2015

The Shoresh Handbook

on Israel's society and economy

Dan Ben-David

SHORESH
Institution for Socioeconomic Research

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October 2015

SHOR´ĚSH 

n. root, source, basis, core, primary

Printed in Israel by Printiv

Foreword

"men and nations behave wisely
once they have exhausted all other alternatives"

Abba Eban
Israel's Foreign Minister, 1966–1974

Representing a nation that turned this approach into an art-form, Abba Eban knew what he was talking about. This handbook, and the establishment of the Shoresh Institution in general, is intended to provide a graphic look – both literally and figuratively – of contemporary Israel: where we were, where we are, where we are headed (and how fast), what that means, and what can be done about it. Much of the prevailing wisdom regarding Israel is simply wrong, while some of the key paradigms need to be redefined.

Israel is a country with boundless energy, vitality and cutting edge knowledge, a young country within an increasingly elderly developed world whose future could be the brightest imaginable. It is also a country that has been situated on very steady multi-decade socioeconomic trajectories that are simply unsustainable in the long-run – with all of the existential implications that this entails – unless it takes advantage of a rapidly closing window of opportunity to change its course while there is still time to do so.

It is not a coincidence that this handbook is the Shoresh Institution's inaugural publication. The issues detailed here provide a broad perspective of many of Israel's

root (*Shoresh*) challenges. It should be fundamentally clear that although the trajectories have been steady for decades, they are neither engraved in stone, nor are the pictures brought forth in this handbook the result of destiny.

Just as policies reflecting different national priorities caused major shifts in the country's socioeconomic trajectories several decades ago, policies reflecting a national awakening can – still – move the country back to a course that will not only be sustainable, it will fulfill a Jewish aspiration of being a light unto nations.

Professor Dan Ben-David

President and founder
The Shoresh Institution for Socioeconomic Research

The Shoresh Institution

The common policy-making approach of focusing on symptomatic treatments with short-term horizons on the basis of partial data, anecdotes and often-incorrect conventional wisdom is one of the underlying reasons for Israel's current unsustainable socioeconomic trajectories. The country's policy-making paradigm needs to undergo a fundamental transition towards long-term strategic perspectives based on facts in key areas such as growth, poverty, inequality, employment, education and health.

As its name in Hebrew suggests, one aspect of the Shoresh Institution's mission is to conduct high-quality, professional research on the root socioeconomic issues facing Israel. The institution's emphasis is on empirical studies using historical and international benchmarks to gain as broad a vantage point as possible. Another aspect of the mission is the wide-ranging dissemination of its findings and recommendations in a language and in graphs that are easily accessible by non-professionals. This multi-faceted objective is intended to facilitate public discourse and policy-making shifts that can return the country to socioeconomic trajectories that will be viable in the future.

The Shoresh Institution was established this year by some of Israel's premier academic researchers from the various social science disciplines in the country's top research universities – a team with the knowledge, expertise, experience and ability to grasp the big picture and discern between primary and secondary issues. This interdisciplinary approach helps ensure that the Shoresh Institution remain apolitical and independent – in contrast with the more conventional advocacy model for research institutions.

In line with Shoresh Institution policy, the analysis and recommendations below are the author's alone and do not reflect either the institution or its researchers.

Dedication

This inaugural volume of the *Shoresh Handbook* is dedicated to Josh Weston, the visionary who encouraged our team to establish the Shoresh Institution. Josh enabled us to create a unique institution that is completely independent from any organization engaged in advocacy or lobbying of any kind. He provided the vital, and very generous, initial support that enabled us to remain together as a team – most of us had been working together elsewhere for several years – so that we would be able to continue our policy research that has had such an impact in recent years. The Shoresh Institution would not be had it not been for Josh Weston, and we will be forever indebted to him for helping us get under way.

Supporting Shoresh

Now that the Shoresh Institution is up and running, its ability to continue forward is entirely dependent on support from individuals and organizations who understand how important it is for Israel to have a venerable independent policy research institution with the kind of gravitas that policy-makers from across the political spectrum listen to and cite – an institution that provides all those who care about the future of Israel with evidence-based foundations at the highest professional levels.

If you believe that the kind of material contained in this handbook provides a unique and important contribution, then please support the Shoresh Institution and ensure that we will be able to continue doing this kind of work for years to come.

email: info@shoresh.institute
website: http://shoresh.institute

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Tempting illusions – and facts

A superficial look at the Israeli data in recent years provides a relatively good picture, sometimes showing improvements – and sometimes with the potential for misleading conclusions. Part of the reason for this is due to the fact that Israel and the developed world underwent very severe recessions, but at different times. Israel emerged from its downturn as the United States and Europe entered theirs. To gauge Israel's true position, it is important to take a step back from the cyclical behavior and examine the longer-run picture showing the steady-state trajectories.

In addition, there are the idiosyncrasies that are Israel. It is a country of immigrants comprised of large population groups vastly different from one another, and on a scale uncommon in the rest of the developed world. This makes looking at national averages for Israel a sometimes risky business, especially if unaccompanied by more in-depth looks at the underlying variation. Superficial examinations often lend themselves to incorrect conventional wisdoms about socioeconomic phenomena, tempting illusions that drive the general discourse and underlie much of the public policy.

This section focuses on economic growth, employment, income inequality and poverty issues that provide a basic picture of Israel's economy and society. It shows some of the findings that yield much of the prevailing wisdom, as well as several additional examples that help provide a more complete perspective.

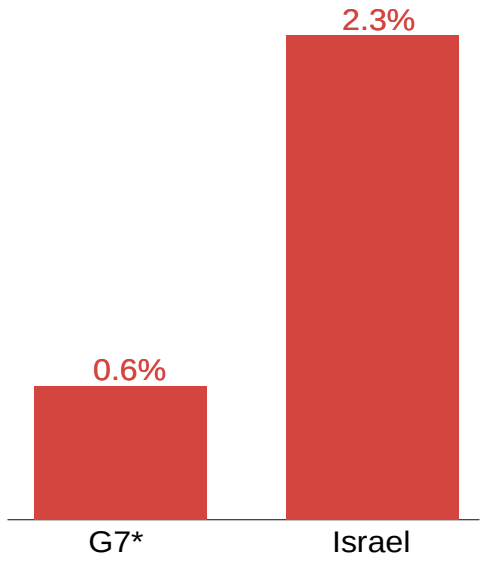
Fast economic growth in recent decade

Living standards are commonly measured by GDP per capita – i.e. the average slice of output produced per person. A look at economic growth over the past decade can be deceiving since the most severe recession to hit Israel and the G7 countries in recent decades occurred at different times.

Israel's economy hit bottom in 2003 after several years of major terror attacks on its cities and towns. A half decade later (in 2008-2009), while the Israeli economy was well on its way towards recovery, the major developed economies plunged into their greatest recession since the 1930s. Consequently, it should not come as a surprise that over the past decade, Israel grew much more quickly than nations that still have not completely emerged from their Great Recession.

AVERAGE ANNUAL GROWTH IN GDP PER CAPITA

2004-2014



* The G7 countries: the United States, Canada, the United Kingdom, Germany, France, Italy and Japan.

Source: Dan Ben-David, Shoresh Institution and Tel Aviv University

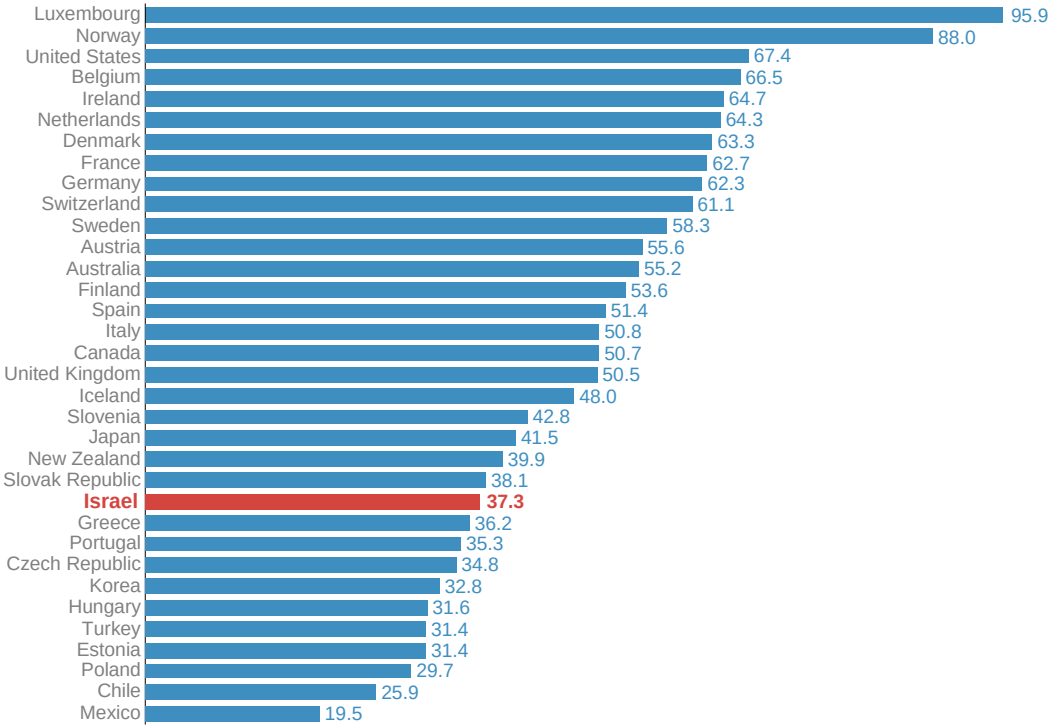
Data: OECD

... but labor productivity in Israel below all relevant developed countries

While the general measure of GDP per person provides an indication of the average amount produced per person in a country, it is less useful in understanding how much is produced by those who are actually employed. In this context, Israel's fundamental problem lies in the more precise measure, GDP per hour worked, commonly referred to as labor productivity. Productivity is the primary determinant underlying the height and the slope of a country's long-run steady state economic growth path.

Labor productivity is also a key factor in determining wages. If the average amount produced per hour by an Israeli is low, then the average wage per hour received by that Israeli will be low as well. Consequently, because of their low productivity, Israelis need to work many more hours to make ends meet – and, on average, they do indeed work much more than in most developed countries.

LABOR PRODUCTIVITY IN DEVELOPED COUNTRIES, 2014*



* GDP per hour worked in all 34 OECD countries, in current ppp dollars.

Source: Dan Ben-David, Shoresh Institution and Tel Aviv University

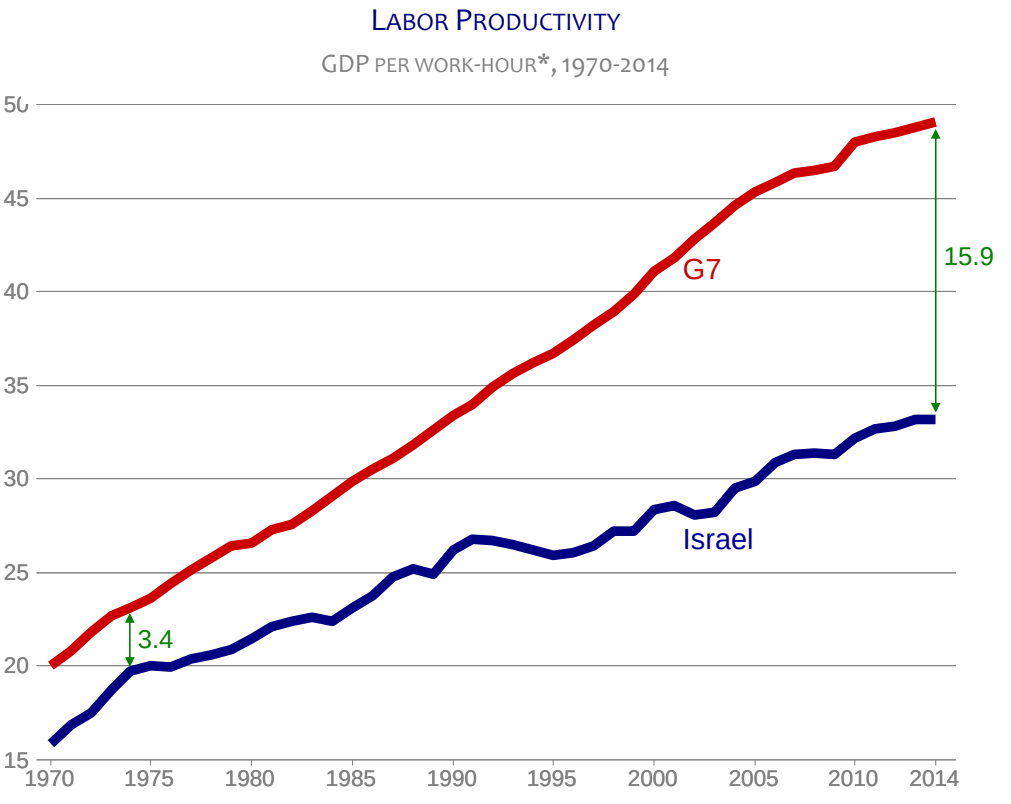
Data: OECD

Slow labor productivity growth in past four decades

Israel's labor productivity is not only low, it has been falling further and further behind the leading countries of the world since the mid-1970s. In a sense, Israel is a story of two countries in one. A part of Israel is cutting edge – the universities, hi-tech, medicine, and so on – but a large, and growing, share of the population is not receiving either the tools or conditions to work in a modern, competitive global economy. This part of Israel is like a huge weight on the shoulders of the rest, a weight that is becoming increasingly heavier over time.

The greater the gap between what skilled and educated Israelis can receive abroad and what they receive at home, the more personal thresholds will be crossed. It will become increasingly easier – particularly for the young – to decide between leaving, or remaining and earning below potential while continuing to shoulder a heavier and heavier burden.

Since the mid-1970s, the gap between the leading developed countries and Israel has increased by almost five-fold. This trajectory of the past four decades will not be sustainable for another four decades – with all that this implies for the future of Israel.



* In 2005 PPP-adjusted dollars.

Source: Dan Ben-David, Shoresh Institution and Tel Aviv University
Data: OECD, Central Bureau of Statistics, Bank of Israel

Slow total factor productivity growth in past four decades

Israel's low labor productivity is widespread and endemic in its various business sectors. Total factor productivity (the share of output growth emanating from technological change rather than growth in the quantity of labor or physical capital) in the business sector has been increasing at a slow pace as well.

While much of Israel's fast productivity growth in the period preceding the 1973 Yom Kippur War could be ascribed to a catching-up phase with the rest of the developed world, the decades since then have been characterized by particularly low rates of productivity growth.

The productivity problem is not just vis-à-vis other developed countries today. It is also vis-à-vis Israel itself during its first decades of existence. In those early years, the country devoted a large share of its meager resources toward building necessary human and physical capital infrastructures. As the following pages will show, those national priorities of the early decades are not the national priorities of recent decades.

ANNUAL CHANGES IN BUSINESS SECTOR TOTAL FACTOR PRODUCTIVITY

1961-2014

Source: Dan Ben-David, Shoresh Institution and Tel Aviv University
Data: Bank of Israel

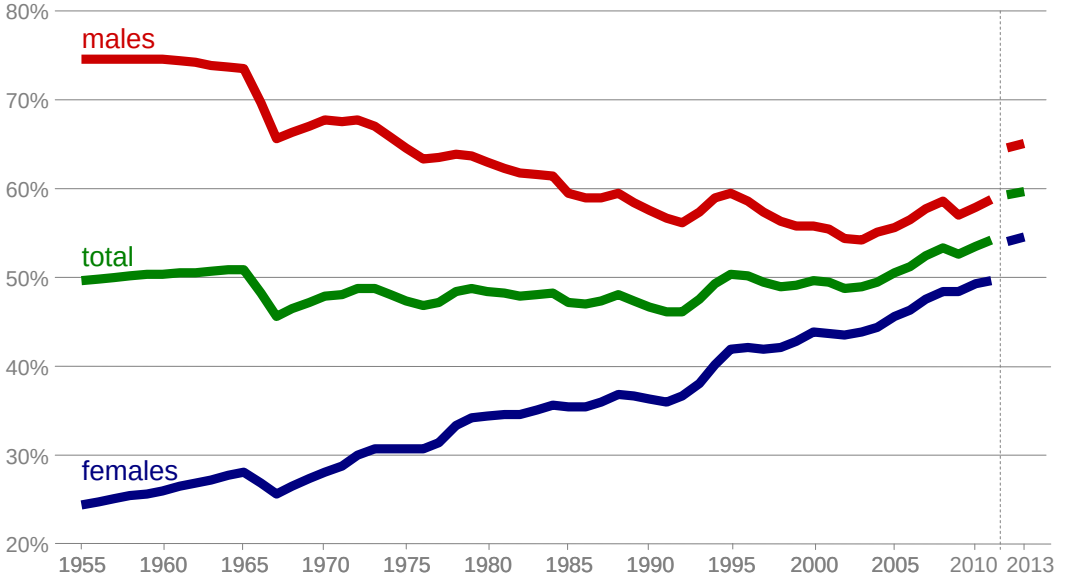
Recent improvements in employment

As in the rest of the developed world, the general employment trend over the past half century has been a negative one for males and a positive one for females. Until about a decade ago, the decline in male employment was roughly offset by the increase in female employment (primarily due to an increasing share of educated women in the population) leaving overall employment rates relatively steady. Over the past decade, there has been across-the-board improvement in employment.

A general focus on the entire working age population (from the age of 15 and up), as is the case here, tends to mask quite a few more relevant details pertaining to prime working age adults (i.e. individuals who completed their formal schooling – including academic – and are below retirement age). Furthermore, the examination here does not shed any comparative light of Israel vis-à-vis other developed nations.

EMPLOYMENT RATES, 1955-2013*

15+ YEAR OLDS



* As of 2012, the Central Bureau of Statistics made significant changes in the way the labor force survey is conducted .

