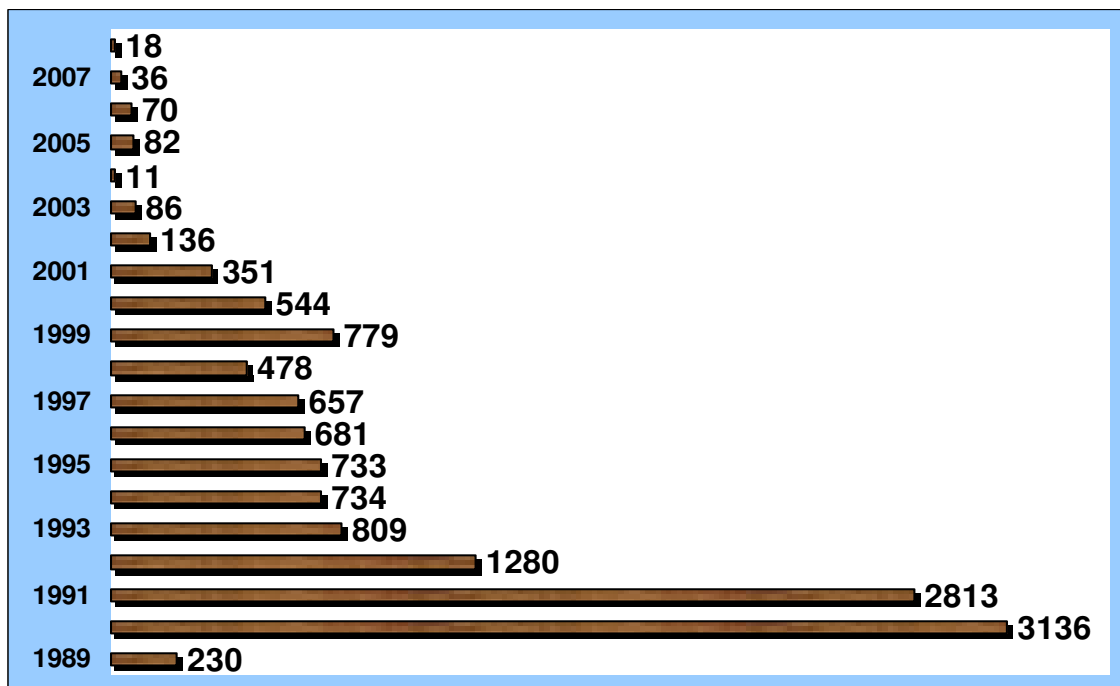
Source: Israeli Ministry of Immigrant Absorption Data

Figure 2. Immigrant Scientists from the Former Soviet Union by Area of Specialization



Over 13,000 immigrants from the former Soviet Union have been recognized as scientists, been absorbed and received assistance in placement according to their profession in government institutions, defense companies, industrial companies and universities. (See Figure 2.5) Many have received assistance in the form of a subsidized salary for three years beginning from the day they begin employment. Leading scholars at the next stage were granted with the Universities, Research Institutes, and industrial R&D laboratories' positions, that since 1998 were funded by the Ministry of Immigrant Absorption-sponsored KAMEA program. Israeli Ministry of Industry and Trade is another source of support for R&D supported programs and institutions that absorbed a substantial number of immigrant scientistism. (MOITAL, 2007).

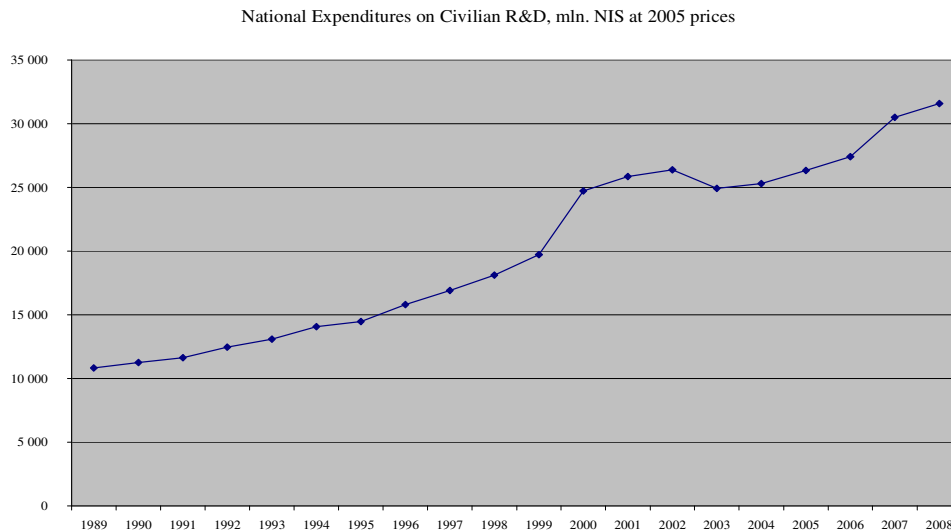
Figure 2.5. Absorption of scientists from the Former Soviet Union According to Year of Aliyah – To 2008



Source: Information System Department of the Israeli the Ministry of Immigrant Absorption.

