

Razin, Assaf

**Working Paper**

## Israel's High Fertility Rate and Anemic Skill Acquisition

CESifo Working Paper, No. 6455

**Provided in Cooperation with:**

Ifo Institute – Leibniz Institute for Economic Research at the University of Munich

*Suggested Citation:* Razin, Assaf (2017) : Israel's High Fertility Rate and Anemic Skill Acquisition, CESifo Working Paper, No. 6455, Center for Economic Studies and ifo Institute (CESifo), Munich

This Version is available at:

<https://hdl.handle.net/10419/161894>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

# Israel's High Fertility Rate and Anemic Skill Acquisition

*Assaf Razin*

## **Impressum:**

CESifo Working Papers

ISSN 2364-1428 (electronic version)

Publisher and distributor: Munich Society for the Promotion of Economic Research - CESifo GmbH

The international platform of Ludwigs-Maximilians University's Center for Economic Studies and the ifo Institute

Poschingerstr. 5, 81679 Munich, Germany

Telephone +49 (0)89 2180-2740, Telefax +49 (0)89 2180-17845, email [office@cesifo.de](mailto:office@cesifo.de)

Editors: Clemens Fuest, Oliver Falck, Jasmin Gröschl

[www.cesifo-group.org/wp](http://www.cesifo-group.org/wp)

An electronic version of the paper may be downloaded

- from the SSRN website: [www.SSRN.com](http://www.SSRN.com)
- from the RePEc website: [www.RePEc.org](http://www.RePEc.org)
- from the CESifo website: [www.CESifo-group.org/wp](http://www.CESifo-group.org/wp)

# Israel's High Fertility Rate and Anemic Skill Acquisition

## Abstract

The exceptionally high fertility among ultra-Orthodox Jews, and Arab minority, increasing portions of the population, is the main reason for Israel's flagging labor-force participation. In addition, high fertility diminishes Israel's skill attainment of the labor force. A rise in income inequality in all advanced economies, which in the last two decades has taken a sharp upward turn in Israel, has a potential for setting off social- divide and political polarization.

JEL-Codes: D100, H100, J240, O400.

*Assaf Razin*  
*Tel Aviv University*  
*Eitan Berglas School of Economics*  
*Israel - Tel Aviv 69978*  
*ar256@cornell.edu*

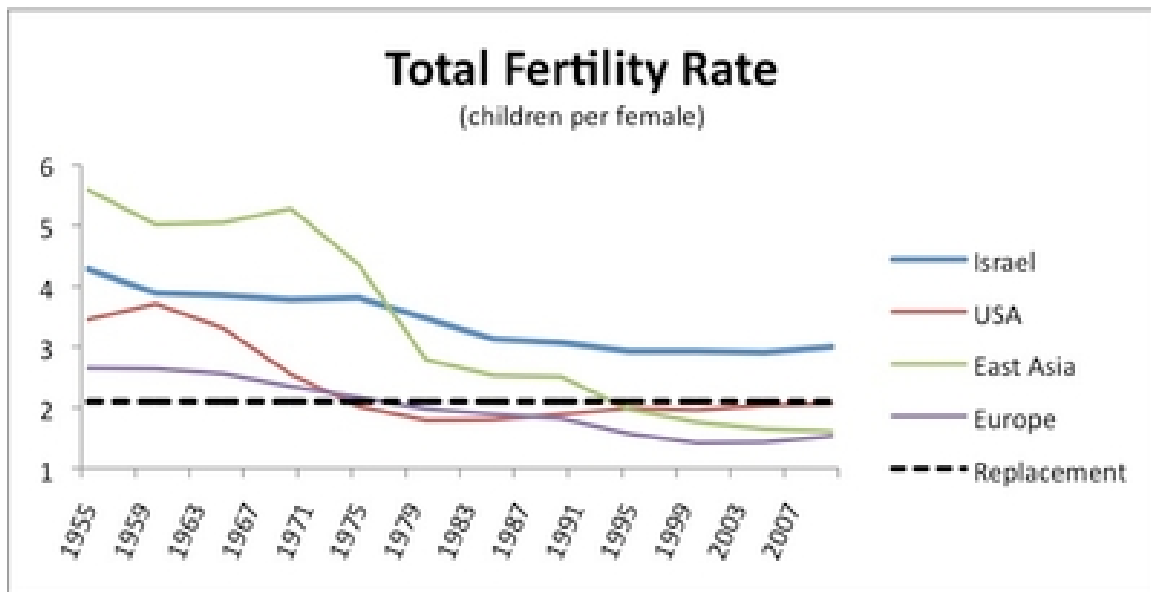
Israel's fast development came, however, at the cost of rising income inequality. Israel now has the most unequal distribution of income among OECD countries and its public education has declined from one of the best to one of the worst in the OECD. Israel's income redistributive policies, from rich to poor, from healthy to the sick and from young to old, is significantly less comprehensive in scope, compared to the European systems. It has been becoming even less so over the last decades. Israel has an unusually high fertility rate among the developed economies. The exceptionally high fertility among ultra-Orthodox Jews, and Arab minority, increasing portions of the population, is the main reason for Israel's flagging labor-force participation. In addition, high fertility diminishes Israel's skill attainment of the labor force. A rise in income inequality in all advanced economies, which in the last two decades has taken a sharp upward turn in Israel, has a potential for setting off social- divide and political polarization.<sup>2</sup>