Source: Dan Ben-David and Oren Tirosh, Shoresh Institution

Data: Central Bureau of Statistics

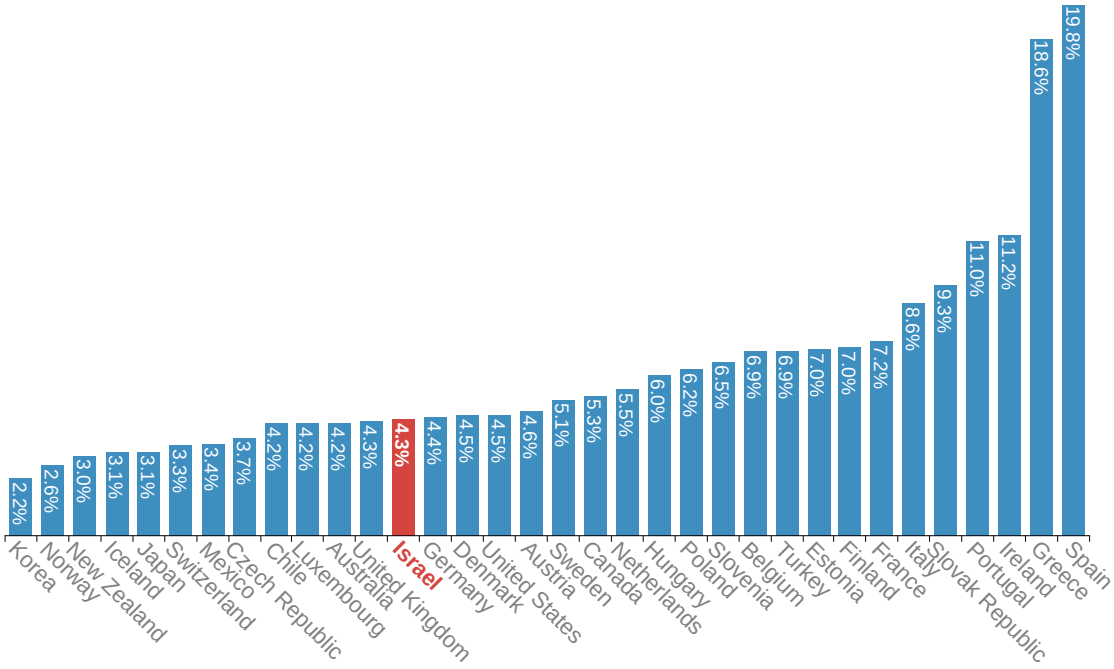
Unemployment is low

At 5.9%, Israel's unemployment rate was among the lowest in the developed world in 2014. Among prime working age women, it was even lower (4.6%) and among prime working-age men, even lower yet (4.3%). However, this picture is a bit misleading when the comparison is made to other developed countries – and not just because many of the other countries have still not existed their deepest recession since the Great Depression.

Unemployment rates measure the share of individuals unable to find employment among all those looking for employment – i.e. out of all those participating in the labor force – and not out of the entire age group, which yields quite a different picture.

RATES OF UNEMPLOYMENT AMONG PRIME WORKING AGE (35-54) MALES

IN ALL 34 OECD COUNTRIES, 2014



Source: Dan Ben-David, Shoresh Institution and Tel Aviv University

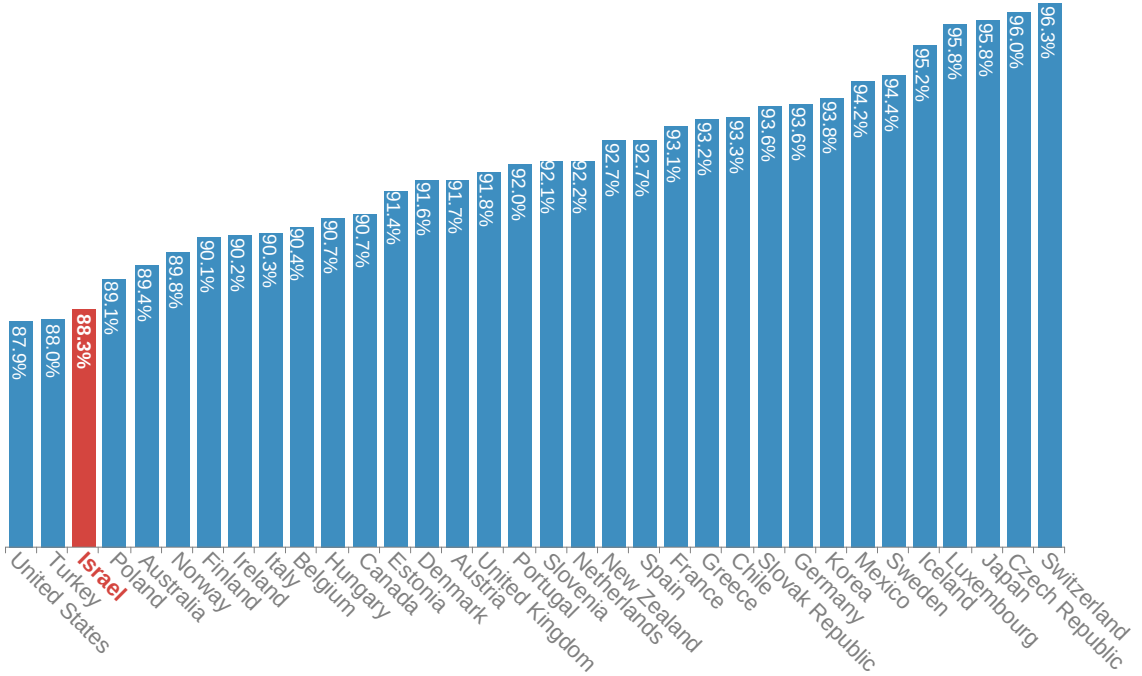
Data: OECD

... but labor force participation among prime working age men is very low

While labor force participation rates among prime working age Israeli women are nearly identical to the OECD average, they are very low among prime working age men. The share of 35-54 year old Israeli men[1] seeking employment is the third lowest among all OECD countries.

LABOR FORCE PARTICIPATION AMONG PRIME WORKING AGE (35-54) MALES

IN ALL 34 OECD COUNTRIES, 2014



Source: Dan Ben-David, Shoresh Institution and Tel Aviv University

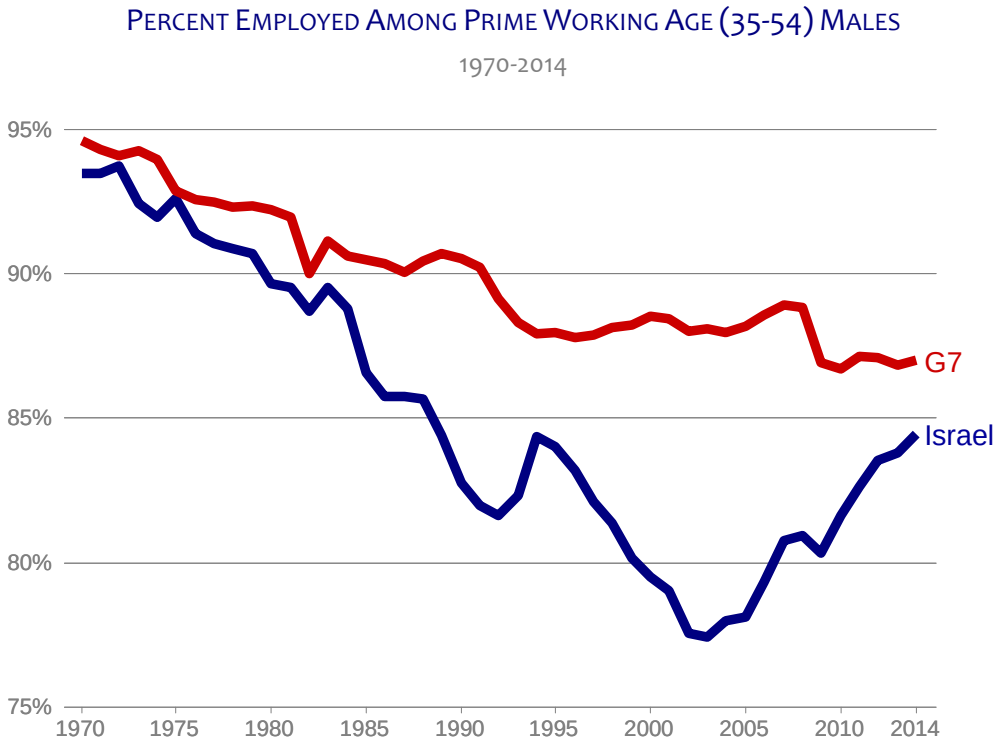
Data: OECD

[1] The prime working-age focus on 35-54 year olds rather than on the more traditional 25-54 age group is due to the fact that Israelis must serve several years in the army, which delays academic studies and entry into the work-force.

Gap in male employment between G7 and Israel

Rates of employment provide the bottom line with regard to employment among prime working age adults since they focus on the share of all those employed – whether or not they are looking for a job. Since 1970, employment rates among 35-54 year-old women have risen in both the G7 and in Israel – more so in Israel – so that in 2014 they became equal at 74%. The situation is quite different among men.

Employment rates among 35-54 year-old men have declined much more in Israel than the G7 average since 1970. Even though Israel has spent the last decade climbing out of its most severe recession since the seventies and though the G7 still has not emerged from its deepest recession since the Great Depression, the employment gap between the G7 and Israel in 2014 was considerably greater than the employment gap four decades ago.



Source: Dan Ben-David, Shoresh Institution and Tel Aviv University
Data: OECD and Central Bureau of Statistics

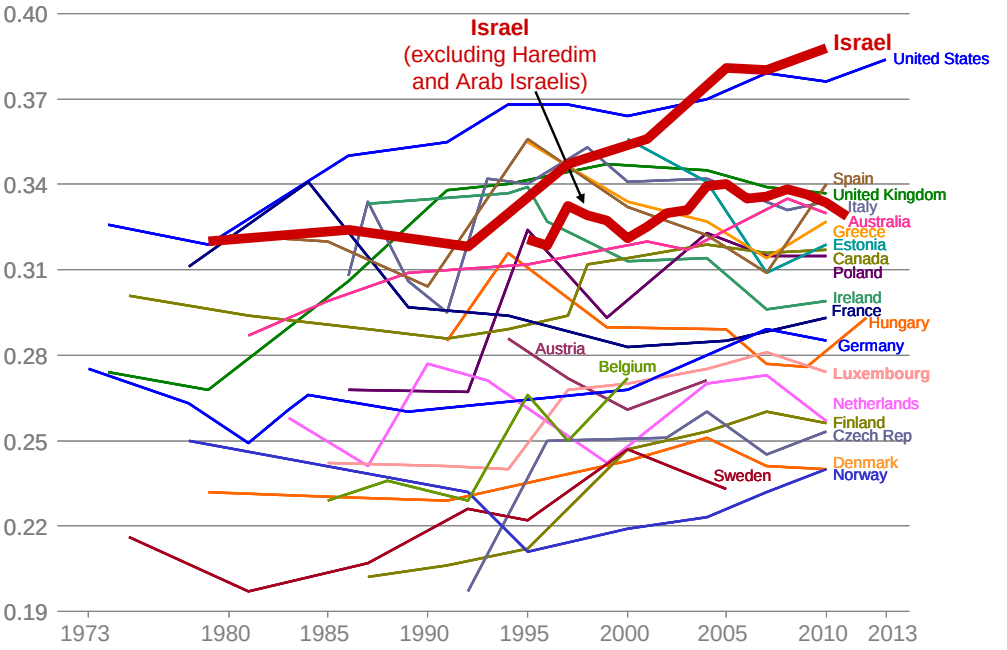
Disposable income inequality higher in Israel than in rest of developed world

The story of two Israel's in one that has been weighing down national productivity for decades is brought into greater relief when the focus turns to income inequality. Though market income inequality (that is, prior to the deduction of taxes and the addition of benefits) in Israel has been declining over the past decade – as the country emerged from its severe Intifada-related recession – it is nonetheless on a long-term path that is considerably higher today than it was in the late 1970s. Israel is among a cluster of OECD countries with roughly the same degree of market income inequality – just under that of the least equal countries, Hungary and Ireland.

On the other hand, the degree of inequality in disposable incomes (i.e. after taking into account the tax and welfare systems) in Israel has been climbing steadily and has eclipsed the disposable income inequality found in every other developed country.

INCOME INEQUALITY IN 23 OECD COUNTRIES, 1973-2013

GINI COEFFICIENT IN DISPOSABLE INCOMES*



* Gini coefficient based on individual weights

Source: Dan Ben-David and Sarit Menahem Carmi, Shoresh Institution

Data: Luxembourg Income Study and Central Bureau of Statistics

Even after excluding Haredim and Arab-Israelis, income inequality among non-Haredi Jews is among the highest in the developed world

Much of the increase in Israel's income inequality over the past two decades can be attributed to increasing poverty among two very large – and growing – segments of the country's population: Haredim (ultra-Orthodox Jews) and Arab-Israelis. That said, it would be incorrect to assume that there is no inequality issue within the remaining Israeli population.

In fact, contrary to prevailing wisdom, even after exclusion of these two population groups from the sample, income inequality among the remaining Jewish non-Haredi population remains among the highest in the developed world.

Income gaps among Israel's middle class have risen to the top of the developed world

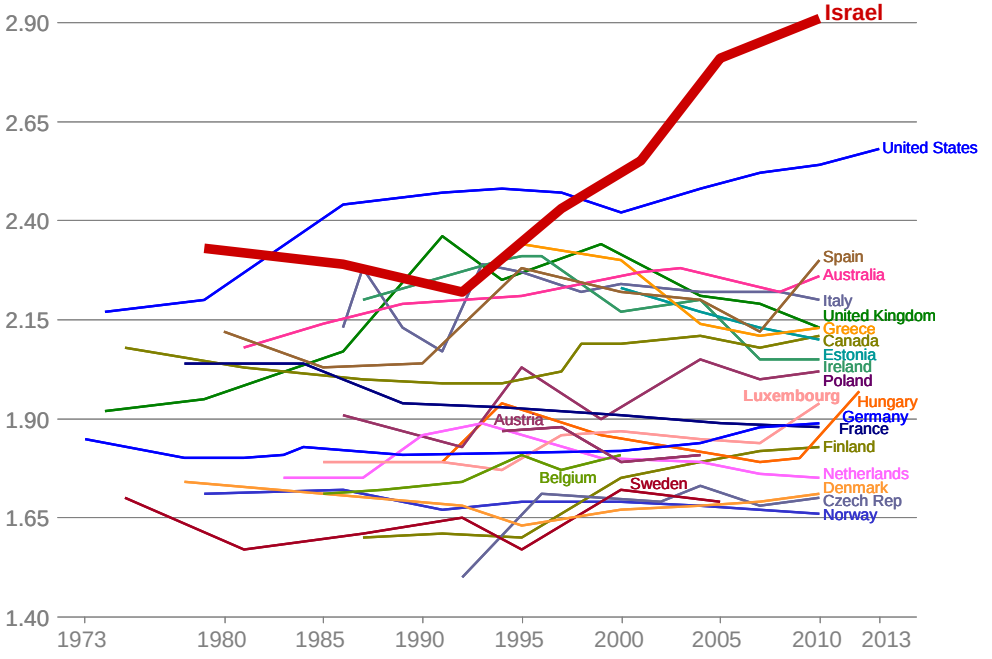
The extensiveness of Israel's income inequality is highlighted when the focus turns to the middle class. While there is no formal definition of *middle class*, a sample excluding the poorest 25% and the wealthiest 25% of the population is illuminating. The ratio of disposable income received by an individual at the 75th percentile to that received by an individual at the 25th percentile ranges from 1.5 to about 2.3 for the developed world, excluding the US and Israel.

In the United States, an individual at the 75th percentile makes over two and a half times the income of an individual at the 25th percentile. Over the past two decades, the 75%/25% ratio in Israel has risen to the peak of the developed world – reaching 2.9 in the most recent estimate.

The bottom line is that regardless of the inequality measure, Israeli conventional wisdom that the exclusion of Haredim and Arab-Israelis from the sample will lead to a dissipation of the very high inequality is simply incorrect. This issue is pervasive and extends to all corners of Israeli society.

MIDDLE CLASS INCOME INEQUALITY IN 23 OECD COUNTRIES, 1973-2013

DISPOSABLE INCOME AT 75TH PERCENTILE RELATIVE TO THE 25TH PERCENTILE*



* based on individual weights.

Source: Dan Ben-David and Sarit Menahem Carmi, Shoresh Institution

Data: Luxembourg Income Study

Growth benefits the poor: A rising tide raises all ships over time in Israel

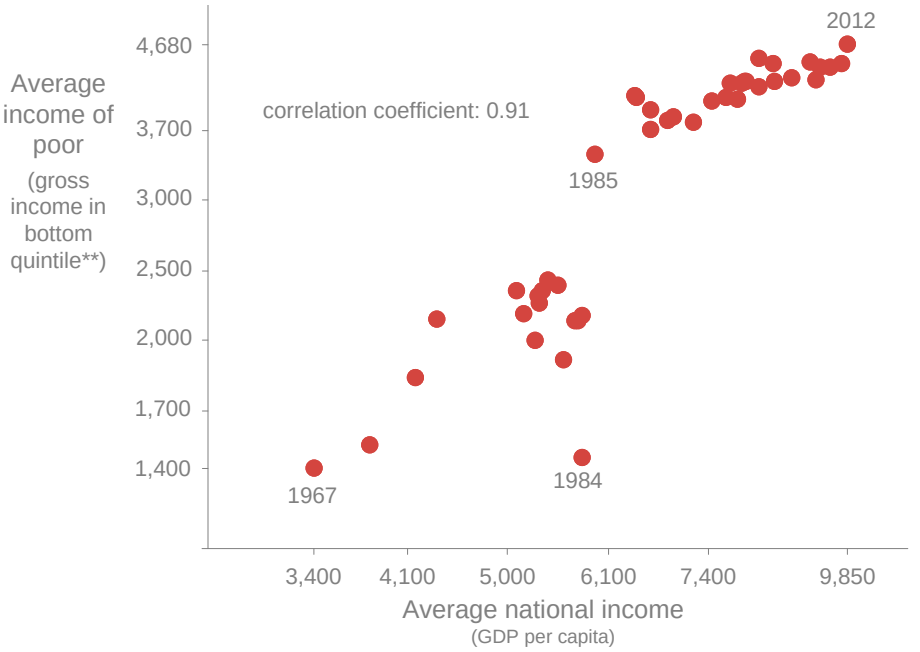
Different measurements of the poor can yield different conclusions as to the magnitude of the issue. It is important to distinguish between poverty in absolute terms (the actual income level of an individual or household) and poverty in relative terms (that is, in comparison with others in one's country).

Contrary to the beliefs of many, economic growth tends to be beneficial to the poor. While it may or may not improve their relative place on the national income ladder, economic growth does raise the poor's standard of living. The general relationship between national living standards in Israel and the average income of the poorest 20% of the households has been very strong between 1967 and 2012, with a correlation coefficient of 0.91 (the highest that this indicator can reach is one, which would indicate a perfect correlation). An outlier year in this relationship was 1984, when Israel's inflation rate peaked at 450% before implementation of the 1985 stabilization plan.

As Israel grew and became wealthier, the absolute economic situation of its poor improved.