Increase in skilled labor available the research market encourages specialized investments (see Figure dependencies' values in Appendix 2 Table 1 Dependencies 3 and 3.1.; 4.1. and 4.2.) and, indirectly, economic growth.

Figure 2.6: National Expenditures for R&D Infrastructure 1989-2008



Source: CBS data

As a result, the cumulative grows in scientific and technological innovations were even larger than one could expect considering the net-amounts of the public and private investments in research and development. For example, *The Innovation Capacity Index* calculated by Gans & Hayes (2009) estimates the number of patents per million citizens obtained by scientists and engineers in specific nations. This is a function of investment in scientific research and development (R&D) as well as in education and other variables. Taking into account the status of R&D in Israel, authors of the study insisted that this index would be worse for Israel than for other developed countries. In fact, the number of patents granted to Israeli citizens was almost twice as high as would have been expected according to the level of investment in R&D and education. (see Table 2.IV)

Table 2.IV: Estimated and Real Number of Patents granted to Israeli citizens in 1999-2007

	Patents per million citizens*		Correlation between estimated number of patents to those actually granted
	Estimated by the Index	Actually granted by USPTO	
Switzerland	165.6	169.9	1.0
Sweden	148.6	156.6	1.1
Israel	88.6	154.6	1.7
Finland	173.4	151.3	0.9
Germany	116.0	124.6	1.1
Canada	98.9	106.3	1.1

*Average for 1999 – 2007

Source: Gans & Hayes(2009), Zatzovetsky (2010)

It is clear that this was a result of the immigration of scientists from the former Soviet Union, which enriched Israel with a well-educated labor force that the country obtained for a very modest price.

General Contribution to the National Economy

Summarizing results of the analyses that were presented above as well as available data from other sources, we may conclude the following. The FSU immigrants made a great contribution to Israeli national economy.

The gross per-capita income of a former Soviet immigrant of working age totaled, on average, NIS 4,750⁶ per month during the past two decades. After the deduction of mandatory payments (income tax, National Insurance and health insurance), net income was NIS 3,800 per month. The difference between the gross and net income constitutes the economic contribution of each immigrant. **Thus, the total monetary contribution to the Israeli economy amounts to NIS 106 billion over the past two decades.**

The total expenditure per household among former Soviet immigrants totals NIS 6,000⁷ per month (for a household with two members). The Value Added Tax (VAT) charge (annual average) over the past twenty years transferred to the State was 17%. Total contributions for VAT during these years are estimated at NIS 120 billion. The total average investment per immigrant, including the absorption basket, subsistence allowance and customs refunds, has been estimated at NIS 45,000⁸ for the first year of immigration alone. The total investment for all immigrants from the former Soviet Union is estimated at NIS 45 billion (for twenty years).

We may calculate the total contribution of the immigrants from the former Soviet Union to Israeli economy on the basis of revenues from currency transfers and tax payments to the Israel Tax Authority, and the National Insurance Institute by during the past twenty years, together with VAT (Value Added Tax) payments on the consumption of goods and services. From this amount is deducted the onetime investment in each immigrant in the form an "absorption basket" during the first year following arrival in Israel. Over the past two decades, the total economic contribution (taxes and VAT) are estimated at NIS 226 billion, less investments of NIS 45 billion in assistance to the immigrants.

The total economic contribution of new immigrants from the former Soviet Union to the Israeli economy during twenty years of immigration is estimated at approximately NIS 182 billion⁹ net.

⁶ Data of the Central Bureau of Statistics. It should be noted that 78% of the income derives from labor and 22% from non-labor sources: 9.2% from pensions and allowances, 7% from provident funds and the remainder from various sources of support, such as supporting households or foreign sources.

⁷ House expenditures include goods and services. The two main expense items are housing and transportation.

⁸ Data of the Ministry of Immigrant Absorption.

⁹ In nominal terms.