The Israeli fertility rate of nearly three births per woman exceeds the industrial nations' norm by such a wide margin.

---

<sup>2</sup> See Razin (forthcoming 2017).

**Figure 1 Total Fertility Rates: Israel and selected industrial countries**



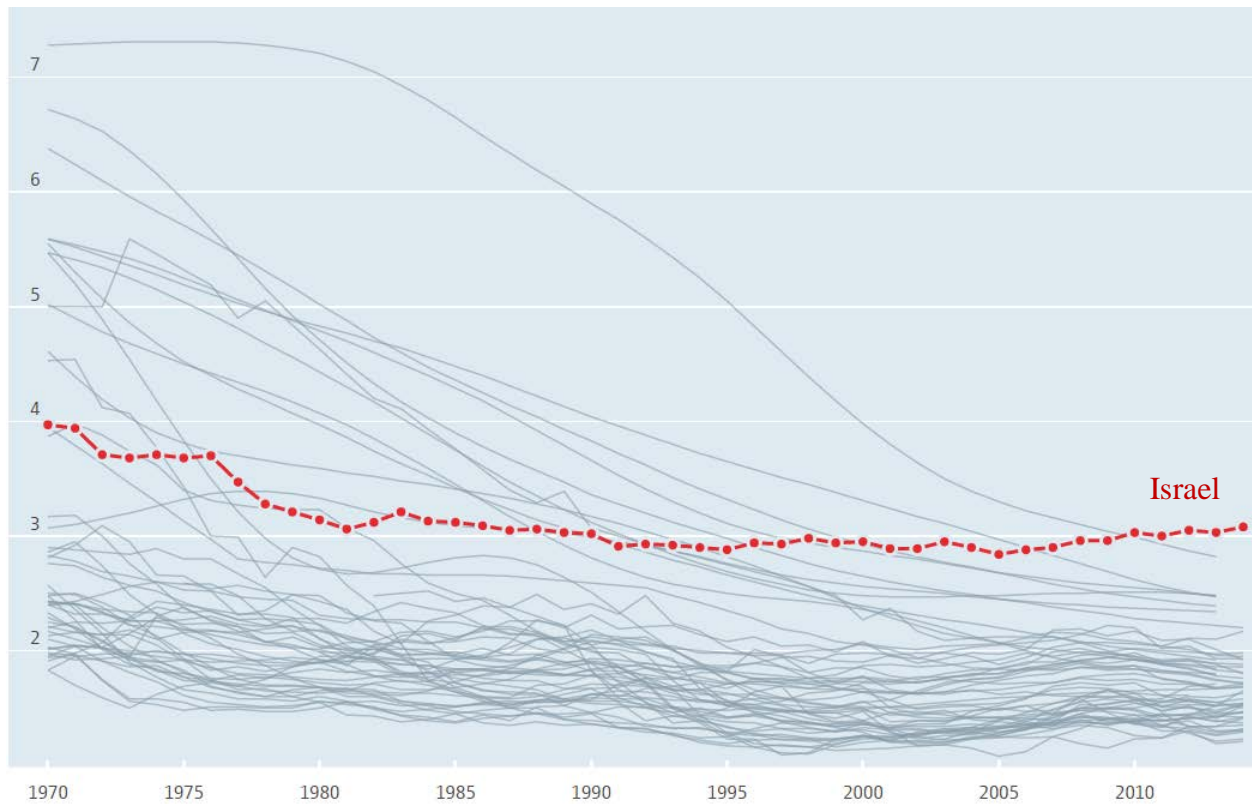
Source: Goldman (2013).