NATIONAL INCOME AND INCOME OF THE POOR*

ISRAEL, 1967-2012



* in monthly 2010 NIS (logarithmic scale)

** gross average monthly income per household (urban only until 1996).

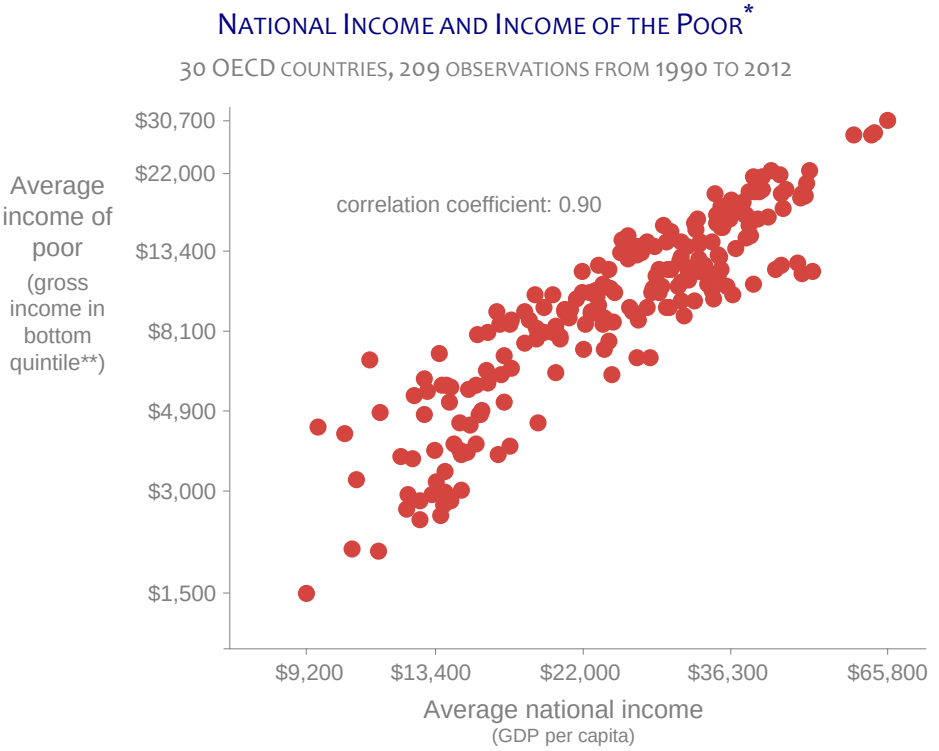
Source: Dan Ben-David, *Economic Quarterly*, 2003 (updated)

Data: Central Bureau of Statistics

Growth benefits the poor: A rising tide raises all ships across countries

The relationship between national living standards and incomes of the poor are clearly in evidence across countries. While it should be fairly obvious that the income of a poor person in a developed country will invariably be higher than that of a poor person in a developing country, this basic fact continues to be evident in a comparison that remains within the developed world as well.

As a general rule, the higher the average income level of an OECD country, the higher the income level of its poor (the correlation coefficient of 0.90 across countries is nearly identical to that found within Israel over time).



* in constant PPP adjusted 2011 dollars (logarithmic scale).

** mean income in the poorest quintile is estimated according to Dollar and Kraay (2000): the quintile share of total income times per capita GDP divided by 0.2.

Source: Dan Ben-David, Shoresh Institution and Tel Aviv University

Data: World Bank

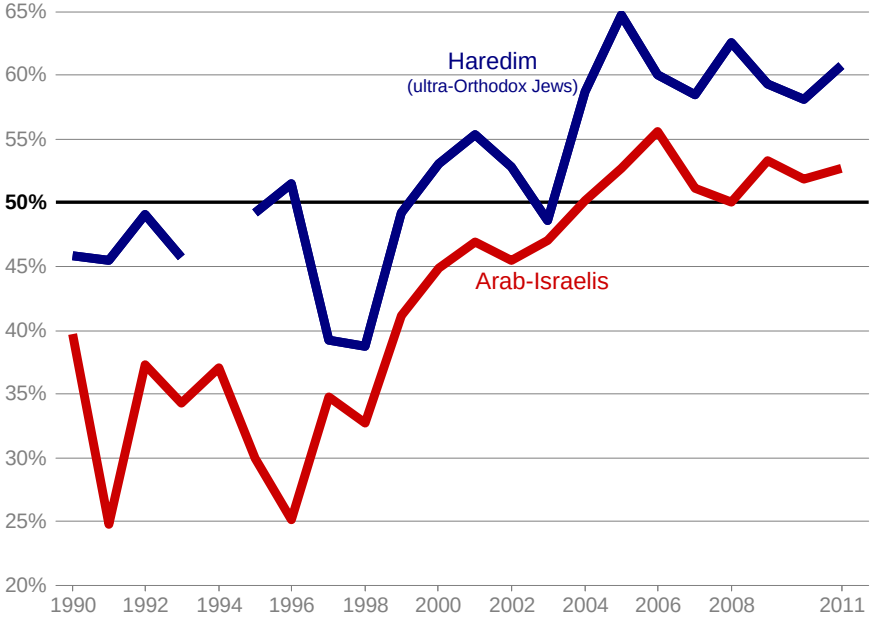
Poverty is particularly prevalent among Haredim and Arab-Israelis

At the same time that incomes of the poor rise with average national incomes, poverty may nonetheless become an increasing problem with continued economic growth. The reason for this apparent discrepancy lies between the concept of absolute poverty and relative poverty. The majority of developed countries measure poverty in relative terms. In the case of Israel, the poverty line is 50% of the country's median income. As a nation's economy grows, its median income rises – and with it, the poverty line, which may or may not leave a greater percentage of the population beneath it. Poverty may be measured for households and for individuals. In the case of Israel, the high prevalence of very large families among the country's poor yields individual poverty measures above household poverty measures.

Two population groups with particularly large families are the Arab-Israelis and the Haredim. During most of the 1990s, poverty rates fluctuated around one-third of the Arab-Israelis and just under half of the Haredim. Between the latter part of the 1990s and the middle part of the past decade, poverty rates in these two groups rose substantially, settling on roughly 52% of the Arab-Israelis in recent years and about 60% among the Haredim. In other words, the majority of individuals in each of these two large – and growing – populations is below the poverty line.

POVERTY AMONG HAREDIM AND ARAB-ISRAELIS

IN DISPOSABLE INCOMES*, 1990-2011



* based on individual weights.

Source: Dan Ben-David and Moty Citrin, Shoresh Institution

Data: Central Bureau of Statistics

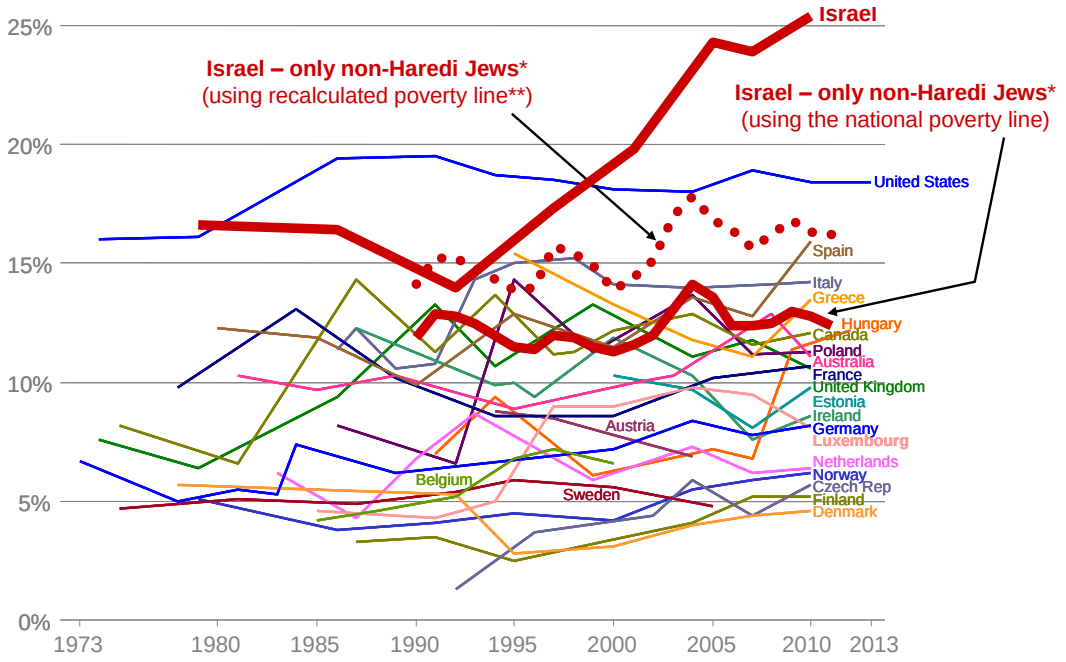
Even after excluding Haredim and Arab-Israelis, the share of non-Haredi Jewish Israelis who are poor is among the highest in the developed world

Israel's individual poverty rates on the basis of market incomes have risen from 21% in 1979 to 33% in 2010, with a slight tapering off in recent years, leaving the country at around the middle of the OECD. When the focus turns to disposable incomes, the percent of Israelis under the poverty line has been one of the two highest in the OECD since the beginning of the Luxembourg Income Study (LIS) sample.[2] However, it has spiked up since the mid-1990s and Israel's poverty rate is now quite far above that of the 22 remaining developed OECD countries in the LIS sample. The marked increase in the share of Haredim and Arab-Israelis under the poverty line is the primary cause underlying the national increase.

Consequently, many Israelis feel that poverty among the remaining share of the population – Jewish non-Haredim, who are the majority of Israelis – is not a major issue. Actual facts confound this conventional wisdom, with poverty among non-Haredi Jews at rates that are among the highest in the developed world.

PERCENT OF INDIVIDUALS UNDER THE POVERTY LINE

IN DISPOSABLE INCOMES, 23 OECD COUNTRIES, 1973-2013



* No observation for 1994.

** Poverty line recalculated for only non-Haredi Jews.

Source: Dan Ben-David and Sarit Menahem Carmi, Shoresh Institution

Data: Luxembourg Income Study and Central Bureau of Statistics

[2] The Luxembourg Income Study (LIS) provides what are probably the most accurate income comparisons across countries.

Since poverty lines are a relative measure, then the exclusion of Haredim and Arab-Israelis from the sample should conceivably change the calculation of the poverty line as well. In fact, when the poverty line is reestimated just for the Jewish non-Haredi population, it turns out that had this group been a separate country, it would have had the second highest poverty rates in the developed world.

In summation, the poverty issue in Israel is considerably more pervasive than what most Israelis tend to believe. As such, it needs to be dealt with on a nation-wide scale that clearly needs to include the Haredi and Arab-Israeli population groups – but must also extend far beyond.

The root (*Shoresh*) issues in education and employment

The conventional wisdom is that countries need to find a balance between policies concentrating on reducing poverty and policies focusing on increasing economic growth. This rationale emanates from the more common emphasis of dealing with the symptomatic aspects of these issues. Specifically, poverty reduction can be enhanced by provision of additional government aid, requiring higher taxes that subsequently reduce the incentive to work and invest, which in turn inhibits growth. The provision of welfare assistance to those in need is one of the important hallmarks of a modern society. But it should not be confused with treatment of the root issues.

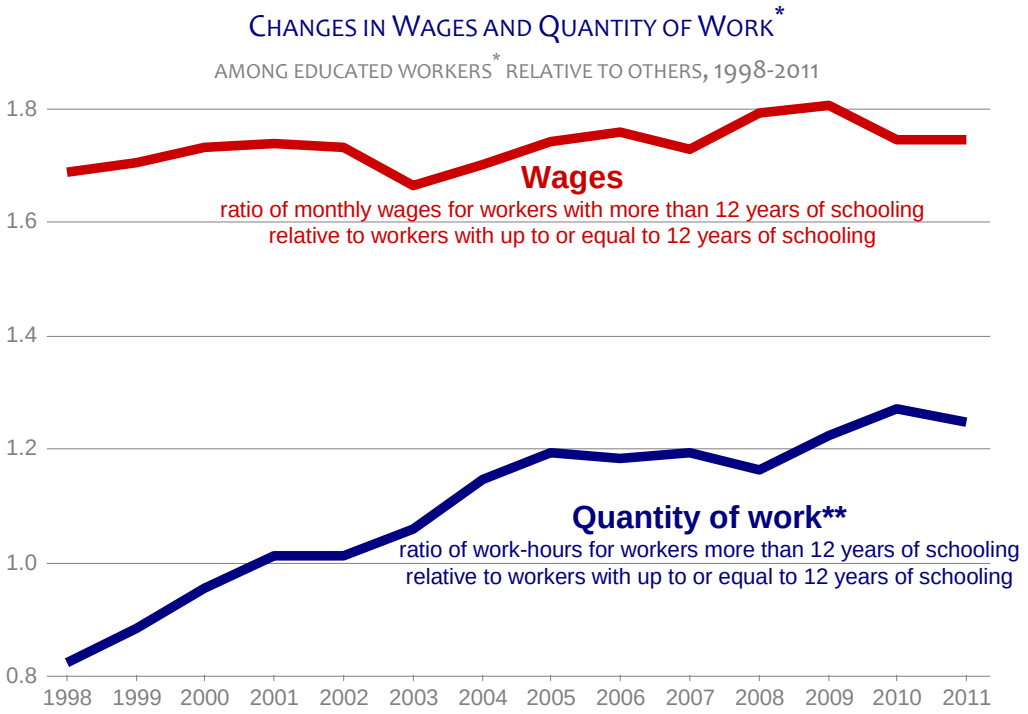
Israel's core poverty problem is highly related to its productivity problem. Underlying Israel's unsustainable long-run socioeconomic trajectories are fundamentally inadequate infrastructures – from the human capital (education) infrastructure through the physical capital and bureaucratic infrastructures. Probably the most important of all these is the inadequate state of Israel's human capital infrastructure. Alongside some of the world's best universities and most innovative high-tech sectors is a very deficient primary and secondary education system.

Educated persons receive higher wages and work more

As an economy develops, the economic growth process entails a continuously increasing demand for educated and skilled workers – with just the opposite for those who are poorly educated and unskilled.

The wages of Israeli workers with more than 12 years of education have risen by more than the wages of those with up to 12 years of education. Similarly, the quantity of work by Israeli workers with more than 12 years of education rose by more than those with up to 12 years of education.

The fact that both relative wages and the relative quantity of work rose is an indication of a movement upwards and to the right along the supply curve – which is caused by a relatively greater increase in the demand for educated workers than in their supply.



* full-time employees

** total number of annual hours worked

Source: Ayal Kimhi, Moty Citrin and Oren Tirosh, Shoresh Institution

Data: Central Bureau of Statistics

Individuals with no more than an 8th grade education comprise the largest group of Haredi men

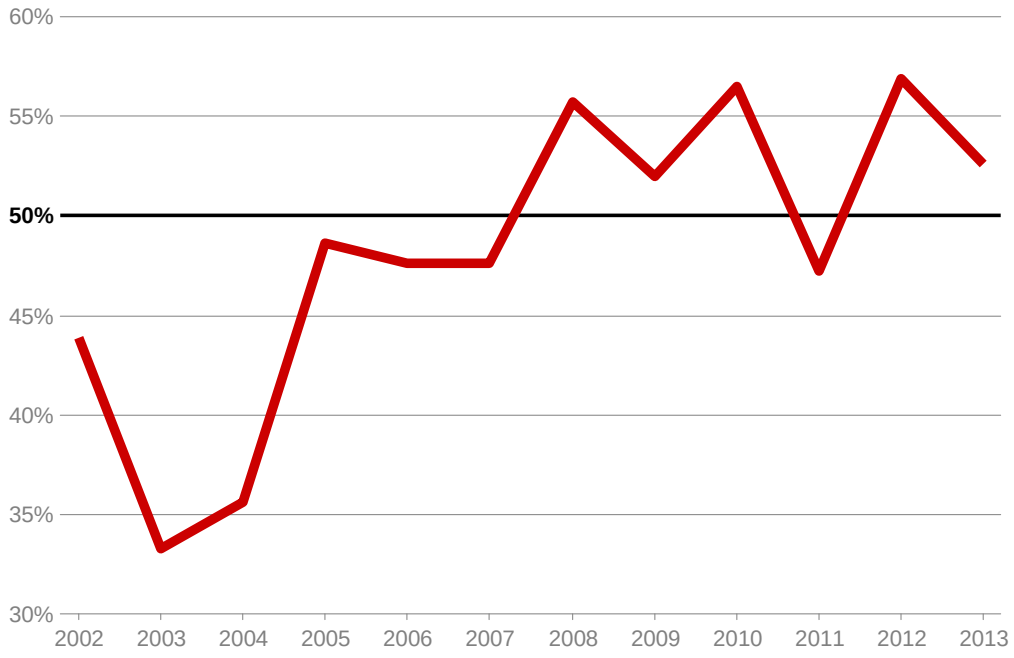
In light of education's impact on employment and wages, evidence with regard to what has been transpiring among Haredi men over the past decade lies in complete contradiction with the future needs of this group – and of Israeli society.

When Haredi men in Israel are divided into four groups according to their highest attained level of education – primary (grades 1 to 8) and below, secondary, post-secondary non-academic, and academic – the largest group, by far, is the share of Haredi men with no more than an eighth-grade education (and even this "core education" that they receive tends to be very partial, with no study of science or English and very low levels of math).

Contrary to beliefs that continue to prevail in Israel, this group of Haredi men is not only large, it has actually increased over the past decade. Today, more than half of the sizeable and rapidly growing Haredi male population has no formal education beyond eighth grade.