Conclusion: Overall Contributions of Immigrants from the Former Soviet Union Over Two Decades

- Immigration from the former Soviet Union during the 1990s is a natural experiment from which many lessons can be learned about labor market effects and integration.
- Due to immigration from the former Soviet Union, Israel succeeded in preserving the traditional demographic balance between its Jewish and non-Jewish sectors at a ratio of 80:20. This balance is seen as a critical factor for ensuring the status of Israel as a Jewish, liberal, democratic and Western state.
- The “technological revolution” of the 1990’s, the rapid growth of the GDP and the impressive expansion of the hi-tech industry, resulting in Israel’s emergence as a developed, post-industrial country by the end of the decade, is definitively identified by many Israelis as the result of the “aliyah wave” of that same decade.
- Russian-speaking immigrants demonstrated a desire to purchase an apartment of their own, as soon as they could, which promoted the real estate and construction boom in Israel in the 1990’s, stimulated the development of other areas of the economy and rapid growth of the national GDP, and in social terms, means a desire to settle and to establish their families in Israel.
- Russian Jewish immigration of the 1990’s and 2000’s has strengthened the national defense capacity of the State of Israel, both in a direct and an indirect way. New immigrants constitute one fourth of the soldiers serving in the IDF, thus the extent of their contribution to the maintenance of the country’s security is hard to overestimate.
- Mass aliyah from the USSR and post-Soviet satellite states substantially decreased the hopes of the Arab leaders to defeat Israel, or to damage it as a Jewish state.
- Thus, available data proves that the last wave of Russian immigrants in Israel is quite rooted in the Land of Israel. A less than 10% level of emigration from Israel is, according to accepted sociological norms of migration, an indicator of the great success of this immigrant group in integrating into the host community.
- The arrival of immigrants from the former Soviet Union resulted in tens of thousands of additional births and postponed approximately the same number of deaths; as opposed to the demographic decline of the former Soviet Republics due to a dramatic decrease of fertility rates and relatively low life expectancy. From the demographic point of view, the post-Soviet aliyah is a great success of Zionism.
- The number of active working-age (20-45 years old) immigrants arriving in Israel during the past two decades was 600,000 individuals, of whom an estimated 460,000 hailed from the former Soviet Union, representing 46% of the total of all former Soviet immigrants. The assumption is that the majority were integrated into the workforce over the past twenty years (while deducting the number of unemployed new immigrants based on unemployment rates).
- The problem of the economic adaptation of huge numbers of immigrants appeared, and continues to appear, extremely difficult because of high cost of integration (language, culture) exacerbated by legal, political and economic differences between Israel and immigrants’ countries of origin. **The price of absorption proved to be very high for hundreds of thousands of immigrants, and the loss of social stature for large numbers seemed to be predetermined.**
- With all that, the FSU immigrants’ contribution to Israeli national economy is hard to overestimate. The gross per-capita income of a former Soviet immigrant of working age totaled, on average, NIS 4,750¹⁰ per

¹⁰ Data of the Central Bureau of Statistics. It should be noted that 78% of the income derives from labor and 22% from non-labor sources: 9.2% from pensions and allowances, 7% from provident funds and the remainder from various sources of support, such as supporting households or foreign sources.

month during the past two decades. After the deduction of mandatory payments (income tax, National Insurance and health insurance), net income was NIS 3,800 per month. The difference between the gross and net income constitutes the economic contribution of each immigrant. **Thus, the total monetary contribution to the Israeli economy amounts to NIS 106 billion over the past two decades.**

- The total expenditure per household among former Soviet immigrants totals NIS 6,000¹¹ per month (for a household with two members). The Value Added Tax (VAT) charge (annual average) over the past twenty years transferred to the State was 17%. Total contributions for VAT during these years are estimated at NIS 120 billion. The total average investment per immigrant, including the absorption basket, subsistence allowance and customs refunds, has been estimated at NIS 45,000¹² for the first year of immigration alone. The total investment for all immigrants from the former Soviet Union is estimated at NIS 45 billion (for twenty years).
- We may calculate the total contribution of the immigrants from the former Soviet Union to Israeli economy on the basis of revenues from currency transfers and tax payments to the Israel Tax Authority, and the National Insurance Institute by during the past twenty years, together with VAT (Value Added Tax) payments on the consumption of goods and services. From this amount is deducted the onetime investment in each immigrant in the form an "absorption basket" during the first year following arrival in Israel. Over the past two decades, the total economic contribution (taxes and VAT) are estimated at NIS 226 billion, less investments of NIS 45 billion in assistance to the immigrants.
- **The total economic contribution of new immigrants from the former Soviet Union to the Israeli economy during twenty years of immigration is estimated at approximately NIS 182 billion net.**

¹¹ House expenditures include goods and services. The two main expense items are housing and transportation.