Europe and East Asia have fertility rates even below the replacement rate, which leads to stagnant population. East Asia shows the sharpest decline in the fertility rates.<sup>3</sup> (See Figure 9.1).

Furthermore, Israel's fertility rate stands out among all the OECD countries (see figure 11.2).

<sup>3</sup> The demographic transition—a change from high to low rates of mortality and fertility—has been more dramatic in East Asia during the twentieth century than in any other region or historical period. East Asia's demographic transition resulted in its working-age population growing at a much faster rate than its dependent population, thereby expanding the per capita productive capacity of East Asian economies. This effect was not inevitable; rather, it occurred because East Asian countries had social, economic, and political institutions and policies that allowed them to realize the growth potential created by the transition.

Figure 2: Fertility Rates among OECD countries



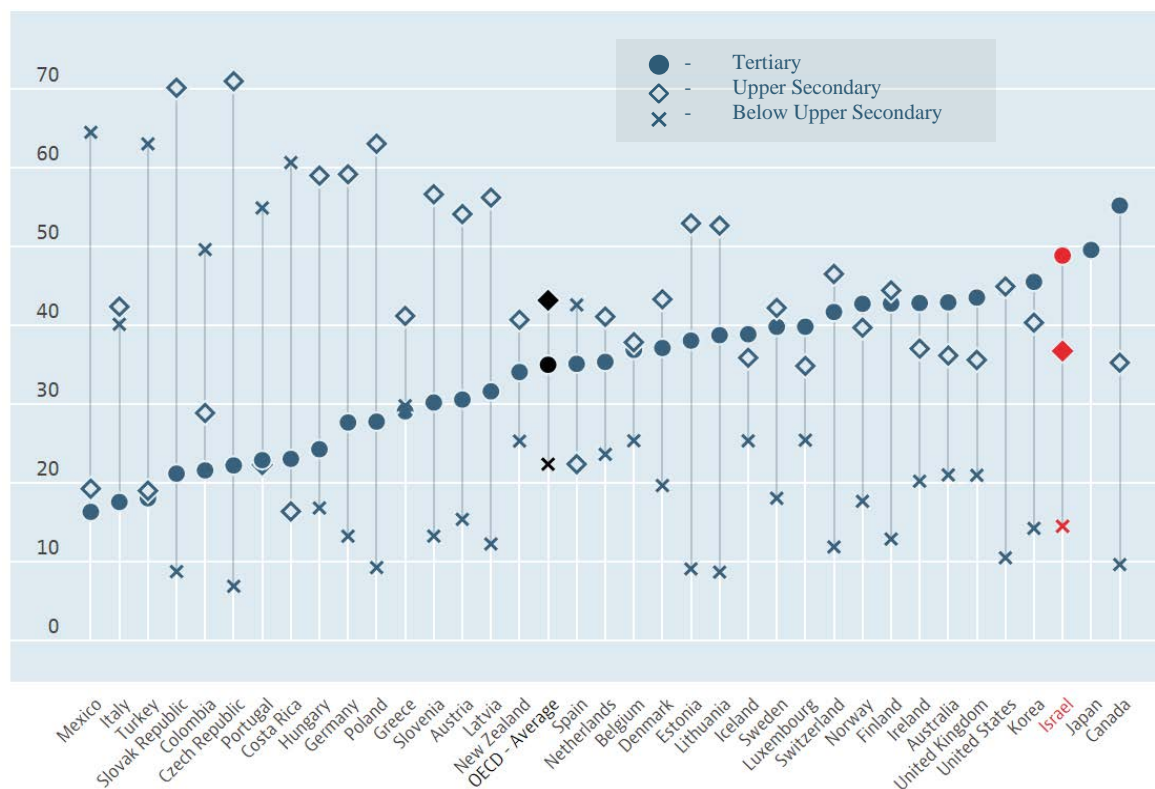
Source: OECD Library.