SHARE OF HAREDI MEN WITH NO MORE THAN AN EIGHTH GRADE EDUCATION

2002-2013



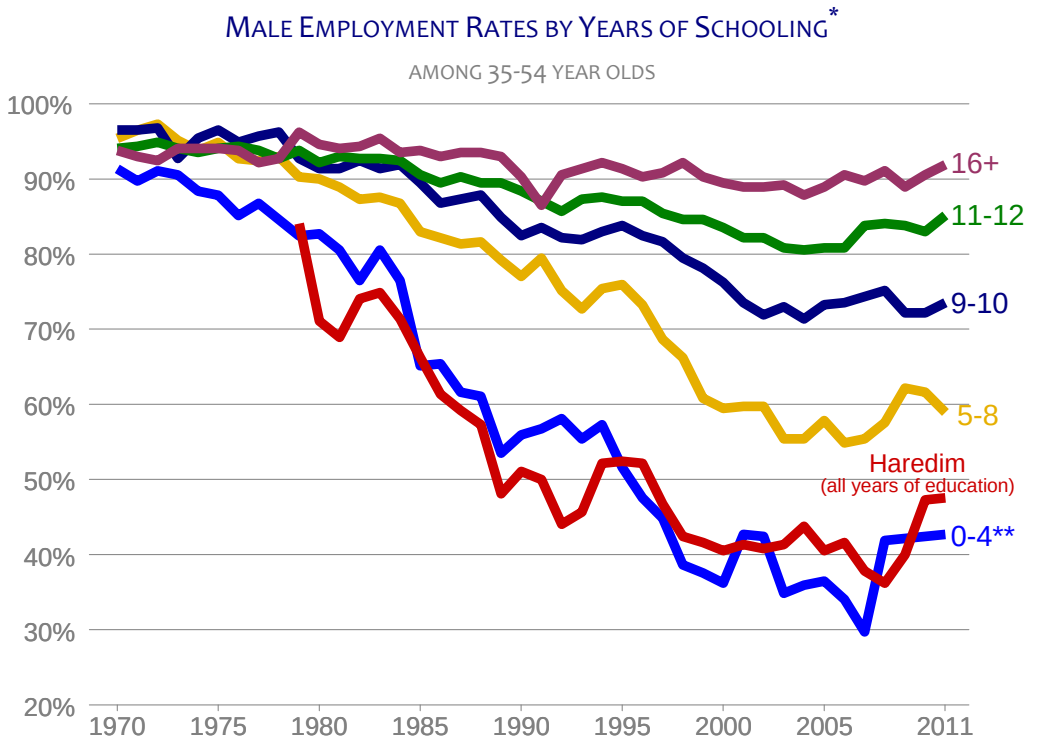
Source: Dan Ben-David, Shoresh Institution and Tel Aviv University

Data: Central Bureau of Statistics

Increasing demand for educated and falling employment among uneducated

Israel's labor market reflects the country's evolution into a developed economy. In the less-developed Israel of the early 1970s, over 90% of all prime working-age men in all education groups were employed. Although there has been a decline in the supply of relatively uneducated men over time, the fall in demand for such men has been more precipitous. As a result, the fewer the years of education, the lower the employment rates – and the faster the rate of decline in employment.

In the case of Haredi men, the sharp decline in employment rates over the past 3 decades mirrored the employment decline among completely uneducated males. In view of the Haredim's rapid demographic growth, this is a situation that is not sustainable over the long-run. Recent years saw a slight recovery in employment across the board – including among Haredim – as the Israeli economy exited its serious recession.



* 1970-1978 includes Haredim, 1979-2011 excludes Haredim.

** 1-4 years of education for 1970-1978

Source: Dan Ben-David, Shoresh Institution and Tel Aviv University (in the Taub Center's *State of the Nation Reports 2010-2012*)

Data: Central Bureau of Statistics

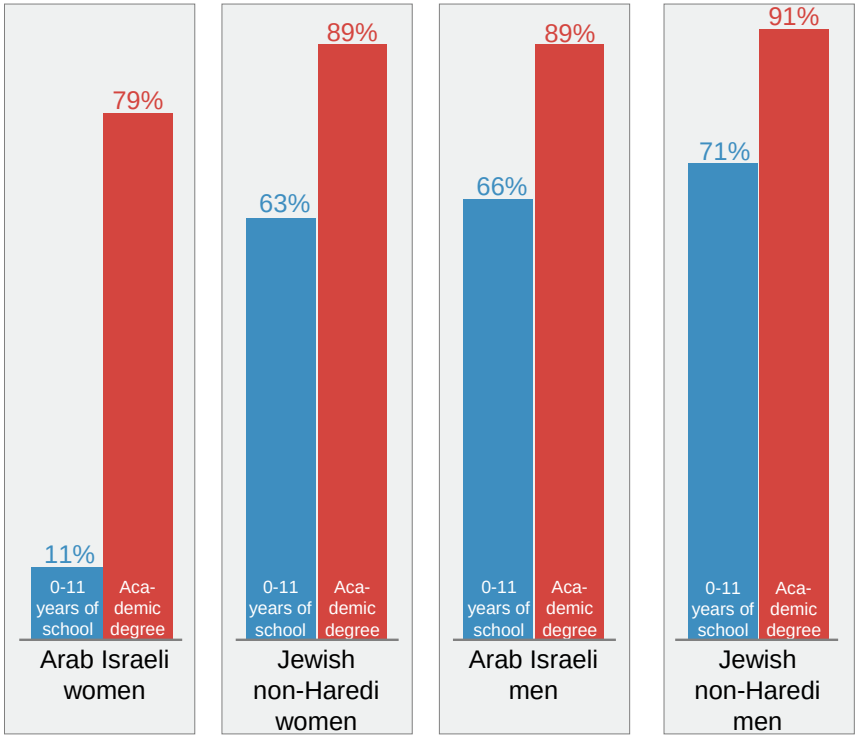
Higher education yields higher employment rates for Jews and Arab-Israelis, men and women

The impact of education on employment affects both genders and all population groups. Among relatively uneducated Arab-Israeli women – those with no more than 11 years of schooling – only one in ten is employed. The picture is better among poorly educated non-Haredi Jewish women and men as well as among Arab-Israeli men, with roughly two-thirds employed.

Employment rates jump to 9 in 10 for these groups, and to 8 in 10 for Arab-Israeli women, when the focus turns to individuals with an academic degree. That said, it matters greatly what a person studies, at what level and the quality of the institution. These have a very large impact on the likelihood of finding work in one's area of choice and in terms of compensation.

EMPLOYMENT RATES AND EDUCATION

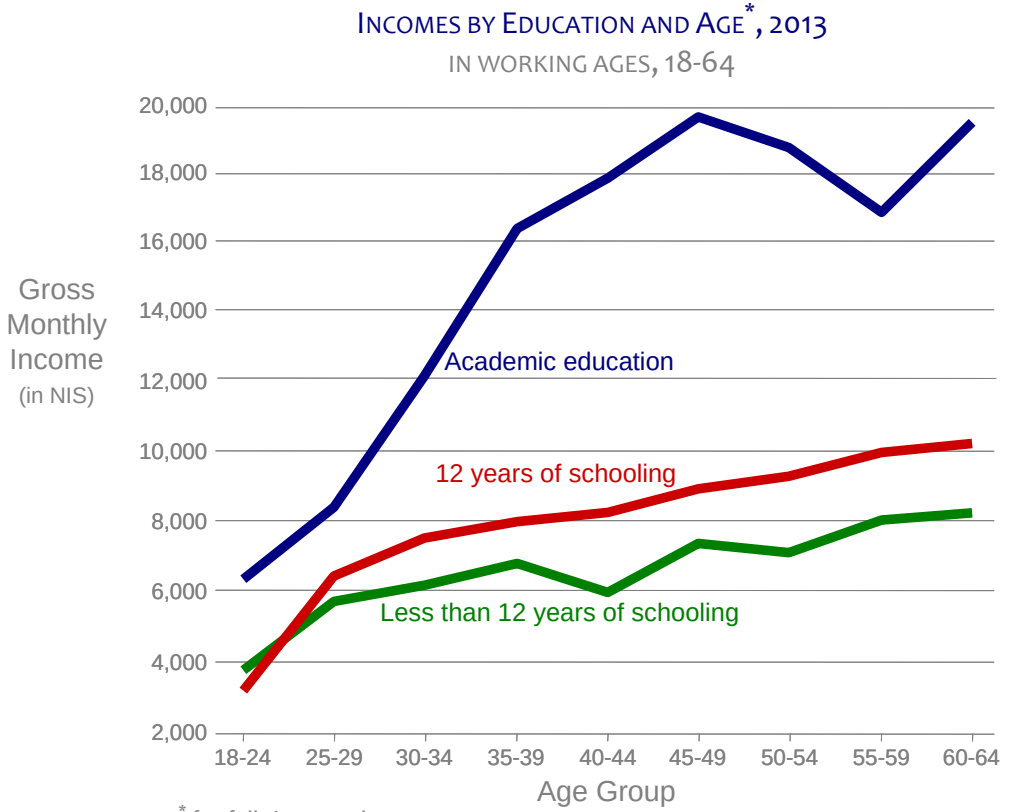
AMONG 35-54 YEAR OLDS, 2011



Source: Dan Ben-David and Eitan Regev
(in the Taub Center's *State of the Nation Report 2011-2012*)
Data: Central Bureau of Statistics

Higher education yields higher incomes and larger gaps

Those with no more than a high school education and those with even less education tend to enter the job market at the minimum wage. As they gain experience, their incomes rise – with high school graduates opening up an income gap that remains for the rest of their working lives. Academic graduates open up an even bigger income gap vis-à-vis the other two groups. In all cases, incomes rise with experience and seniority during the first few decades of work.[3]



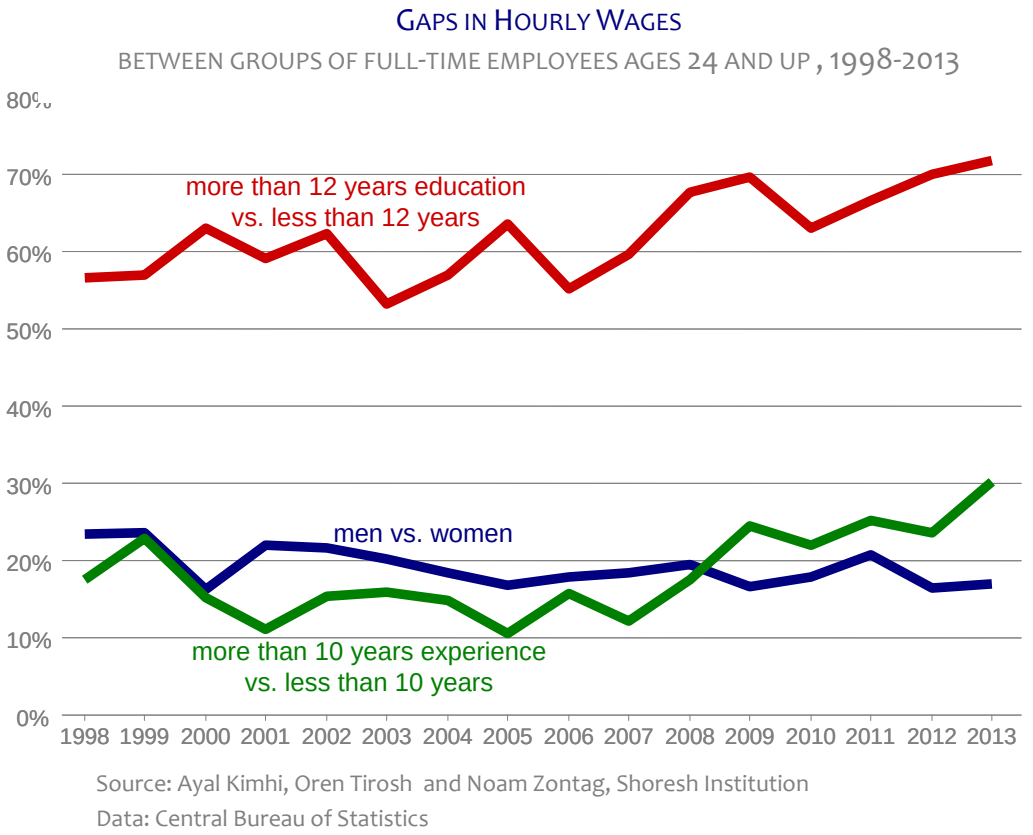
* for full-time employees

Source: Dan Ben-David and Noam Zontag, Shoresh Institution
Data: Central Bureau of Statistics

[3] Survey data in Israel does not include panel information that follows the same individuals over time. Consequently, outcomes in this graph reflect a cross-section of individuals in different age groups at a given point in time, 2013.

Wage gaps due primarily to education gaps

Wage gaps resulting from differences in education levels are the primary source of the high and rising inequality within Israel. Not only are these gaps substantially higher than wage gaps between men and women and between experienced and relatively inexperienced workers, the education-related gaps have been rising in recent years.



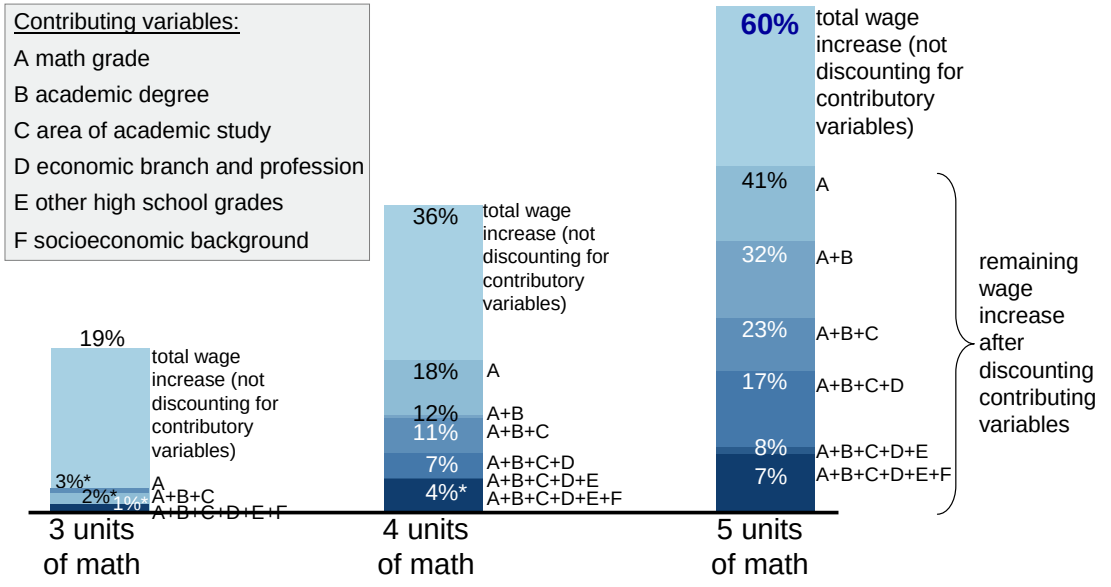
Math study at a higher level in high school yields higher wages later in life

While the quantity of education is an important determinant of wages, the quality of education is vitally important in this regard as well. For example, the impact of high-level mathematics study in high schools on eventual wages transcends the various mediating factors between high school and the labor market. Prior to accounting for these factors, pupils taking the math matriculation (*bagrut*, in Hebrew) exam at 3 units subsequently earned 19% more than those who studied at lower levels. This gap increase to 36% for those taking the exam at 4 units and increased further, to 60%, for those studying math at the highest level, 5 units.

Grades are an important explanatory variable for all levels of math study. Once their impact on wages is accounted for, the remaining contribution of 5 units drops to a 41% wage gap. As additional explanatory variables are accounted for, the distilled impact of 5 units on hourly wages yields a statistically significant wage increase of 7% per hour.

CONTRIBUTION OF MATH STUDY TO HOURLY WAGES

VERSUS INDIVIDUALS NOT MATRICULATING IN HIGH SCHOOL MATH**



* variable that is not statistically significant

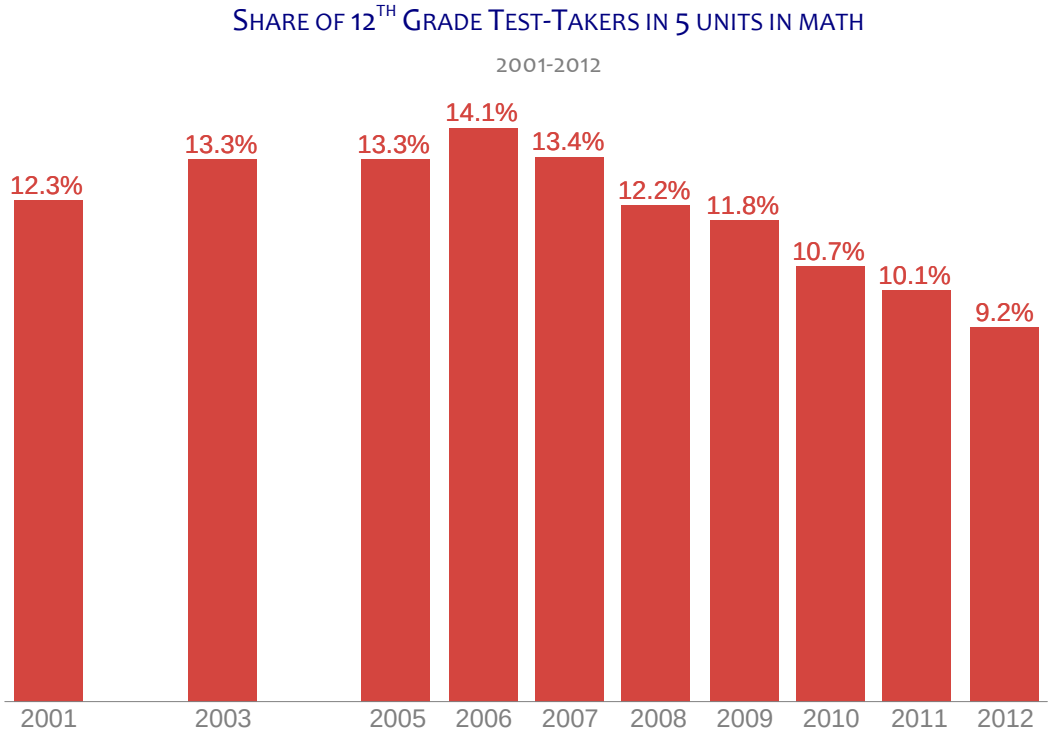
** among salaried employees, for each high school math level.

Source: Ayal Kimhi and Arik Horovitz, Shoresh Institution
(based on findings from 2015 Taub Center study by the same authors)
Data: Central Bureau of Statistics

A declining share of Israelis studying math at the highest level

Although the study of math at the highest levels plays an important role in determining future wages, the share of Israeli 12th graders taking the math matriculation exams at the highest possible level has been declining in recent years. After rising from 12% to 14% at the turn of the millennium, there has been a decline of over one-third in the percentage of test-takers in 5 units of math.

Clearly, mathematics is not the only core curriculum subject to play an important future labor market role – and this particular study is only a pilot for a much more extensive examination by Shoresh researchers of the role that core studies have on subsequent labor market outcomes.