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Appendix 1: Israeli Ministry of Immigrant Absorption Data

Table 1: Numbers of Immigrants from the Former Soviet Union Compared to Other Parts of the World

Year	Total	FormerUSSR	Ethiopia	France	UK	USA and Canada	Latin America	Other
1989	24,250	12,780	1,368	998	462	1,773	2,526	4,343
1990	199,492	184177	4174	1000	495	1903	2678	5065
1991	176,154	147282	20069	1037	505	2076	1157	4028
1992	77,065	64680	3539	1311	460	2548	723	3804
1993	77,626	66019	854	1550	658	2820	770	4955
1994	80,562	67599	1200	1755	700	3160	978	5170
1995	77,478	64608	1316	1865	721	3204	1604	4160
1996	72,022	58733	1411	2252	566	2983	2104	3973
1997	67,813	54520	1717	2355	552	2878	2037	3754
1998	58,339	46085	3108	2036	467	2328	1455	2860
1999	78,383	67024	2305	1633	480	2183	1828	2930
2000	61,739	51040	2249	1437	403	1837	1942	2831
2001	44,864	33911	3299	1158	360	1757	2218	2161
2002	35,512	18976	2692	2458	324	2025	7342	1695
2003	25,065	12728	3063	2090	399	2414	2570	1801
2004	23,026	10519	3806	2413	422	2763	1272	1831
2005	23,382	9693	3618	3000	534	3029	1731	1777
2006	21,430	7665	3618	2878	697	3238	1362	1972
2007	20,375	6767	3619	2767	670	3154	1526	1872
2008	16,287	5838	1598	1918	646	3300	965	2022
2009	13710	5415	239	1594	684	3260	881	1637
Total, 1989-2009	1,274,574	996,059	68,862	39,505	11,205	54,633	39,669	64,641

Table 2: Immigrants in 1990 and Following, Aged 15 and over, by Civilian Labour Force Characteristics, and Employed Persons, by Industry, Occupation and Gender

2008						
	Females	Males	Total	Females	Males	Total
	Percentages			Thousands		
TOTAL	100.0	100.0	100.0	486.0	398.6	884.6
Not in civilian labor force	41.7	35.5	38.9	202.7	141.6	344.3
In civilian labor force	58.3	64.5	61.1	283.3	257.0	540.3

Table 3: Distribution of Immigrants from the Former Soviet Union According to Age and Area of Settlement in Israel

(February 2009)

	Total	18-24	25-34	35-44	45-54	55-64	65+
Total	833,408	83,459	158,983	147,726	140,890	130,358	171,992
Including:							
Haifa	58812	5700	10743	10032	9719	9456	13162
Ashdod	58084	5607	9985	9938	9864	9679	13011
Beer Sheva	48443	5110	8674	7817	7994	7784	11064
Bat Yam	43183	4133	8228	7900	7136	7032	8754
Tel Aviv-Yaffo	42779	4148	11031	8826	7070	5993	5711
Netanya	38004	3573	6963	6523	6457	6082	8406
Rishon LeTzion	37408	3797	7646	7217	6476	5976	6296
Petah Tikva	36909	3458	7574	7412	5937	5890	6638
Ashkelon	32189	3160	5073	5145	5328	5197	8286
Jerusalem	31079	2858	6539	5301	4501	4721	7159
Holon	29050	3032	6065	5938	4996	4177	4842
Hadera	19240	2182	3505	3017	3581	3024	3931
Nazrat Illit	19050	1871	2896	2873	3363	3181	4866
Karmiel	15935	1643	2685	2514	2797	2513	3783