Most ultra-Orthodox Jews lack the skills to work in a modern economy, having studied little or no math and science beyond primary school (their curriculum focuses almost entirely on religious texts such as the Torah and Talmud). As a result, more than 60 percent live below the poverty line, compared with 12 percent among non-Haredi Jews. Most also opt out of military service, which is compulsory for other Israelis. The net effect: as the Haredi community expands, the burden of both taxation and conscription falls on fewer and fewer Israelis.

Mansky and Mayshar (2003) explore how private and social incentives for fertility may have combined to produce the complex fertility pattern observed in Israel where over decades fertility declined

At the same time, levels of skills of Israel's labor force is ranked high, indicating the relatively large stock of human capital in Israel. (See figure 9.3).

Figure 3: Adult education level Tertiary / Upper secondary / below upper secondary, % of 25-64 year-olds, 2015



Source: OECD Education at a glance: Educational attainment and labor-force status

Unlike many Western countries that need a young workforce to supplement their aging societies, Israel has an unusually young population compared to most developed countries. The relatively low skill level of a large portion of this local population could have reduced the demand



additional workers from abroad who are similarly poorly educated, to the extent that the low skill native born participates in the labor market. However, the latter have very low participation rate. Therefore, the demand for foreign workers is strong in certain industries, like construction, agriculture and household aid. And, large numbers of foreign workers continue to receive work permits in the country.

The paper is organized as follows. Section 1 addresses the schooling gaps for Israel in comparison to OECD countries. Section 2 discusses private vs. social incentives concerning fertility and schooling as they exist in the Ultra-Orthodox community, the highest fertility group. Section 3 deals with social interactions within and between ethnic and income groups. Section 4 addresses the Israeli Arabs. Section 5 indicates some long term implications.

## 1. Schooling Gaps

Even though the overall education attainment level of Israel (native born) labor force is highly ranked currently, schooling gaps emerge. Israel, currently, has below average school gap among advanced economies. A test score of 4.686 compared to the group average 4.939. See Table 1.

**Table 1: Test Scores**

EUR		DC		LDC	
Country	EQ	Country	EQ	Country	EQ
Austria	5.089	Australia	5.094	Argentina	3.920
Belgium	5.041	Canada	5.038	Brazil	3.638
Switzerland	5.142	Hong Kong	5.195	Chile	4.049
Denmark	4.962	Israel	4.686	China	4.939
Spain	4.829	Japan	5.310	Colombia	4.152
Finland	5.126	Korea, Rep.	5.338	Egypt	4.030
France	5.040	New Zealand	4.978	Indonesia	3.880
United Kingdom	4.950	Singapore	5.330	India	4.281
Germany	4.956	Taiwan (Chinese Taipei)	5.452	Iran	4.219
Greece	4.608	United States	4.903	Jordan	4.264
Ireland	4.995			Lebanon	3.950
Italy	4.758			Morocco	3.327
Netherlands	5.115			Mexico	3.998
Norway	4.830			Malaysia	4.838
Portugal	4.564			Nigeria	4.154
Sweden	5.013			Peru	3.125
				Philippines	3.647
				Thailand	4.565
				Tunisia	3.795
				Turkey	4.128
				South Africa	3.089
<i>Group Averages</i>	<i>4.939</i>		<i>5.132</i>		<i>3.999</i>

Notes: EQ = average test score in mathematics and science, primary through end of secondary school, all years (scaled to PISA scale divided by 100).