Source: Ayal Kimhi and Arik Horovitz, Shoresh Institution
(based on findings from 2015 Taub Center study by the same authors)
Data: Central Bureau of Statistics

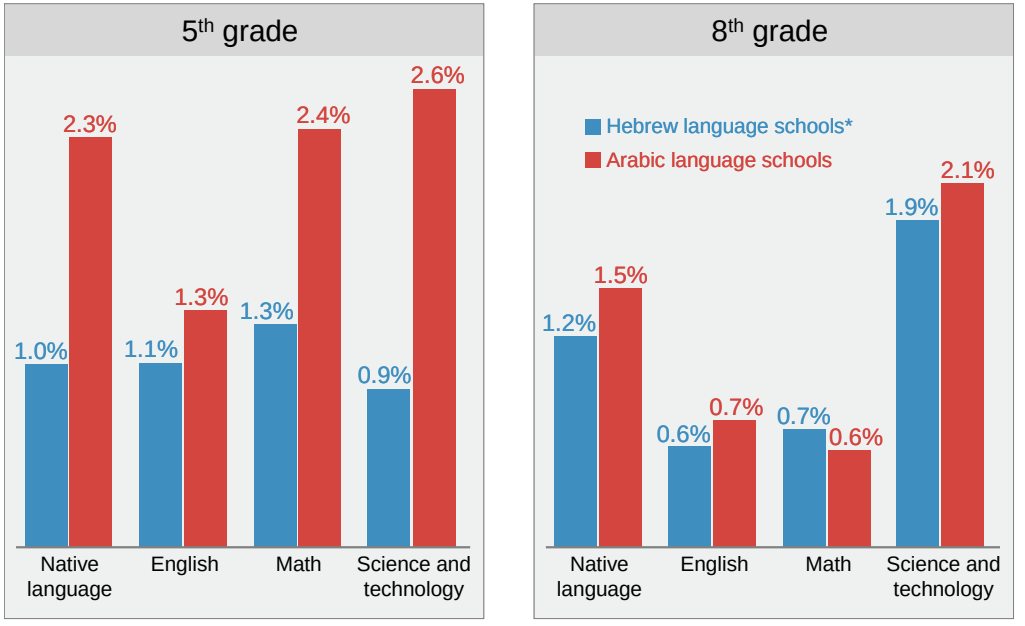
Some improvements in educational achievement at the lower grades

Reaching high levels of core courses at the high school level – a precursor to later university studies – requires improving and enlarging the funnel at the primary and secondary school levels.

In this regard, there has been some improvement in recent years – more so among Arabic speakers than among Hebrew speakers, which is important for reducing educational gaps between the two groups. But the overall knowledge level in Israel is still considerably below what is currently being provided abroad by the country's primary economic competitors.

AVERAGE ANNUAL CHANGE IN MEITSAV EXAM GRADES

2008-2013



* Not including Haredi pupils.

Source: Dan Ben-David, Shoresh Institution and Tel Aviv University (in the Taub Center's *A Picture of the Nation 2014*)

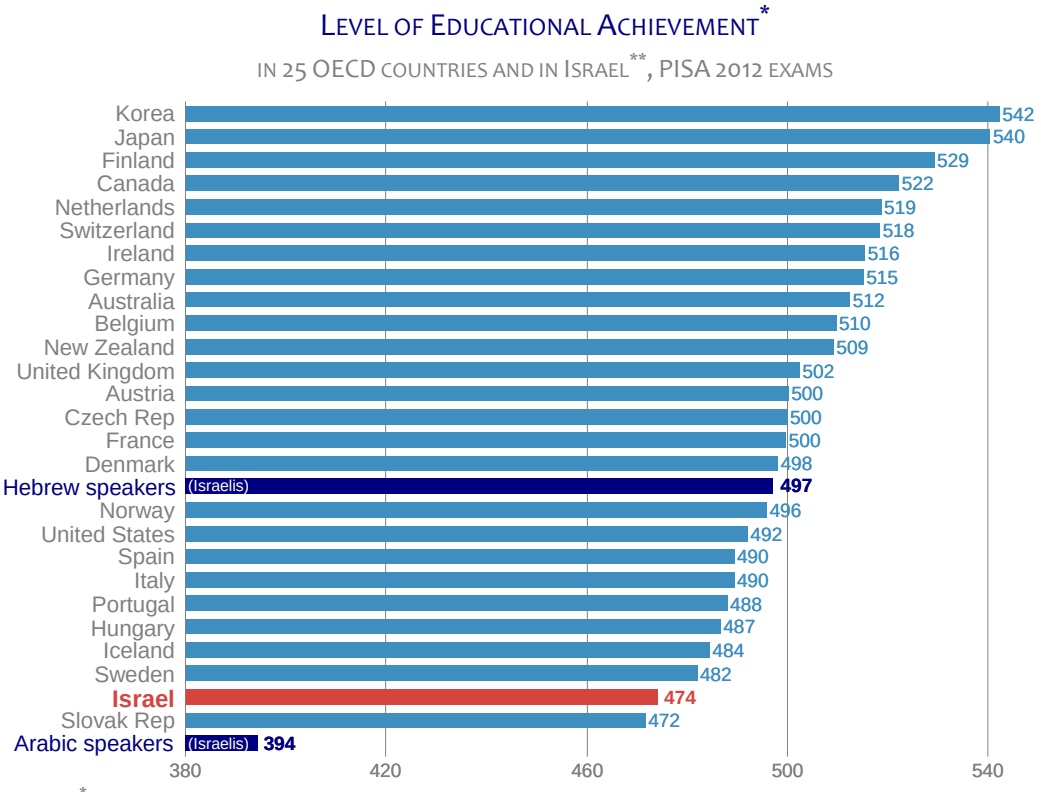
Data: National Authority for Educational Measurement and Evaluation

Educational achievement in core subjects near bottom of developed world

Israel's small size means that it does not have the economies of scale that larger countries have. Hence, it is highly dependent on international trade to ensure economic viability for its domestically-sourced products, and for the supply of many commodities and services that Israel is unable to produce. Israel cannot, and should not, compete in low-end production at developing world salaries. Only high-end markets can yield high wages.

The average achievement level of Israeli children in math, science and reading is below 24 of the 25 relevant OECD countries. Had the Haredi (ultra-Orthodox Jewish) children participated in the exam, Israel's national average would have been even lower since most do not study this material. Achievement levels of non-Haredi Hebrew speakers were below the median country while the education that Israel provides it Arabic-speaking children yielded results below many developing countries (including neighboring Jordan).

These are the primary educational tools that Israeli children are receiving, and this is the state of preparedness – or lack thereof – that they will have when they next compete with the children from these other countries in the marketplace.



* national average in math, science and reading exams.

** Israel not including Haredi Jews

Source: Dan Ben-David, Shoresh Institution and Tel Aviv University (in the Taub Center's *A Picture of the Nation 2014*)

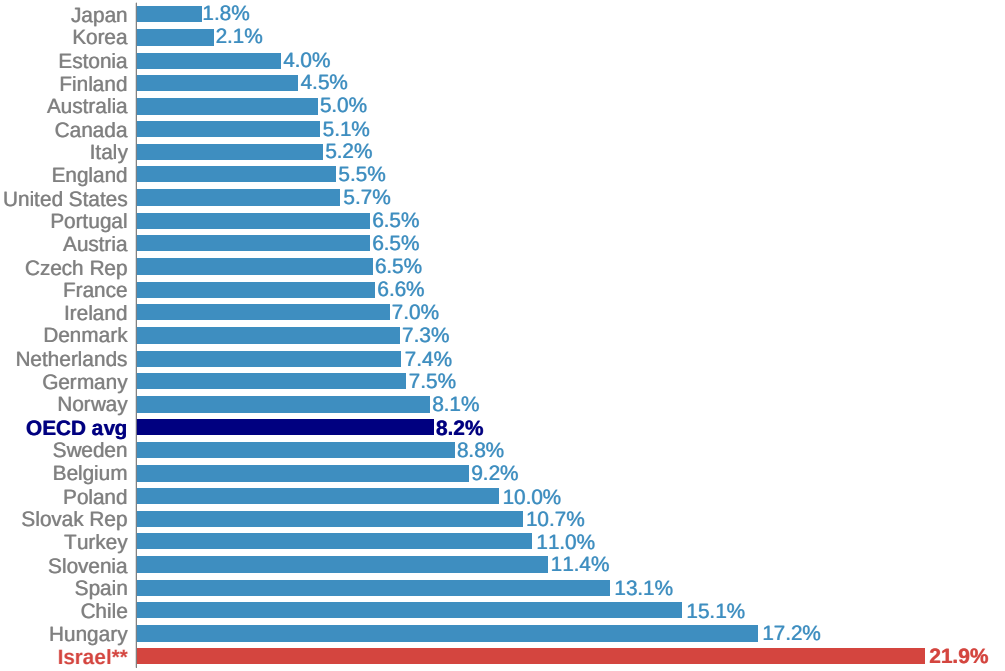
Data: PISA

Problem-solving abilities at the bottom of developed world

The failure of Israel's education system extends far beyond the low level of math, science and reading knowledge possessed by its children. The OECD administers an additional exam focusing on simple problem-solving abilities. It defines six levels of problem-solving abilities, from the highest Level 6 to the lowest Level 1. As specified by the OECD, "Level 1 students tend not to be able to plan ahead or set sub-goals." Looking towards the future, these kids are prime candidates for lives of poverty in a modern, competitive, global economy.

22% of Israeli pupils were unable to even reach the OECD's minimum Level 1 of problem-solving. No other OECD country approaches this rate of inability – which does not even include Israel's Haredi children. When such a large share of children receive developing world levels of education and primary skills, it should be clear what kind of a future awaits – unless the knowledge from Israel's state-of-the-art universities reaches them before they grow up.

PERCENT OF PUPILS BELOW THE OECD'S MINIMUM PROBLEM SOLVING LEVEL*, 2012



* The share of pupils below Level 1

** Israel not including Haredi Jews

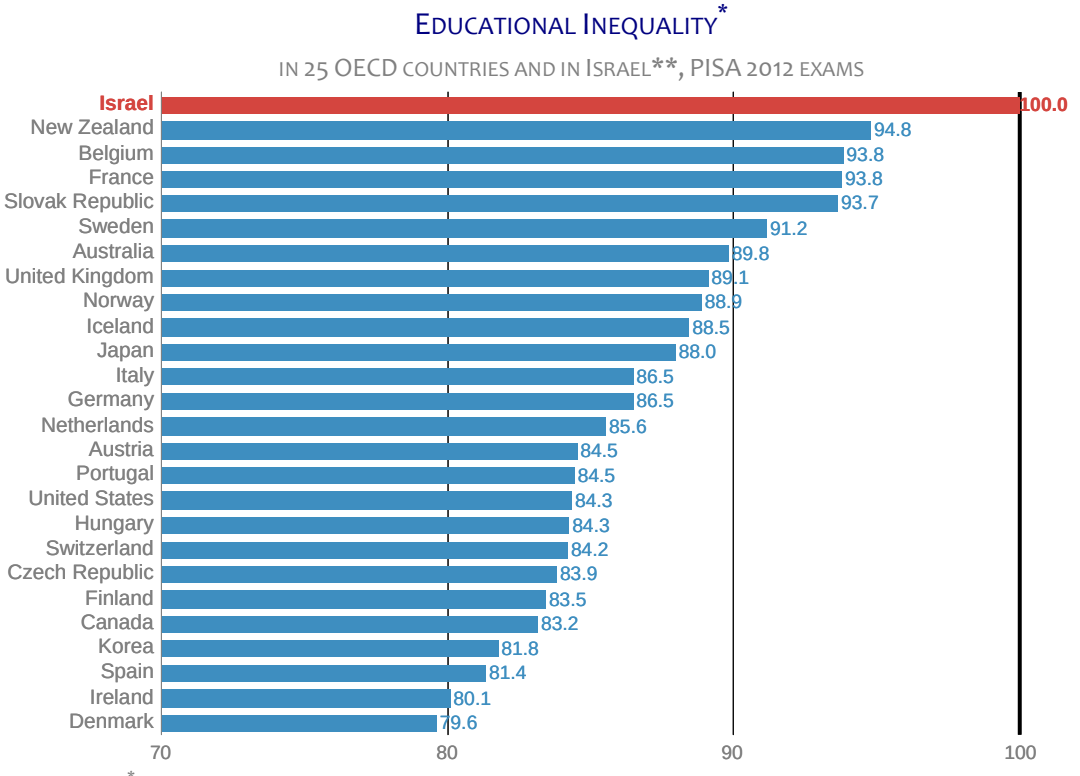
Source: Dan Ben-David, Shoresh Institution and Tel Aviv University

Data: PISA and Israel's National Authority for Educational Measurement and Evaluation

Educational inequality in core subjects at top of developed world

While the average level of achievement in math, science and reading among Israeli children lies near the bottom of the developed world, the average disparity in these subjects within Israel is far and away the highest among developed countries. In fact, the educational gap between Israeli children has been the highest in the developed world in every single international exam administered since 1999 – and here two, the gap within Israel would have been even higher had the exams included Haredi children.

When the education infrastructure is the launching pad into the workplace, there should be little doubt as to how this exceptionally high degree of educational inequality will be later reflected in high income inequality.



* national average standard deviation in math, science and reading exams.

** Israel not including Haredi Jews

Source: Dan Ben-David, Shoresh Institution and Tel Aviv University

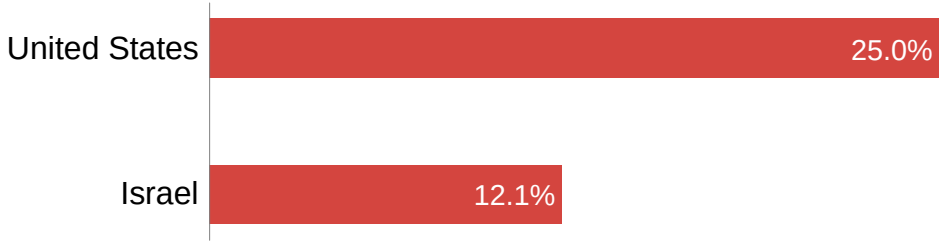
Data: PISA

Share of American Haredim with academic degrees is double the share of Israeli Haredim with academic degrees

The primary reason that Haredi Jews in Israel are so poorly educated appears to be related more to their political power within the country than to actual religious constraints. They do not allow the full national core curriculum into most of their classrooms and schools and, as shown above, most men do not even receive a formal education beyond eighth grade.

A unique feature of Israel's education system is that it allows Haredi parents to use religion as a means to prevent their children from receiving an education that will provide them with alternatives when they become adults. Consequently, it is very difficult for such individuals to eventually reach higher education, even if they may one day become interested in doing so.

SHARE OF HAREDIM WITH AN ACADEMIC DEGREE, 2013*



* Adults 18 and up in the US and 20 and up in Israel.

Source: Dan Ben-David, Shoresh Institution and Tel Aviv University
Data: Central Bureau of Statistics and Pew Research Center

A comparison of educational attainment at the academic level – between Haredim in Israel and Haredim in the United States – is useful in illustrating the line between religion and politics. Though their adherence to the Jewish religion is ostensibly similar, the share of Haredi Jews in the States with academic degrees is twice that of Haredi Jews in Israel.

Education and the Jewish religion were not always considered foreign to one another as they may appear to some today. After all, Maimonides, the Rambam, was a physician – and, an illuminating example from more recent times: the Lubavitcher Rebbe Schneerson was as an electrical engineer who studied mathematics at both the University of Berlin and the Sorbonne.

Share of prime working-age Israeli Haredim with academic degrees very low – and steady

The opening of Haredi colleges in recent years has led to a popular sentiment that Israel is finally turning the corner on the education issue among Haredim. There has been a substantial increase in the number of Haredim in higher education, something that is visible and reported on frequently in the press.

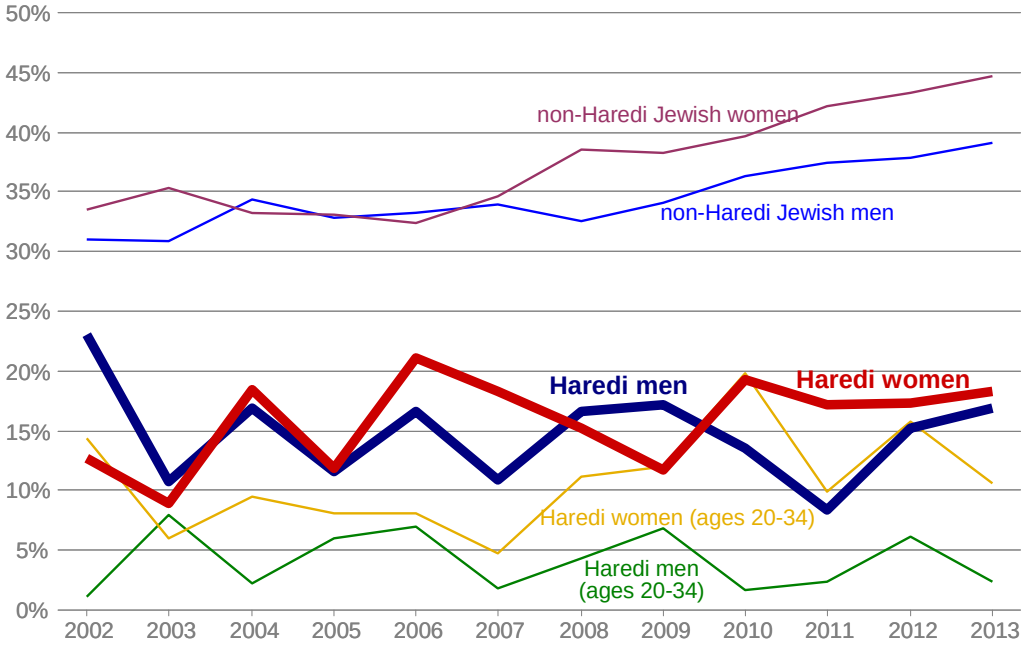
However, there is a need to beware of the fallacy of composition from anecdotal evidence. After all, this is a rapidly-growing population group. Hence, the more relevant measure is not the absolute number of Haredim with an academic degree but the share of Haredim with such degrees.

Sharpening the focus further, the percentage of prime-working age (35-54 year-old) Haredi men and women with academic degrees has been very low and – despite the volatility due to the small sample sizes – relatively stable over the past decade. This contrasts sharply with the much higher, and rising, rates of academic attainment among non-Haredi Jews in Israel.

When the age group is lowered to 20-34, the rates are even lower for the men while in the case of women, these have risen to rates roughly similar to those among prime working-age Haredi women.