Rehovot	15756	1456	3113	2913	2619	2539	3116
Lod	15509	1409	2639	2630	2612	2795	3424
Kiryat Yam	12944	1268	2205	1892	2208	2350	3021
Kiryat Gat	12762	1350	2069	1939	2242	2184	2978
Ramat Gan	12572	1120	3401	2866	1965	1591	1629
Ramla	11557	1381	2454	1995	1977	1735	2015
Afula	9856	1108	1514	1532	1738	1549	2415
Kiryat Ata	9732	958	1621	1724	1583	1575	2271
Akko	9459	1026	1606	1468	1699	1498	2162
Nahariya	9127	747	1734	1745	1546	1306	2049
Arad	8807	928	1264	1541	1469	1253	2352
Kiryat Mozkin	8314	813	1569	1525	1422	1161	1824
Kfar Saba	7954	796	1605	1601	1331	1157	1464
Ma'alot-Tarshicha	7174	667	1187	1154	1243	1195	1728
Kiryat Bialik	7021	692	1235	1241	1191	1151	1511
Ariel	6853	726	1248	1369	1236	979	1295
Eilat	6826	956	1982	1528	1063	679	618
Or Akiva	6721	848	1193	1048	1372	991	1269
Sderot	6630	847	1262	994	1296	919	1312
Dimona	6466	672	1057	1023	1060	1143	1511
Herzliya	6428	577	1301	1198	1168	1009	1175
Migdal HaEmek	6321	612	1056	977	1098	1091	1487
Nesher	6316	562	1300	957	993	1051	1453
Beit Shemesh	6217	629	972	1098	1119	981	1418
Ofakim	5977	702	1024	930	1007	869	1445
Tiberias	5813	593	1033	1071	928	980	1208
Bnei Brak	5278	461	1078	897	868	902	1072
Or Yehuda	4255	556	1034	840	764	524	537
Pardes Hana-Karkur	4050	482	716	556	769	651	876
Kiryat Shmona	3950	403	642	665	703	620	917
Yokneam Ilit	3927	354	759	698	694	657	765

Ma'aleh Adumim	3828	358	667	699	626	655	823
Bnei Ayish	3772	365	525	640	602	647	993
Netivot	3422	404	562	529	613	484	830
Tzfat	3184	249	336	388	486	517	1208
Tirat Karmel	2994	359	536	435	550	507	607
Modi'in	2906	229	598	884	502	291	402
Givatayim	2897	270	840	653	443	317	374
Ra'anana	2879	300	567	587	588	411	426
Yavne	2461	223	430	418	407	450	533
Kiryat Malakhi	2049	294	392	335	355	333	340
Katzrin	1999	186	287	289	344	314	579
Rosh HaAyin	1827	169	365	269	347	338	339
Hod Hasharon	1792	168	304	385	260	246	429
Kiryat Ono	1628	145	336	314	272	193	368
Yerucham	1558	180	202	276	282	255	363
Nes Ziona	1467	136	255	280	280	213	303
Yehud	1237	134	251	198	228	181	245
Kadima	1110	117	200	156	220	223	194
Shlomi	1079	110	190	169	217	158	235
Mitzpe Ramon	1025	125	176	122	169	193	240

Table 4: Ratio of Immigrants in Principal Israeli Cities

<i>City/Town</i>	<i>Ratio of immigrants</i>	<i>Number of citizens</i>	<i>Number of immigrants from the former USSR</i>	<i>Total number of immigrants</i>
Total	14.5%	7,893,891	876,105	1,141,290
<i>Including:</i>				
Ashdod	32.7%	230,616	60,999	75,360
Haifa	23.1%	301,967	62,247	69,648
Jerusalem	8.2%	839,598	31,736	68,898
Tel Aviv - Yaffo	12.9%	485,005	44,004	62,759
Beer Sheva	28.8%	204,377	50,884	58,930
Netanya	27.3%	207,315	40,138	56,691
Bat-Yam	32.6%	157,224	45,857	51,205
Rishon Letzion	19.4%	245,964	39,959	47,603
Petah Tikva	21.0%	217,798	39,707	45,834
Ashkelon	32.2%	123,900	33,952	39,923
Holon	18.0%	197,227	31,247	35,503
Hadera		87,444	20,196	24,008
Rehovot	18.3%	123,408	16,690	22,533
Natzrat Illit	41.6%	50,238	19,531	20,894
Lod	24.9%	76,137	16,142	18,941
Karmiel	37.0%	51,076	16,878	18,912
Beit Shemesh	21.3%	82,624	6,535	17,629
Ramat Gan	10.7%	153,033	13,326	16,397
Ramla	21.4%	71,195	12,148	15,242
Kiryat Yam	34.3%	43,645	13,663	14,986
Kiryat Gat	28.2%	52,473	13,010	14,797
Ra'anana	14.9%	81,323	3,020	12,149
Kfar Saba	13.2%	91,737	8,239	12,105
Eilat	19.9%	60,187	7,449	11,982
Afula	27.0%	43,986	10,235	11,870
Naharia	19.3%	59,237	9,633	11,428