Source: OECD Library.

The main reason for Israel exceptionally high average fertility rates are the even higher rates among the Jewish ultra-Orthodox and the Israeli Arabs. Their share of the population is therefore on a steady increased path. Their skill endowments are however small. Consequently, Israel's dependency ratio is likely also to be rising over time, and its competitiveness is expected to erode.

## .2. Private and social incentives

Most ultra-Orthodox Jews<sup>4</sup> lack the skills to work in a modern economy, having studied little or no math and science beyond primary school (their curriculum focuses almost entirely on religious texts such as the Torah and Talmud). As a result, more than 60 percent live below the poverty line, compared with 12 percent among non-Haredi Jews. Most also opt out of military service, which is compulsory for other Israelis. The net effect: as the Haredi community expands, the burden of both taxation and conscription falls on fewer and fewer Israelis.<sup>5</sup>

Mansky and Mayshar (2003) computed (smoothed) completed-fertility rates by year of marriage, for each of the four subgroups of Israeli Jews whose parents were not born in Israel. During 1945–1950, the Mizrahi-ethnic women were bearing about three times as many children as did Ashkenazi-ethnic women. Thirty years later, during 1975–1980, completed fertility again separates the population into two groups, but now the relevant dimension is religiosity rather than ethnicity, with ultra-Orthodox women bearing about twice as many children as, non-ultra-Orthodox Jewish women.

Mansky and Mayshar (2003) explore how private and social incentives for fertility may have combined to produce the complex fertility pattern observed in Israel where over decades fertility declined within some ethnic-religious groups, but increased among ultra-Orthodox Jewish population. The latter experienced a *reversed fertility transition*.<sup>6</sup> They identify the contribution

---

<sup>4</sup> The ultra-Orthodox (“Haredi”) comprise 9.9 percent of Israel’s overall population and close to 14 percent of the working-age population. The reason for the difference in these shares lies in the fact that this population is characterized by a large share of children and youth (below the age of 15).

<sup>5</sup> One can make a comparison between the Ultra-Orthodox Jewish communities across the world. Outside Israel (particularly in the US) these communities have much lower fertility rates, and much greater supply of labor. Therefore, the Jewish Ultra-Orthodox exceptional fertility rate does not necessarily have to do with their religious beliefs.

<sup>6</sup> The demographic transition—a change from high to low rates of mortality and fertility—has been dramatic in East Asia during the twentieth century than in any other region or historical period.

of child allowances and related public welfare program for the reverse transition.<sup>7</sup> The identification technique they adapted help disentangle the child allowance effects from the socio economic and religious effects which are at play. In general, the different rates of completed fertility observed in different ethnic –religious groups at different times could be generated by:

1. Cross sectional and time series variations in the woman-specific utility parameters;
2. Cross sectional and time series variations in the child allowance policy;

And

3. Social interactions within and across groups.

Using these rigorous technique, Mansky and Mayshar (2003) find evidence for the effects of both private and social incentives on the fertility rates of the ultra-Orthodox.

However, the question arises as about the mechanism behind the assumed social incentives. Berman (2000) interpreted the trends towards increased fertility, decreased labor force participation, and increased supply of time to religious studies in the ultra-Orthodox community in terms of the behavior of a “club” that has strengthened its norms of religious stringency in an attempt to brace exclusion.

Razin and Sadka (1995, chapter 4) provide an insight to the puzzle. The economic self-preservation of the “club” is akin to the old age security motive of bringing children, where children is a means for parents from their income (female work income, child allowances, and other government subsidies) generating years to their old age unproductive years. The parents to minimize “defection” from the community do not endow the children labor- market skills.