SHARE OF PRIME WORKING-AGE JEWISH-ISRAELIS WITH ACADEMIC DEGREES

AGES 35-54 (UNLESS SPECIFIED OTHERWISE), 2002-2013



Source: Dan Ben-David and Ira Yaari, Shoresh Institution

Data: Central Bureau of Statistics

The root (*Shoresh*) issues in additional realms

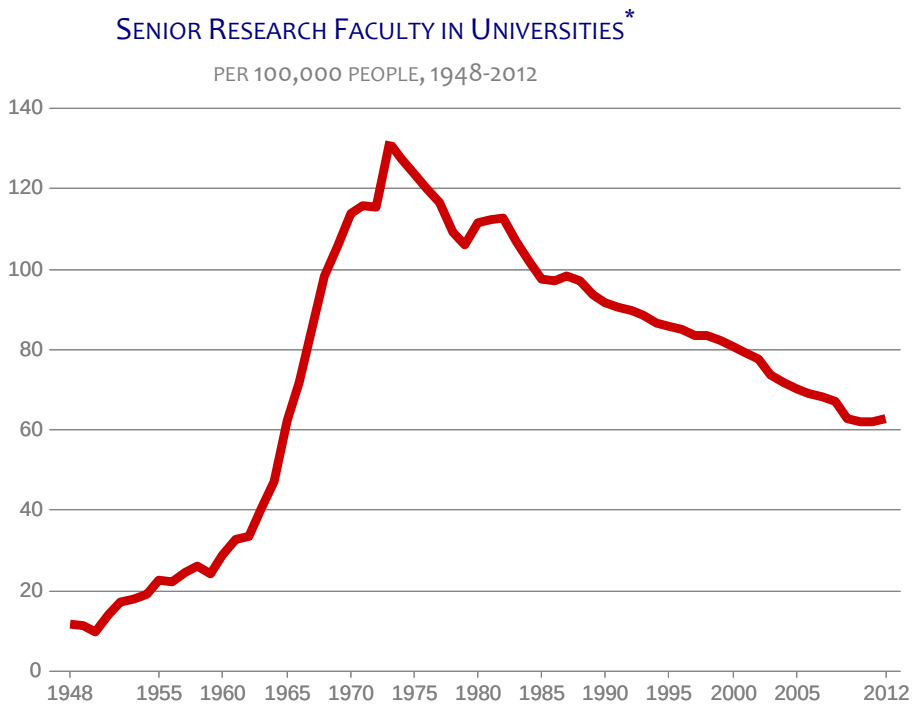
The primary recurring theme in this handbook is the change in national priorities that changed the course of the nation – and the turnaround in national priorities that will be necessary for returning Israel to a viable trajectory. Nowhere are the changes in national priorities more vivid than in some of society's most basic infrastructures highlighted in this section.

Israel's universities – the turnaround in national priorities in the 1970s

The key to increasing growth is Improving productivity, which in turn is enhanced by research and development. One of the fundamental factors in this regard is the quality of a country's basic research universities. Israel is essentially a nation-wide technology hub around some of the leading universities in the world.

It was not always this way. When Israel was primarily a poor country with agricultural produce comprising half of its exports, it built research universities for its future. During its first decades of existence, Israel increased the number of university researchers at an exponential rate. The national priorities of the time yielded seven research universities by the mid-1970s, with the number of research faculty per capita nearing American levels.

Then Israel's priorities changed – with a vivid characterization of this in the country's research institutions. Though Israel became wealthier and the external threats diminished, not a single research university was established over the past four decades (the case of Ariel is primarily political and not a part of any strategic higher-education plan). After the number of senior faculty per capita climbed rapidly for two and a half decades, the turnaround came in the seventies. Over the next four decades, between 1973 and 2012, the number of senior faculty per capita in Israel fell very steadily – dropping by more than half.



* Senior research faculty includes full professors, associate professors, senior lecturers and lecturers.

Source: Dan Ben-David, "Brain Drained" (2008) updated

Data: Central Bureau of Statistics and the Council for Higher Education's Planning and Budgeting Committee

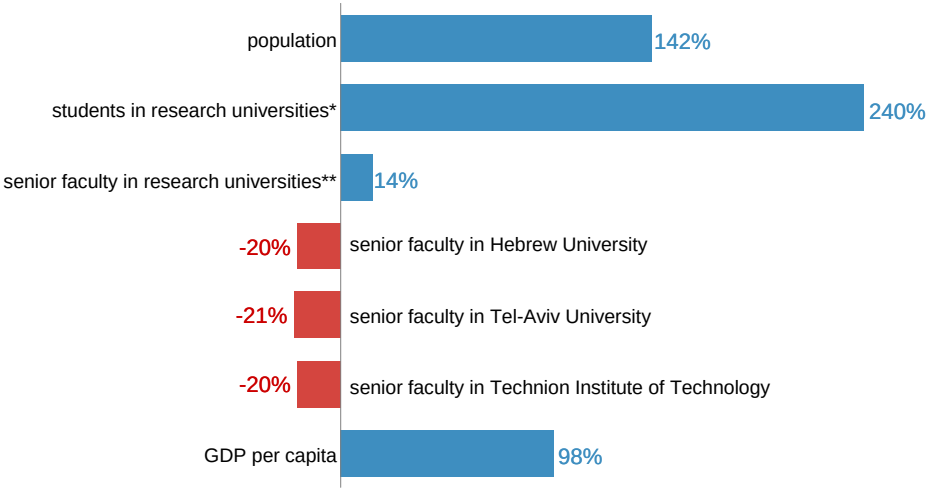
One-fifth less senior faculty in the top universities than four decades ago

Although the population more than doubled and the number of students in the universities grew to almost 3 and half times what it was in the 1970s, then number of research faculty grew by only 14%. Even if one adds the non-research colleges – which have become the preferred policy direction since the 1970s – the number of students in higher education grew by 5 and a quarter fold while the total number of senior faculty, research or otherwise, in higher education grew by 40%.

The number of research faculty in the country's top two universities actually fell in absolute terms, with 20% and 21% fewer positions at the Hebrew University and Tel-Aviv University, respectively, when compared to the state of these institutions in 1973. Even at the Technion, the number of senior faculty was allowed to fall by 20% over the past four decades – and this in a country that declares hi-tech as its path to the future.

There was an effort in recent years to end these declines with the creation of special research centers affiliated with the universities. Unfortunately, the country's higher education data is collected at a very slow pace, so it is still too early to gauge the effects of these policy changes.

CHANGES FROM 1973 TO 2012



* from 1974.

** Senior research faculty includes full professors, associate professors, senior lecturers and lecturers.

Source: Dan Ben-David, "Brain Drained" (2008) updated

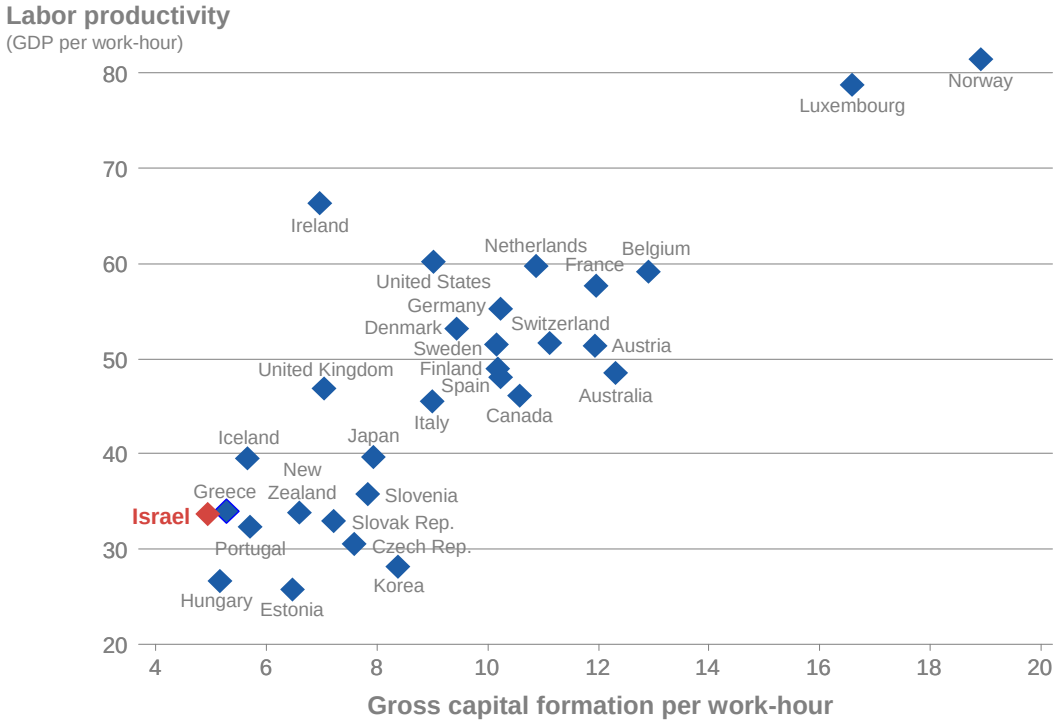
Data: Central Bureau of Statistics and the Council for Higher Education's

Low capital investments yield low productivity

Productivity improvements require investments in human and physical capital. There is a strong relationship between physical capital investments and labor productivity across the developed world. When the amount invested per hour worked in Israel is at the bottom of the OECD, it should not come as a surprise that the amount produced per hour – i.e., labor productivity – is also very low.

CAPITAL INVESTMENTS AND LABOR PRODUCTIVITY*

IN 30 OECD COUNTRIES, 2011



* in current PPP-adjusted dollars

Source: Dan Ben-David, Shoresh Institution and Tel Aviv University (in the Taub Center's *State of the Nation Report 2013*)

Data: World Bank, OECD

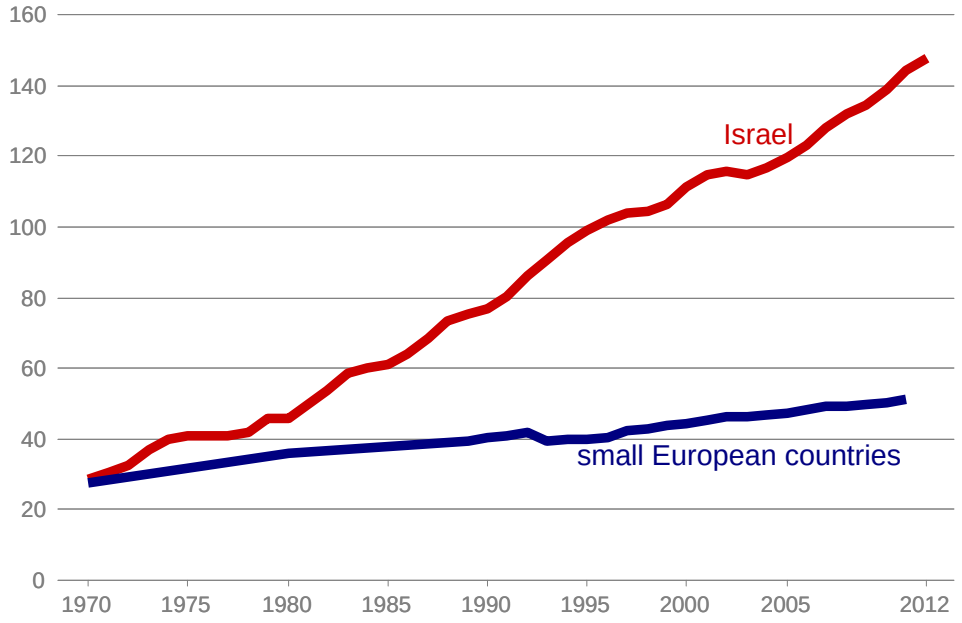
Few vehicles per capita – but among the most congested roads in the OECD

One key factor directly affecting both productivity and inequality is the transportation infrastructure. Congestion on Israel's roads – as measured by the number of vehicles per kilometer of road – was nearly identical to the average congestion in small European countries (Belgium, Denmark, Netherlands and Switzerland) in 1970. Over the next four decades, road congestion in Israel climbed to almost three times the average of these other small countries. In 2011, congestion on Israeli roads was over three times the overall OECD average – though the number of vehicles per capita in Israel was 38% less than the OECD average. In fact, the cost of cars and their usage is so prohibitive in Israel (especially relative to the lower Israeli incomes) that the number of vehicles per capita is lower than in 30 of the other 33 OECD countries, and yet the congestion on Israel's roads exceeds that in 30 of the 33 remaining OECD countries.

The bottom line is that Israel's national priorities were elsewhere during much of the past four decades. Roads were not built where most of the population lives. There has been an upswing in road construction over the past decade, not only in building new roads but also in widening existing ones. And yet, the number of vehicles per surface area of road increased by 16% between 2005 and 2013. Part of the reason for this is a lack of significant transportation alternatives to cars.

CONGESTION ON ROADS IN ISRAEL AND IN SMALL EUROPEAN COUNTRIES*

NUMBER OF VEHICLES PER KILOMETER OF ROAD, 1970-2012



* Belgium, Denmark, Netherlands and Switzerland

Source: Dan Ben-David, Shoresh Institution and Tel Aviv University
Data: Central Bureau of Statistics, World Bank and Ingram and Liu (1999)

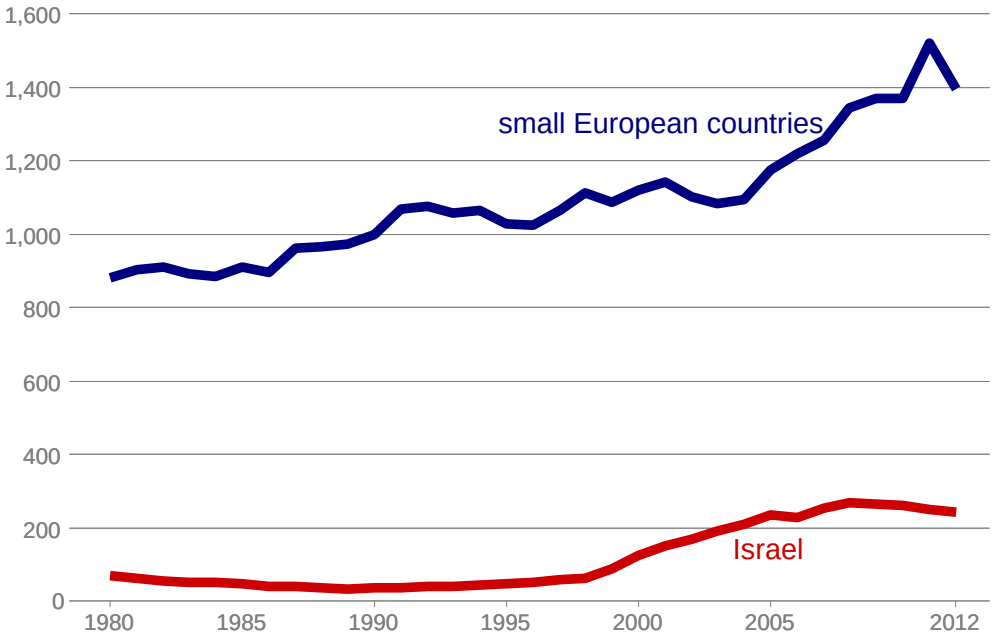
Serious rail alternatives – only abroad

The primary mass transit alternative to road use is rail, and in this area, Israel has never even been close to what the small European countries offer. The number of passenger-kilometers travelled relative to population size in Israel is but a small fraction of the level in Europe. Even the substantial improvement in the past decade and a half is marginal in comparison not only to what needs to be done, but even in comparison to improvements made in the small European countries during the same period. In fact, just the recent increase (in the last decade alone) in annual passenger-kilometers in the small European countries is greater than the total annual number of passenger kilometers per capita ever attained by Israel, even after including the recent improvements.

There are many plans on the table in Israel, but too few projects are actually being implemented. The magnitude of what still needs to be done, and the time frame to do it, are at a scale that requires a massive change in national priorities – and a consistency in funding, something that has not been a hallmark of Israel's transportation infrastructure spending.

RAILWAY PASSENGERS IN ISRAEL AND SMALL EUROPEAN COUNTRIES*

PASSENGERS-KILOMETERS RELATIVE TO POPULATION SIZE, 1980-2012



* Belgium, Denmark, Netherlands and Switzerland

Source: Dan Ben-David, Shoresh Institution and Tel Aviv University

Data: World Bank

Bureaucracy and regulation make Israel one of the more difficult developed countries in which to do business

Productivity improvements and reductions in rates of poverty and inequality are functions not only of human and physical capital infrastructures, but also of a country's bureaucratic infrastructure. In most of areas examined by the World Bank, Israel is ranked near the bottom of the developed world in terms of the ease of doing business.

Firms need to hire professionals to navigate bureaucratic mazes caused by multiple layers of red tape and regulations. Consequently, many work hours are spent on non-productive activities – and the negative effect that this has on productivity should be clear.

RANKING ISRAEL IN TERMS OF EASE OF DOING BUSINESS

RELATIVE TO 25 HIGH INCOME OECD COUNTRIES, 2014*

Overall Ranking		Protecting Minority Investors	Trading Across Borders	Getting Credit	Starting a Business	Resolving Insolvency	Paying Taxes	Registering Property	Enforcing Contracts	Dealing with Construction Permits	Getting Electricity	
New Zealand	1											1
Denmark	2											2
Korea, Rep.	3											3
Norway	4											4
United States	5	Israel										5
United Kingdom	6		Israel									6
Finland	7											7
Australia	8											8
Sweden	9											9
Iceland	10											10
Ireland	11			Israel								11
Germany	12											12
Canada	13											13
Switzerland	14											14
Austria	15											15
Portugal	16											16
Netherlands	17											17
Japan	18											18
France	19				Israel							19
Spain	20					Israel						20
Israel	21											21
Belgium	22											22
Italy	23						Israel	Israel	Israel			23
Luxembourg	24									Israel	Israel	24
Greece	25											25

1 = country with greatest ease
25 = country with least ease

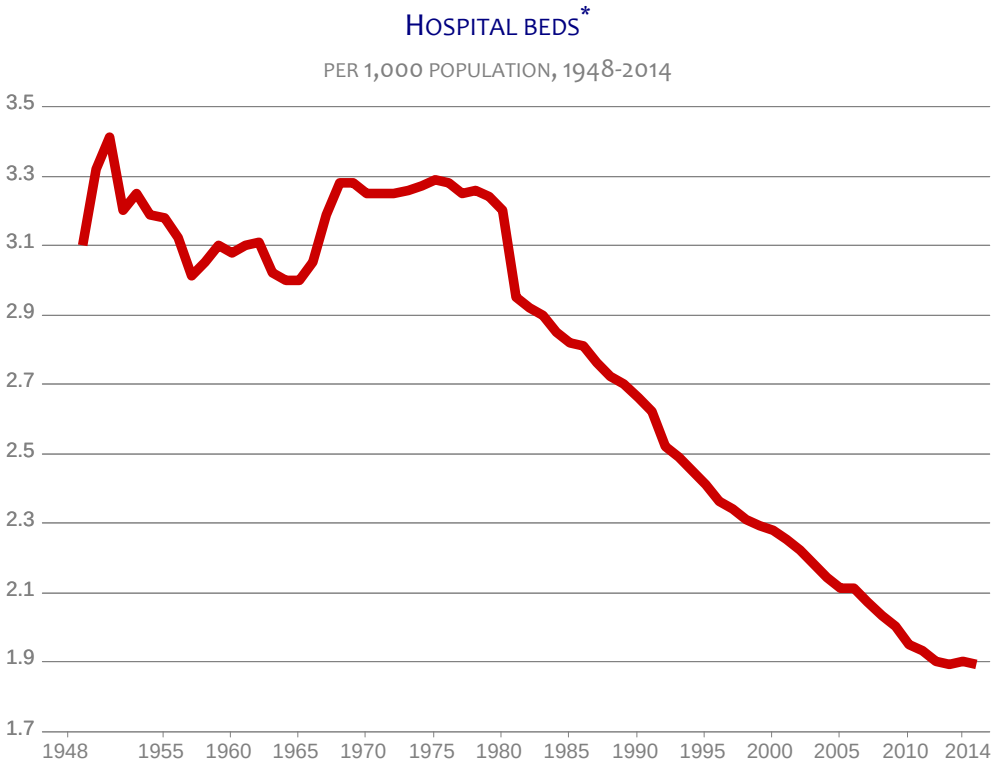
* Excluding E. European and S. American countries.

source: Dan Ben-David, Shoresh Institution and Tel-Aviv University
data from World Bank's "Doing Business 2015"

Israel's hospitals – the turnaround in national priorities three and a half decades ago

One of the areas in which the change in Israel's national priorities has been most palpable is in its health policies. During Israel's first three decades, the new country managed to increase the number of hospital beds at roughly the same pace as its very rapidly growing population.