Kiryat Ata	19.8%	55,953	10,372	11,054
Erez	38.8%	27,239	9,353	10,582
Akko	19.4%	53,349	10,010	10,372
Herzliya	10.0%	97,634	6,676	9,801
Kiryat Motzkin	22.0%	43,717	8,836	9,613
Kiryat Bialik	21.7%	41,427	7,401	8,992
Bnei Brak	4.9%	164,442	5,349	8,133
Ma'alot-Tarshicha	34.0%	23,381	7,481	7,960
Ariel	41.8%	18,264	7,338	7,642
Migdal HaEmek	27.2%	27,155	6,659	7,385
Sderot	32.3%	22,301	6,766	7,214
Dimona	18.9%	37,540	6,708	7,111
Or Akiva	37.4%	18,749	6,869	7,020
Nesher	29.4%	23,711	6,535	6,961
Tiberias	15.4%	45,214	6,001	6,945
Ofakim	25.7%	26,608	6,196	6,838
Modiin	8.6%	74,582	3,185	6,406
Ma'aleh Adumim	15.9%	36,508	3,954	5,813
Or Yehuda	15.7%	35,721	4,453	5,623
Pardes Hana-Karkur	16.2%	32,897	4,171	5,324
Tzfat	16.1%	32,036	3,160	5,161
Yokneam Illit	24.8%	20,379	4,027	5,057
Netivot	16.6%	28,805	3,549	4,773
Kiryat Malakhi	19.0%	22,634	2,088	4,306
Kiryat Shmona	17.5%	24,563	4,140	4,299
Yavne	12.1%	35,142	2,564	4,253
Givataim	7.0%	56,225	2,977	3,921
Bnei Ayish	51.9%	7,472	3,813	3,878
Tirat Hakarmel	18.5%	20,840	3,083	3,850
Hod Hasharon	5.7%	49,702	1,916	2,830
Modi'in Ilit	5.8%	46,112	371	2,683
Nes Tsiona	6.7%	37,655	1,568	2,520
Katzrin	33.4%	7,463	2,144	2,489

Rosh Haayin	6.0%	40,270	1,849	2,397
Mevaseret Zion	9.1%	25,842	505	2,361
Kiryat Ono	6.2%	32,744	1,686	2,017
Beitar Illit	5.2%	37,278	366	1,957
Yerucham	18.9%	9,298	1,641	1,758
Gedera	8.5%	19,893	534	1,695
Ehud	5.9%	28,564	1,273	1,687
Gan Yavne	8.2%	18,813	982	1,549
Givat Shmuel	6.8%	22,330	916	1,513
Kiryat Arba	22.1%	6,774	838	1,496
Efrata	16.8%	8,674	91	1,456
Kfar Yona	8.1%	17,465	764	1,415
Beer Ya'akov	14.6%	9,665	418	1,408
Kiryat Ekron	13.0%	10,584	738	1,379
Kadima	7.8%	17,343	1,107	1,346
Ramat Hasharon	2.9%	44,601	576	1,307
Beit-She'an	6.8%	18,673	914	1,262
Zikhron-Ya'akov	6.2%	19,720	413	1,222
Shlomi	18.3%	6,542	1,106	1,200
Mitzpe-Ramon	21.2%	5,272	1,029	1,119
Azur	9.4%	11,643	967	1,099
Karnei Shomron	15.3%	6,926	720	1,057
Eilat	2.9%	36,285	222	1,046

Table 5: Migration Balance of Immigrants from the Former Soviet Union Compared to the General Immigrant Population

Year	Total Immigrants to Israel			Immigrants from the USSR/CIS and the former Soviet Baltic States		
	Number of immigrants that arrived	Number that left the country	Percentage of immigrants that left the country	Number of immigrants that arrived	Number that left the country	Percentage of immigrants that left the
1989	24.300	2.902	11.9%	12.932	1.141	8.8%
1990	200.170	18.747	9.4%	185.227	16.483	8.9%
1991	176.650	13.902	7.9%	147.839	11.959	8.1%
1992	77.350	7.971	10.3%	65.093	6.015	9.2%
1993	77.860	7.746	9.9%	66.145	5.425	8.2%
1994	80.810	8.137	10.1%	68.079	5.397	7.9%
1995	77.660	7.676	9.9%	64.848	4.991	7.7%
1996	72.180	7.056	9.8%	59.048	4.438	7.5%
1997	67.990	7.098	10.4%	54.621	4.640	8.5%
1998	58.500	5.714	9.8%	46.032	3.905	8.4%
1999	78.400	8.958	11.4%	66.848	7.226	10.8%
2000	61.542	7.242	11.8%	50.817	5.652	11.1%
2001	44.633	5.245	11.8%	33.601	3.976	11.8%
2002	35.168	4.621	13.1%	18.508	2.215	12.0%
2003	24.652	2.816	11.4%	12.383	1.562	12.6%
2004	22.500	2.171	9.7%	10.130	1.239	12.2%
2005	22.818	1.525	6.7%	9.431	859	9.1%
2006	20.961	450	2.1%	7.469	229	3.1%
2007	19.700	No data		6.643	No data	
Bcero	1.243.844	119.977	9.7%	985.634	87.352	8.9%