The mechanism works like the human-capital accumulation in the 20<sup>th</sup> century “kibbutz” community in Israel through the human capital formation of children. Kibbutz parents tended to endow their children with good skills to help maintain the Kibbutz economy, but poor skills for

---

<sup>7</sup> Razin and Sadka (1995) study the general-equilibrium welfare implications of child allowances.

the labor market outside of the “club”. The Kibbutz system excluded itself from the primary and secondary national education system and did not support tertiary education. Abramitzky (2011) gives strong evidence in support of a related hypothesis that to maintain the Kibbutz equality system; it has to raise the cost of exit from the community.

Abramitzky and Lavy (2014) use an unusual pay reform during the Kibbutz privatization era to test the responsiveness of investment in schooling to changes in redistribution scheme and whether it increases the market rate of return to education. Their identification strategy exploits an episode where different Israeli kibbutzim shifted from equal sharing to productivity-based wages in different years and find that students in kibbutzim that reformed earlier invested more in high school education and, in the long run, also in post-secondary schooling.

Parents’ hopes that their children will live with them are complicated by the fact that the community cannot directly control whether their children exit, and what the child finds optimal may deviate from what the parents and the community would prefer. This creates an incentive problem between the parents, community, and their children. While parents, and community cannot directly prevent children’s decisions, parents do control the number of children and the amount of schooling they provide their children, and as such may be able to limit their children's potential future benefits from migration out of the community.

China one-child policy has a reversed effect on fertility and investment in education.<sup>8</sup> Can one extrapolate from the Chinese one-child state imposed policy (which reduced the fertility rate) to

---

<sup>8</sup> The Communist party introduced the one-child policy in 1979 to tackle population growth. It was scrapped in late 2015 following years of warnings from demographers over low birth rates and an ageing population. China’s national crude birth rate was 12.1 births per 1,000 people in 2015, down from 21 in 1960.

the social norms and social pressures among the ultra-Orthodox, which help explain the high fertility rate?

Choukhmane et al (2016) explore the effect of the one-child policy, introduced in China in the early 1970s, on fertility rates, savings, and investment in human capital. They provide evidence that the dramatic fall in fertility rates raises aggregate personal saving and lead to rapid accumulation of human capital of the only one child generation. Is it relevant for the Jewish ultra-Orthodox reversed effects on fertility rates? The similarity between these apparently two different episodes is that in both cases the fertility rate are influenced by state (in the case of China) or by the community (in the case of Israel). The difference between the two is that the state is not a club. The state can force the fertility rate down but has no control over the saving and human capital investment of the individual household. Choukhmane et al (2016) finds that drop in fertility rates creates incentives to increase saving and parents' investment in the human capital of their children in order to support the parents in old age. Acquired skills help the children function better in the job market, and raises their labor supply. However, the Jewish ultraorthodox community put pressures on the individual household to maximize the number of children, and to prevent children from acquiring job market skills. Poor job-market skills insure little defection from the ultra-Orthodox "club".

#### 4. Fertility Rates: The Israeli Arabs

The Arab population in Israel, particularly the Moslem, rank far lower on the socioeconomic scale than the Israeli Jews.<sup>9</sup> This gap has not changed much during half a century since the

---

<sup>9</sup> The Arabs comprise 20.8 percent of Israel's overall population and 18.7 percent of the working-age population. The reason for the difference in these shares lies in the fact that this population is characterized by a large share

foundation of Israel as a state, starts to be closed in the last decade. The major factor behind this wide socioeconomic gap is the differential opportunity structure between the Jewish and the Arab populations, particularly Moslems, and the social norms concerning women. There are not only large differences in human capital between Jews and Arabs, but even for those Arabs whose educational status is relatively high, entrance into higher status employment is difficult. This differential opportunity structure results in reduced motivations for the attainment of higher educational levels among Arabs.