Then came the national change in budgetary priorities and with it, the increasingly wealthy country shifted its resources further and further away, steadily reducing the number of hospital beds per capita for three and a half decades.



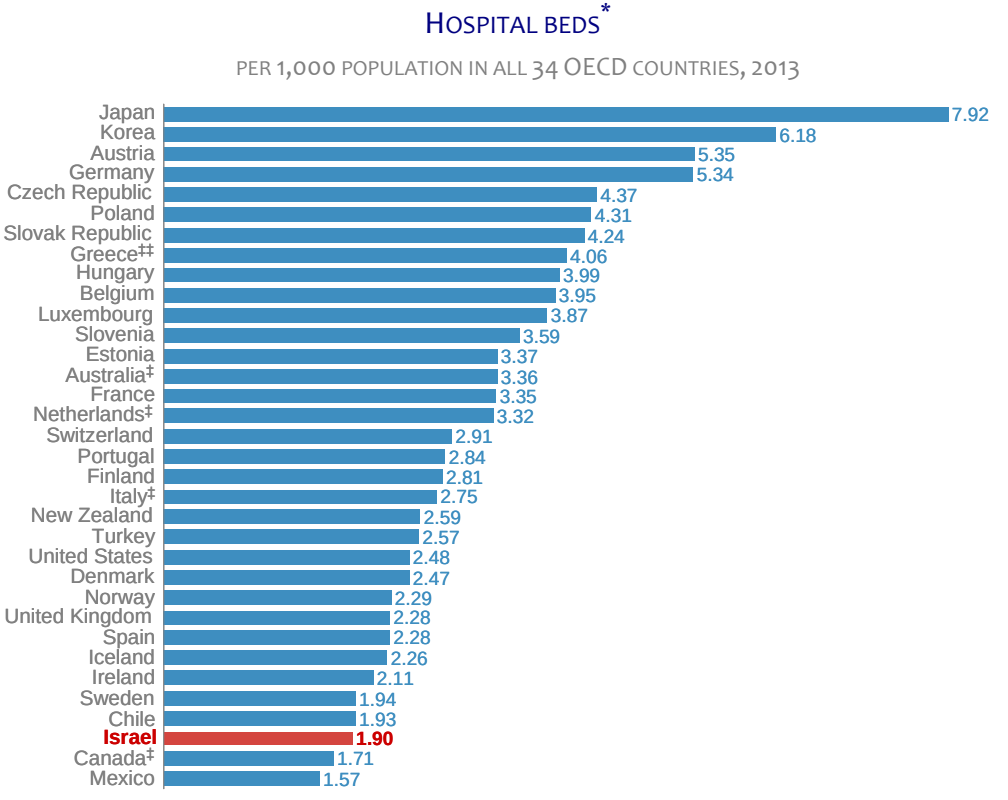
* Curative (acute) care hospital beds.

source: Dan Ben-David, Shoresh Institution and Tel-Aviv University
Data: Central Bureau of Statistics and the OECD

Hospital beds per capita near bottom of developed world

The diversion of funds and the resultant multi-decade drop in hospital beds has brought Israel to the bottom rungs of the OECD ladder. 31 of the remaining 33 OECD countries have more hospital beds per capita than Israel.

Thus, while Israel has some of the best physicians in the developed world, its population is hospitalized in conditions that are in some cases found in the Third World. Habitually over-crowded hospitals put patients in corridors and dining areas. The issue is not just a lack of privacy during an individual's weakest moments, but also a lack of adequate sanitation resulting from such conditions accompanied by a heightened likelihood of secondary infections and disease.



* Curative (acute) care hospital beds. ‡ 2012, ‡‡ 2011.

source: Dan Ben-David, Shoresh Institution and Tel-Aviv University

Data: OECD

Share of elderly physicians highest in developed world – and rising

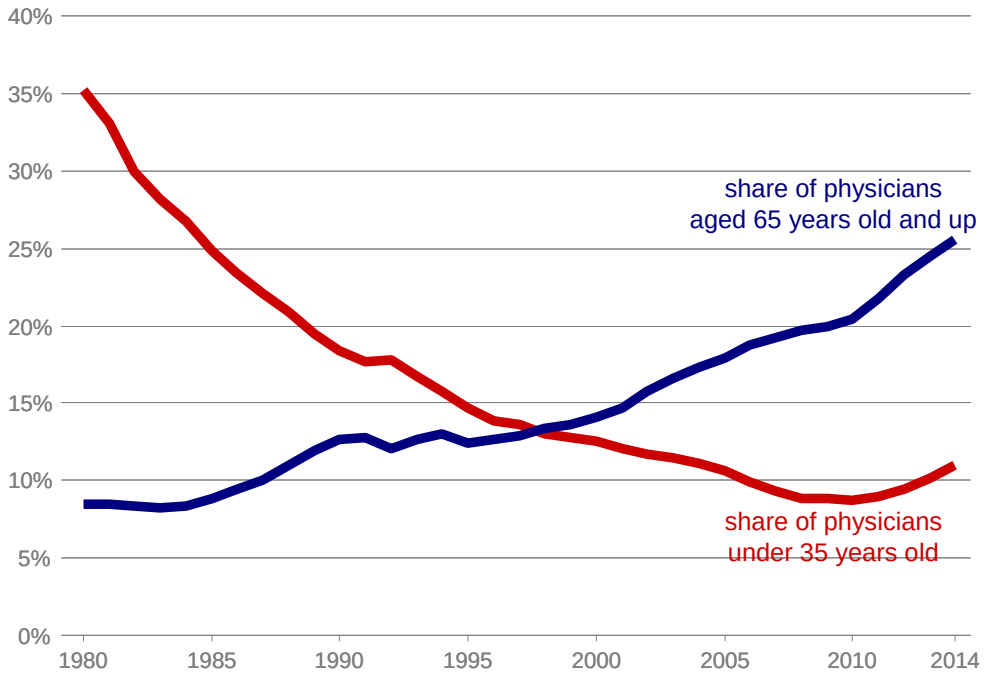
Israel is situated at around the middle of the OECD in terms of professionally active physicians per capita. This seemingly comfortable position is due to a relatively high number of physicians trained within Israel in the past who were supplemented by immigrants to the country from abroad – particularly from the former Soviet Union in the 1990s.

But as with the hospital beds, Israel did not invest sufficiently in the training of physicians. As a result, this very young country – compared to other developed countries in terms of the general population – has an increasingly elderly stock of physicians. Three and a half decades ago, only 8.5% of Israel's physicians were at the age of 65 and up. Today, their share of the total exceeds 25 percent, the highest share – by far – in the OECD.

The country's young physicians accounted for over a third of the total in 1980. Today, only one in ten is under the age of 35. Twenty-five of the twenty-nine remaining OECD countries with data on physician ages have a higher share of young physicians.

YOUNGER AND OLDER PHYSICIANS IN ISRAEL

AS PERCENT OF TOTAL, 1980-2014



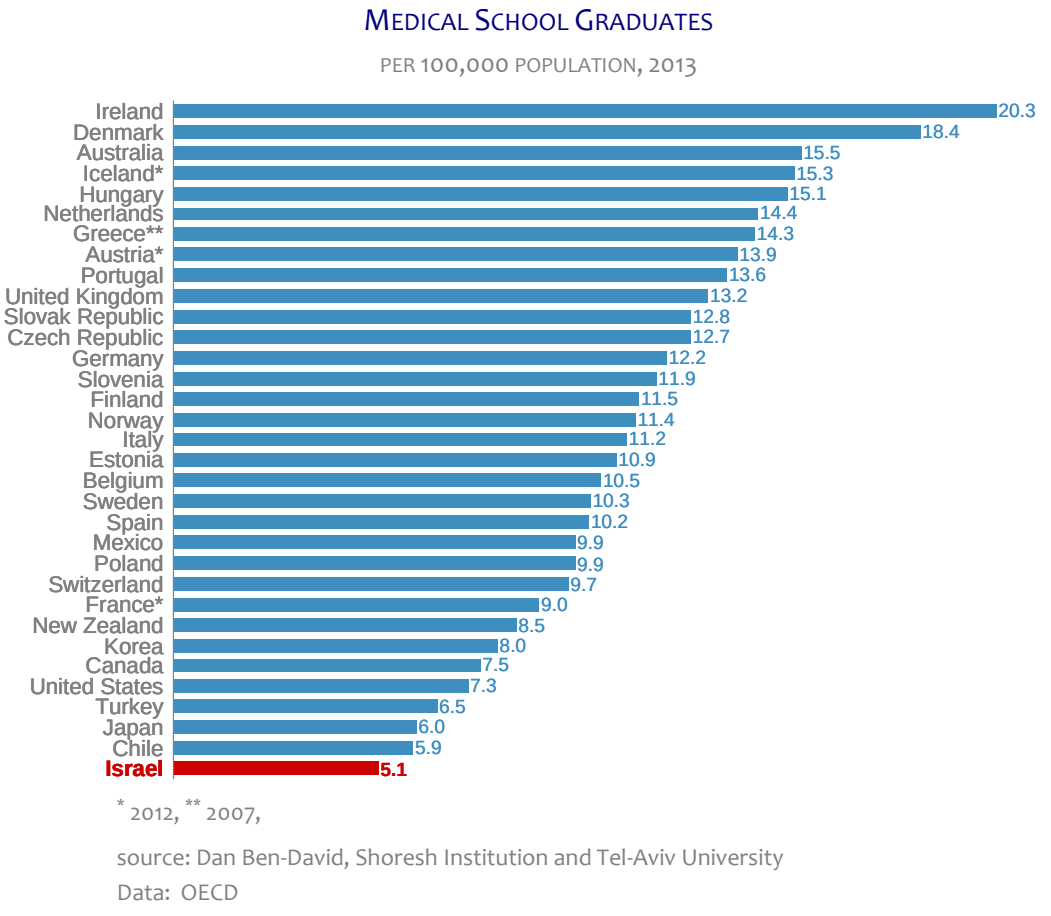
source: Dan Ben-David, Shoresh Institution and Tel-Aviv University

Data: OECD

Number of medical school graduates per capita at bottom of developed world

Oftentimes, concentrating on the stock rather than on the flow will leave a country flat-footed in its preparation for the future. Instead of investing in medical schools as its population grew, Israel preferred complacency with a stock of physicians per capita at roughly the OECD average. It spent its resources elsewhere and become a free-rider with regard to the training of physicians – with many Israelis having to study medicine abroad at sometimes prohibitive (for gifted Israelis of meager means) costs, and not always at the same high standards of Israel's universities.

Israel is at the bottom of the OECD in terms of the flow of new physicians relative to population size. The realization of these consequences finally led to a number of recent policy changes – including the creation of an additional medical school and the introduction of shorter academic paths towards attainment of MD degrees – intended to substantially increase future flows.

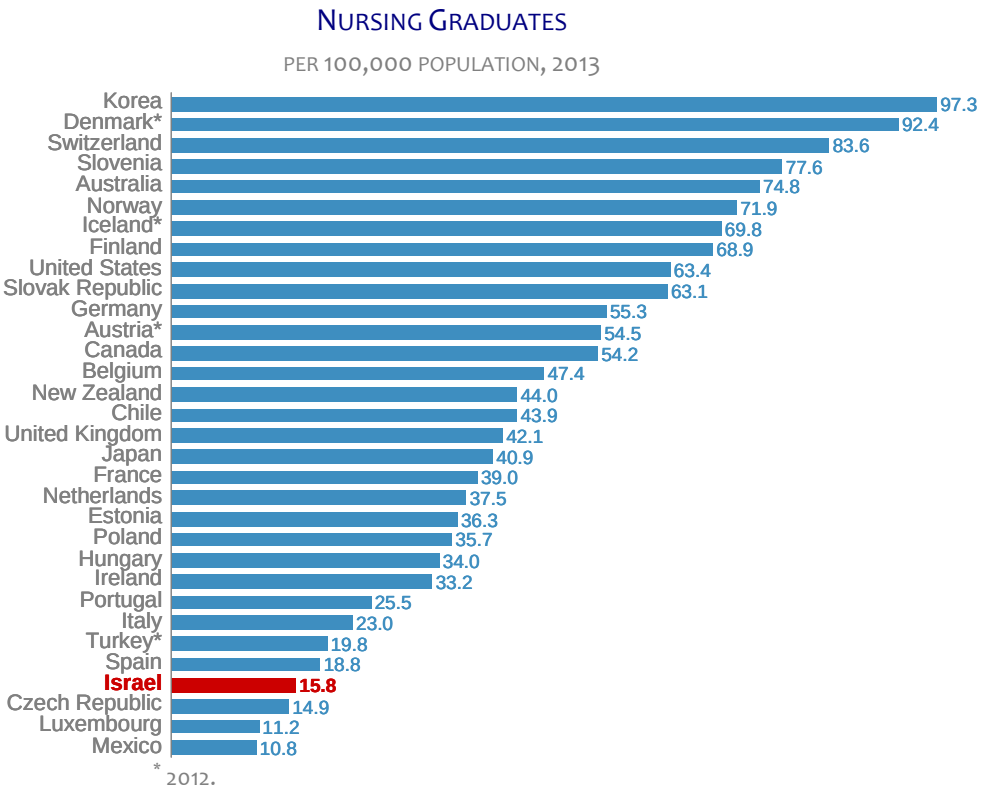


Number of nursing school graduates per capita near bottom of developed world

The situation with regard to nurses is poor both in stocks and in flows. Israel has one of the lowest shares of professionally active nurses per capita in the OECD. And yet, the flow of nursing graduates is below nearly all of the other OECD countries – with less than half of the OECD average. Not only is the number of nursing graduates low, it has been declining over the past decade while the OECD average has been rising.

The acute shortage in nurses only compounds the severe shortage in hospital beds. As if hospitalization in the corridor or dining room is not bad enough, patients often need to be accompanied by relatives or friends to fill in for missing nursing staff – with all of the problematic health issues that such neglect entails.

In a country of ironies, probably none is more poignant than the fact that Israel has some of the world's leading physicians and nurses, but the overall care provided its citizens is all too often in Third World hospital conditions. This issue, like others cases cited above, is one of national priorities.



source: Dan Ben-David, Shoresh Institution and Tel-Aviv University

Data: OECD

Budgetary perspective

In November 1948, immediately after attaining independence, Israel's population numbered 873,000. By 1959, massive immigration by primarily destitute individuals brought that number up to 2,089,700, an increase of 139%. By the end of 1966, the country's population reached 2,657,400, over a quarter more than in 1959.

With the few available resources that it had at its disposal, the new country built towns, roads, hospitals, schools and universities – including academic foundations that eventually yielded 6 Israeli Nobel Laureates in the sciences alone since 2000 (not including two additional Israelis receiving the prize during this period who did their work abroad). Only four countries had more Nobel Laureates in the sciences during this period – and this does not even take into account country size.

Just as budgetary priorities then determined the Israel of today, the country's current priorities will determine the Israel of tomorrow. To put things in proportion, public civilian expenditures (that is, the amount remaining after deducting defense spending) of the much poorer Israel averaged 23.6% of GDP between 1960 and 1966. While public civilian expenditures of the much wealthier Israel averaged a significantly greater 34.1% of GDP between 2005 and 2014,[4] there was no comparable improvement in the country's primary socioeconomic trajectories. In fact, the opposite is true in many instances. The bottom line is that while the overall magnitude of government spending matters, Israel itself has shown that what matters most is how that public money is allocated and how efficiently it is spent.

[4] Both numbers are according to Bank of Israel data, while a merging of OECD and World Bank data yields slightly higher numbers for the recent period.

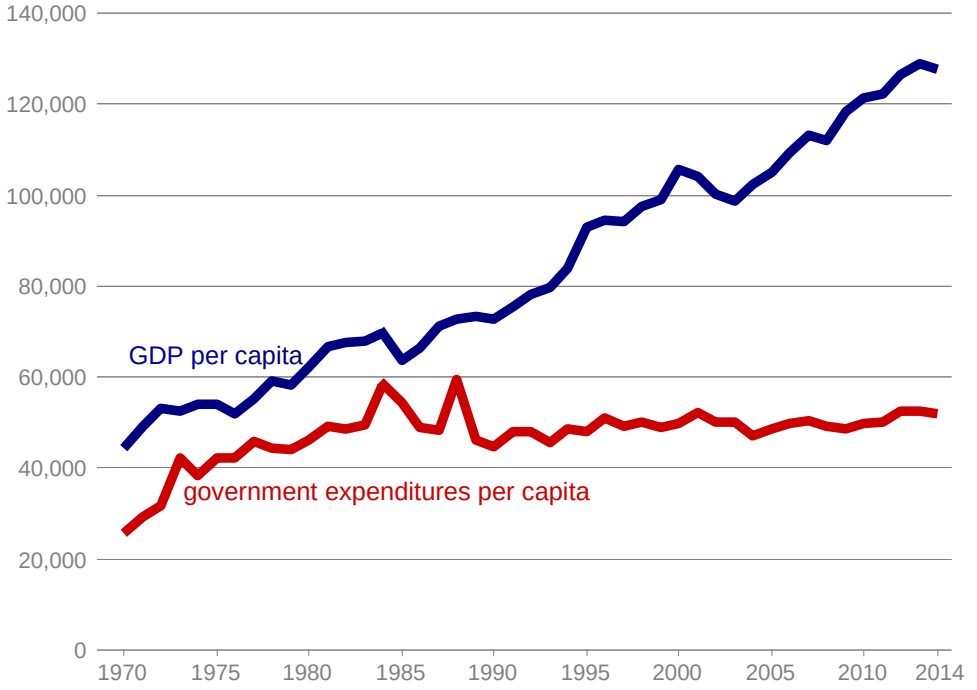
Stable government spending for decades

Israel had excessively high government spending – particularly on defense – between the 1973 Yom Kippur War and the mid-1980s. This resulted in triple digit inflation rates and extraordinarily high rates of borrowing.