Appendix 2: Statistical Analysis

Data Sources

- General economic indicators, demographic data, Repatriation (Aliya) dynamics: Central Bureau of Statistics CBS Israel);
- Business climate indicators, ICT and High technologies development indicators: World Bank (World Development Indicators 2009, Doing Business 2009); CBS Israel;
- Aliyah: professional composition, settlement structure etc – Ministry of Absorption and CBS Israel Data

Statistical Analysis

Table 0. Variables specification

#	Variables Designation	Variables Description	Comments
			Dependent variables
1.1	GDP_pcap_cbs95	GDP per capita at 1995 prices growth	
1.2	GDP_pc_gr	The same (2005 prices)	
1.3	GDP_Growth	GDP growth	
2	Comp& serv_exp	Computer, communications and other services export (% of GDP)	
			Independent (and Dependent) Variables
3	FDI	Foreign Direct Investment	
4	Business_exp R&D	Private Business expenditures for Research and Development	
5	Hi Tech Pers_aliyah 90 - cumulative	Aliyah of Professionals (cumulative value).	
6	Scient_cumulative	Aliyah of Scientists (cumulative value)	
7	Liber_comm_market	Number of years since beginning of liberalization reforms of the Telecommunications market	Logical variable
8	Immigrant_population	Percentage of immigrants among general population by the end of the previous year	
9	The "Yozma" Program	Number of years earmarked in the State Budget for funding the "Yozma" Program for encouraging hi-tech startups	Logical variable; Proved to be statistically insignificant for all dependencies for explanation of variables 1 & 2
10	Government expenditure for R&D	Governmental expenditure for R&D	Repeat of statistically insignificant results

Table 1. Simple Regressions

#	Dependent variable, Number of observations	Independent variables & Standardized coefficients	Adjusted R square	T-statistics

1	GDP_pcap_cbs95, N=43 (1966-2005)	0,65*FDI	0,408	5,275
2	GDP_pcap_cbs95, N=19	0,84*FDI	0,688	6,201
3	FDI, N=19	0,76*HiTechPers_aliyah90 cumulative	0,550	4,352
3.1.	FDI, N=19	0,739*Scient_cumulative	0,515	4,243
4	Business_expR&D N=19	0,435*Liber_comm_market 0,534* HiTechPers_aliyah90 cumulative	0,839	2,515 3,090
4.1.	Business_expR&D N=19	0,893*HiTechPers_aliyah90 cumulative	0,785	7,951
4.2.	Business_expR&D N=19	0,887*Scient_cumulative	0,772	7,434
5	Comp&serv_exp N=19	0,932*Business_expR&D	0,861	10,625

In regression analysis, statistically significant relationships between variables do not answer the question of the direction of the influence exerted by variables on one another, i.e. causality.

For data that creates a “time series” by its very nature, there exists the Granger (1969) approach that attempts to help determine whether the variables influence one another. The Granger Test indicates the extent to which the current values of Y can be explained by the previous values of Y, and shows whether the values of X with one or another lags or leads the current explanation of Y. It is believed that variable X is the Granger-cause for Y if X helps to improve the explanation of Y.

To test Granger-causality we ran the following regressions:

$$(1) \quad Y = c_0 + c_1 Y_{t-1} + \dots + c_n Y_{t-n} + k_1 X_{t-1} + \dots + k_n X_{t-n} + e_t$$

$$(2) \quad X = d_0 + d_1 Y_{t-1} + \dots + d_n Y_{t-n} + l_1 X_{t-1} + \dots + l_n X_{t-n} + \varepsilon_t$$

n – Number of lags taking into account in this model, when we operate yearly data time series. The number of lags (n) in the model show how many previous years (of X and Y) taken into account in the explanation of the current value of X and Y.