Moslem Arab's total fertility rate was at the beginning of the 1940s about 7.5-8.0, and reached a record of 9.3 in the 1960s. It however started to decline subsequently to reach a rate of 4.6 in mid 1980s, remaining at that level through the year 2000. The Christian Arab population, which has been at a higher stage of socioeconomic modernization since the 1930s has experienced major fertility declines from a total fertility rate of 7.5, to 3.6 in the early 1970s, and to 2.5 in the year 2000. (See Friedlander (2002)). Labor force participation rate among Israeli Arabs is relatively low. Those who do participate have difficulty finding suitable jobs and suffer from high unemployment. Most workers concentrate in a narrow range of low-paying occupations Yashiv and Kasir (2014). As for educational attainment, Yashiv and Kasir (2011, 2014) observe that Israeli Arabs have relative to the Jewish population low educational levels. The evidence is from international tests (according to OECD data), and on national feedback tests in Primary education; as well as on the tests which determine School Efficiency and Growth Indicators (*Meitzav*). Dropout rates from the educational system are higher in the Arab sector—21 percent in grades 9-11, in comparison to about 11 percent in the Jewish sector. Arabs' share of the

---

of children and youth (below the age of 15). The share of children aged 0-14 is 35 percent (versus 27.7 percent among Jews).

university student population in Israel is only Half their share of the population—in 2011/2012 Arabs accounted For only 10.8 percent of all university and college students in Israel. The rate goes down the higher is the academic degree, and In PhD studies Arabs make up only 4.4 percent of all students.

These trends seem to be broken, because Arab women have recently begun to take advantage of the Israeli higher educational system. Furthermore the participation of Arab females in the labor force is steadily rising.

#### 5. Long term implications

Currently the ranking of Israel in terms of the population growth rates and skill of the labor force are high. However, the high fertility rate among the Jewish ultra-Orthodox and Israeli Arabs and the lack of proper investment in children to prepare them to the labor market, are bound to raise the dependency ratio. These trends, if they are not reversed, could severely lower future GDP growth, and weaken international competitiveness. The trend is akin to *productivity regress*.



## References

Abramitzky, Ran (2011) “Lessons from the Kibbutz on the Equality-Incentives Trade-Off,” Journal of Economic Perspectives, Volume 25, Number 1—Winter 2011—Pages 185–208.

Abramitzky, Ran, and Victor Lavy (2014), “How Responsive Is Investment in Schooling to Changes in Redistributive Policies and in Returns?” Econometrica, Volume 82, Issue 4, Pages 1241–1272.

Berman, Eli (2000), “Sect, Subsidy, and Sacrifice: An Economist’s view of Ultra-orthodox Jews,” The Quarterly Journal of Economics (2000) 115 (3): 905-953.

Choukhmane, Taha, Nicholas Coeurdacier, and Keyu Jun (2016) "The One-Child Policy and Household Savings," LSE mimeo.

Friedlander, Dov, (2009) “ Fertility in Israel: Is the Transition to Replacement in Sight? Hebrew University.

Goldman, David F., (2013) "Israel’s Demographic Miracle," mimeo.

Mansky, Charles F., and Joram Mayshar (2003), “ Private Incentives and Social Interactions: Fertility Puzzles in Israel,” Journal of the European Economic Association Volume 1, Issue 1 March 2003Pages 181–211.

Razin, Assaf (forthcoming 2017), Israel and the World Economy: Power of Globalization, MIT Press.

Razin, Assaf, and Efraim Sadka,(1995) Population Economics, MIT Press.

Yashiv, Eran, and Nitsa Kashir (Kaliner), (2011), “Patterns of Labor Force Participation Among Israeli Arabs,” Israel Economic Review Vol. 9, No. 1 (2011), 53–101.

Yashiv, Eran and Nitza Kasir (2014) The Labor Market for Israeli Arabs, INSS, Tel Aviv University.<http://www.tau.ac.il/~yashiv/Israeli%20Arabs%20in%20the%20Labor%20Market%20-%20Policy%20Paper.pdf>