For the first equation, F-statistics are the Wald statistics for the hypothesis of the simultaneous equality to 0: $k_1 = k_2 = \dots = k_n = 0$. The null hypothesis is as follows: X is not the Granger-cause of Y; i.e., the values of variable X taken with a certain lag do not influence the current value of variable Y.

We believe that X is the Granger-cause of Y if, on the one hand, it is possible to reject the hypothesis that X is not the Granger-cause of Y (i.e. coefficients *k* in regression (1) significantly differs from 0), and, on the other hand, it is impossible to reject the hypothesis that Y is not the Granger-cause of X (i.e. coefficients *d* in regression (2) cannot be differentiated from 0 at the required level of significance).

We have used Granger causality tests in order to assess the direction of causality with respect to immigrants (olim population – Olim_Pop) variables and the rates of economic growth during the period 1950-2008 (GDP growth – table 2.1.; GDP per capita Growth – Table 2.2.

Table 2.1

Dependent Variable: GDPGROWTH				
Method: Least Squares				
Date: 12/29/09 Time: 15:16				
Sample: 1951 2008				
Included observations: 58				
	Coefficient	Std. Error	t-Statistic	Prob.
OLIM_POP	2,2932	0,3116	7,3598	0,0000
C	3,3953	0,6402	5,3032	0,0000
R-squared	0,4917	Mean dependent var		6,4140
Adjusted R-squared	0,4826	S.D. dependent var		5,2049
S.E. of regression	3,7439	Akaike info criterion		5,5120
Sum squared resid	784,9432	Schwarz criterion		5,5831
Log likelihood	-157,8483	Hannan-Quinn criter.		5,5397
F-statistic	54,1667	Durbin-Watson stat		1,5598
Prob(F-statistic)	0			

Pairwise Granger Causality Tests			
Date: 12/29/09 Time: 15:26			
Sample: 1951 2008			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
OLIM_POP does not Granger Cause GDPGROWTH	56	1,15802	0,3222
GDPGROWTH does not Granger Cause OLIM_POP		2,14917	0,127

Table 2.2.

Dependent Variable: GDP_PC_GR				
Method: Least Squares				
Date: 01/07/10 Time: 09:56				
Sample: 1951 2008				
Included observations: 58				
	Coefficient	Std. Error	t-Statistic	Prob.
OLIM_POP	0,8284	0,3049	2,7165	0,0088
C	2,0880	0,6266	3,3324	0,0015
R-squared	0,1164	Mean dependent var		3,1784
Adjusted R-squared	0,1007	S.D. dependent var		3,8636
S.E. of regression	3,6640	Akaike info criterion		5,4689
Sum squared resid	751,8104	Schwarz criterion		5,5399
Log likelihood	-156,5976	Hannan-Quinn criter.		5,4966
F-statistic	7,3796	Durbin-Watson stat		1,5379
Prob(F-statistic)	0,008759			

Pairwise Granger Causality Tests			
Date: 01/07/10 Time: 09:59			
Sample: 1951 2008			
Lags: 3			
Null Hypothesis:	Obs	F-Statistic	Prob.
OLIM_POP does not Granger Cause GDP_PC_GR	55	4,54851	0,0069
GDP_PC_GR does not Granger Cause OLIM_POP		1,93601	0,1363

Table 3. *Aliyah of High-tech Professionals from the Former Soviet Union*

Year of Aliyah:	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Programmers	188	1147	976	506	393	386	474	429	381	319
Chemists	74	556	576	276	223	220	187	165	117	102
Physicists	58	488	444	242	179	173	148	124	107	82
Mathematicians/ Actuaries	80	574	426	206	166	145	133	114	106	88
Engineers/ Chemists	29	276	140	39	24	28	25	40	40	34
Biochemists	29	75	56	37	32	17	20	20	26	15
Aerospace engineers	3	75	3	4	1	3	5	12	7	6
Microchip producers	29	677	573	243	232	305	243	197	109	64

Year of Aliyah:	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Programmers	485	405	299	229	152	128	163	145	136	111	112
Chemists	201	184	117	78	50	42	36	40	35	21	22
Physicists	163	110	62	36	42	31	29	32	32	27	24
Mathematicians/ Actuaries	124	90	55	44	33	29	35	29	27	26	18
Engineers/ Chemists	57	23	29	16	8	19	10	14	4	9	9
Biochemists	19	13	14	16	9	15	14	7	5	6	7
Aerospace engineers	12	11	9	6	1	4	9	4	6	4	6
Microchip producers	86	91	41	25	18	6	6		2	9	3