The impact of a major stabilization plan adopted in 1985 can be seen directly from the government spending path. From that point on, government spending per person in Israel has remained relatively constant for the past three decades while output per capita has risen. Consequently, the ratio of government expenditures to GDP has fallen steadily in recent decades.

TOTAL GOVERNMENT EXPENDITURES PER CAPITA AND GDP PER CAPITA*

1970-2014



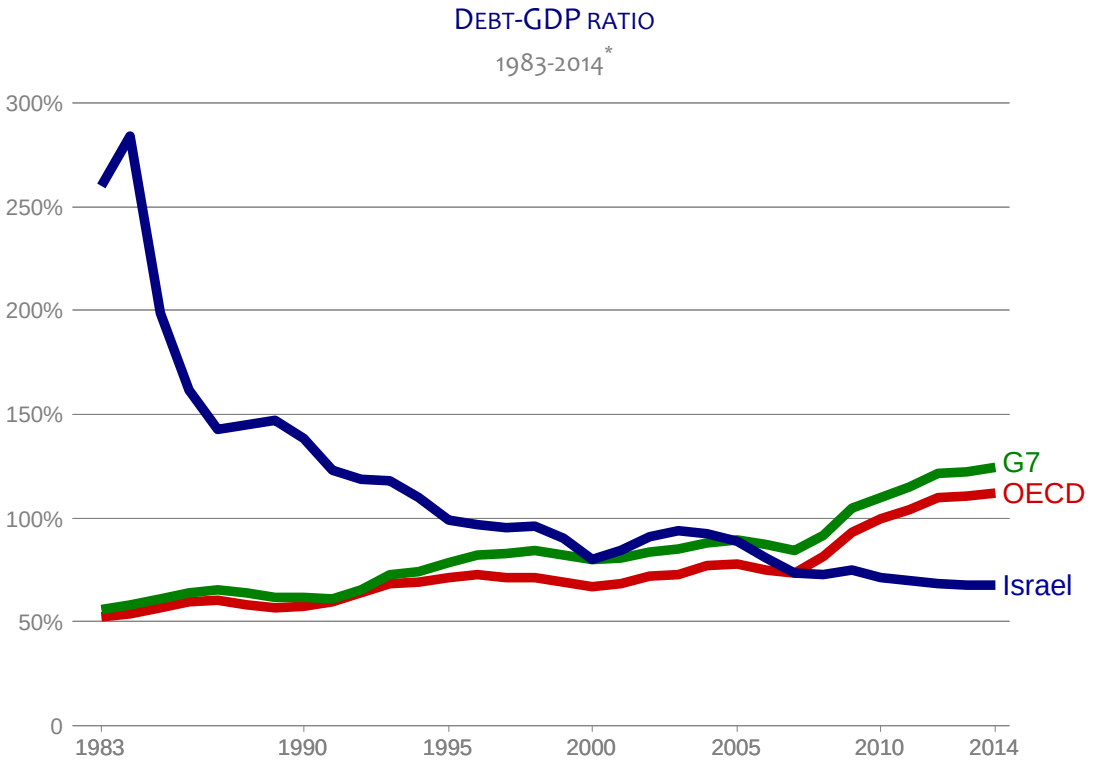
* in 2013 shekels.

source: Dan Ben-David and Sagit Azary-Viesel, Shoresh Institution and Tel-Aviv University
Data: Central Bureau of Statistics

Low debt-GDP ratio

One result of the steady decline in the ratio of government expenditures to GDP was a return of Israel to the family of developed nations in terms of inflation rates. Another outcome has been a dramatic decline in the country's debt to GDP ratio – this despite extensive cycles of wars and violence, massive immigration waves, a major recession and various other tumultuous events unique to Israel.

The country's ability to bring its debt under control in such circumstances stands in contrast to the experience of other OECD countries – the G7, in particular – especially since the Great Recession of recent years.



* OECD projections for 2014.

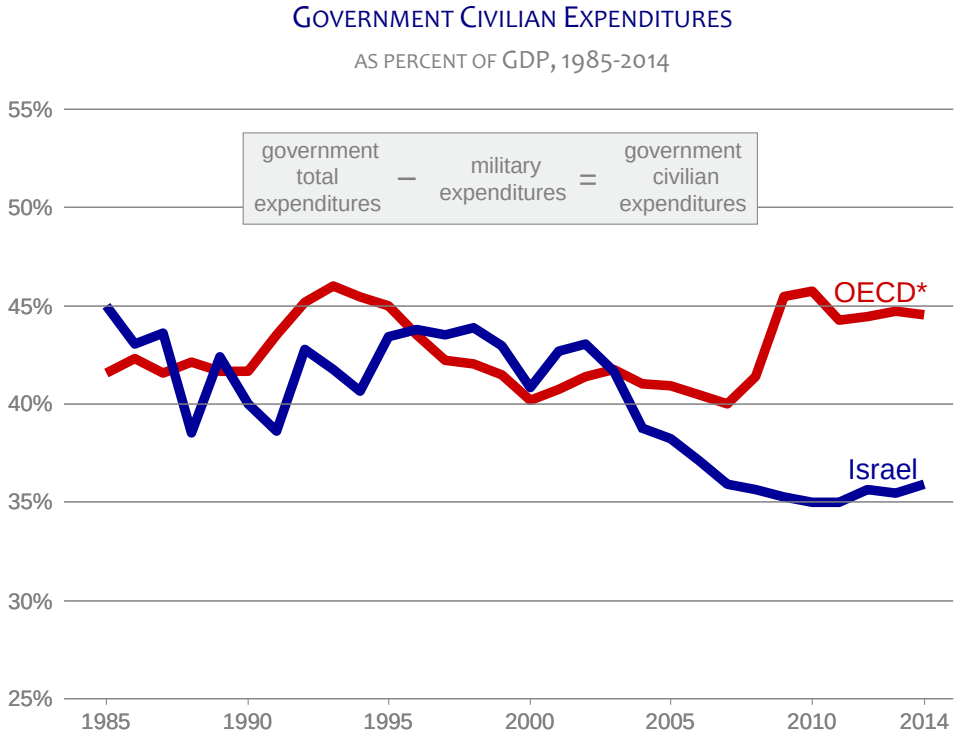
source: Dan Ben-David and Sagit Azary-Viesel, Shoresh Institution and Tel-Aviv University
Data: OECD and Bank of Israel

Israeli government civilian spending (i.e. excluding military expenditures) roughly equal to OECD for two decades before falling in recent decade

While general government spending in Israel (as percent of GDP) exceeded the OECD average by over 9 percent of GDP between 1985 and 2004, it was nearly identical to the OECD average after the exclusion of military expenditures.

During these two decades of fairly steady civilian spending levels, Israel's productivity fell further and further behind the leading developed countries while its income inequality rose to developed world peaks – an indication that the primary problem was not one of a lack of resources, but rather a major problem of national priorities in spending.

During the past decade, while OECD civilian spending rose as the developed world entered the Great Recession, Israel's spending declined as a share of GDP.



* average of general government civilian expenditures among 30 OECD countries.

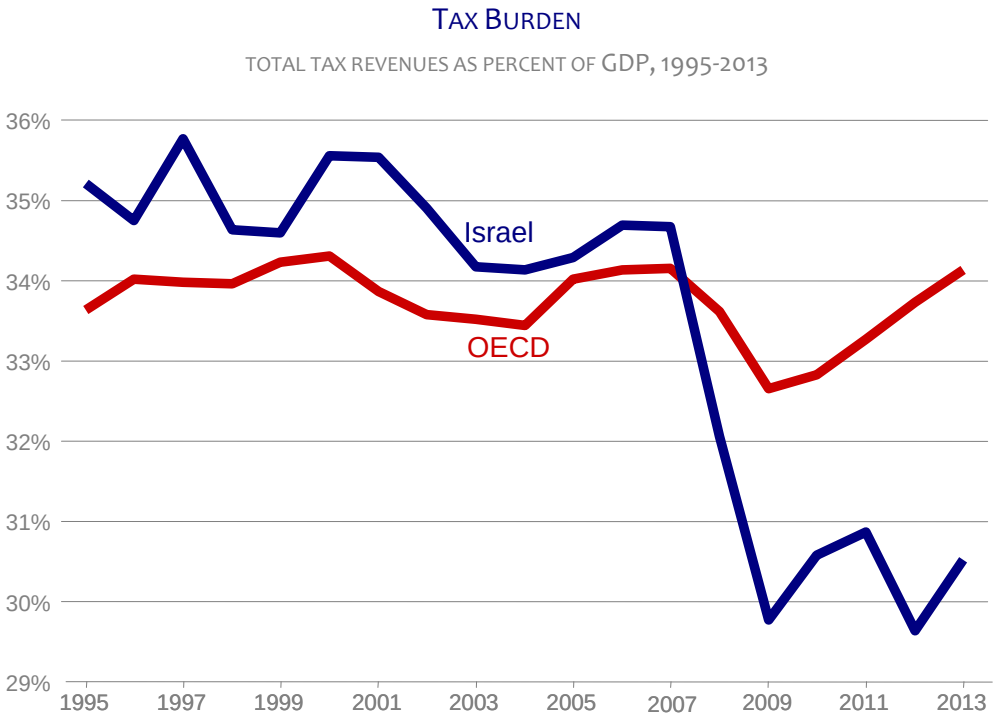
Source: Dan Ben-David, Shoresh Institution and Tel Aviv University
Data: OECD, World Bank and Bank of Israel

Relatively low tax burden

If Israel wants to implement a major turnaround in its primary socioeconomic trajectories, it will need to rethink its entire spending and taxing policies to create the foundations for change.

On the spending side, the country must find the political wherewithal to divert its very scarce resources to benefit the greater good rather than to narrow sectoral, business and personal interests, as has been the case until now. To the extent that such a reallocation of national priorities is insufficient for raising the funds necessary to implement a major socioeconomic turnaround, there will need to be a serious reevaluation of the way the government obtains its income.

As a result of Israel's very large defense expenditures – compared to other OECD countries – it should not come as a surprise that the country's tax burden (defined as the share of total tax revenues out of GDP) has traditionally been higher than the OECD average. This changed in 2008, with the implementation of a variety of tax cuts that resulted in a tax burden drop to below the OECD average.



Source: Dan Ben-David and Sagit Azary-Viesel, Shoresh Institution and Tel Aviv University
Data: OECD

Indirect taxes comprise primary share of the burden in Israel

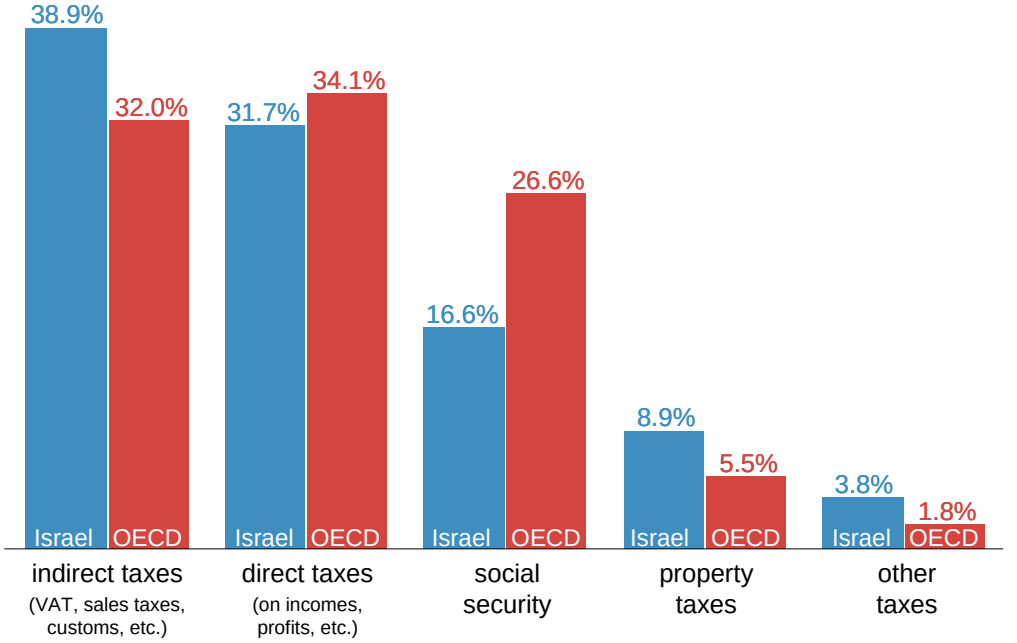
In light of the lower tax revenues in recent years, and the need to avoid a return to the enormous debts of the past, Israel must either cut its expenditures further to match its lower tax revenues – which is difficult in light of the already low (compared to the OECD) levels of civilian expenditure in recent years – or it needs to focus on reallocating its national priorities on the expenditure side while raising its tax revenues.

With regard to the latter, the question is: how to increase tax revenues? Israel raises a disproportionate share of its income from indirect taxes, which are considered regressive because they put a heavier burden on the poor. The distribution of national tax revenues would appear to indicate that Israel should seriously consider raising its direct taxes. But on whom?

Israel's corporate taxes account for 35% of its total revenue from direct taxes, compared to 24% in the OECD – so it would appear that the primary remaining direction needs to be an increase in taxes on individuals. Herein lies another problem.

DISTRIBUTION OF TOTAL NATIONAL TAX REVENUES

BY TAX TYPE, 2013



Source: Dan Ben-David and Sagit Azary-Viesel, Shoresh Institution and Tel Aviv University

Data: OECD

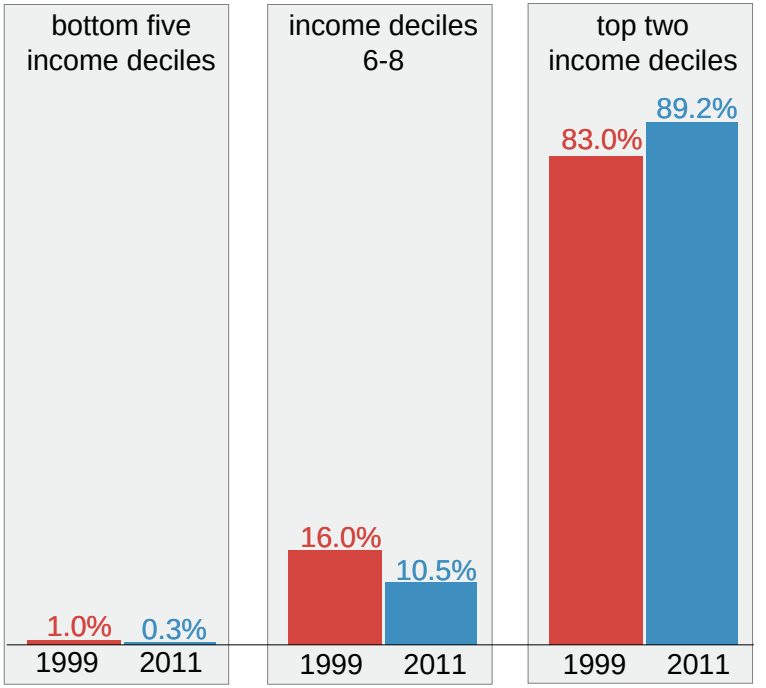
Half of Israelis pay no income tax while 20% account for 89% of total income tax revenues

Israel's overall tax burden is relatively low, its share of total tax revenue emanating from direct taxes is also relatively low, and the proportion of direct taxes coming from individuals is relatively low as well. So it would appear to be obvious that the primary focus needs to be on raising direct taxes on individuals. Except that this is not as obvious as it may initially appear.

Individuals – be they employees, self-employed or non-employed – account for 72% of Israel's social security contributions, compared to 41% in the OECD. When it comes to income taxes, it turns out that nearly 50% of the Israeli population pay no income tax at all. 20% of the population account for 89% of the entire income tax revenue – up from 83% in 1999.

So the question is, who would the additional income taxes be levied on – those whose incomes are so low that they do not even reach the bottom rung of the income tax ladder, or those already shouldering 89% of the income tax burden?

SHARE OF TOTAL INCOME TAX REVENUE PAID BY INCOME DECILES



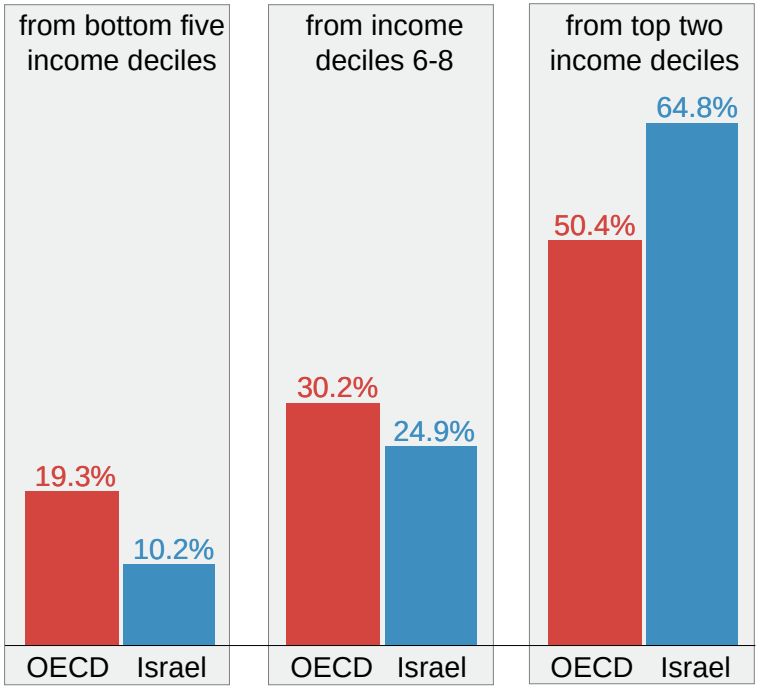
Source: Dan Ben-David, Shoresh Institution and Tel Aviv University
Data: Finance Ministry

Share of the top two deciles in total direct tax revenues is much higher in Israel than OECD average

An international comparison of the share of direct taxes and social security contributions paid by income deciles shows the differences between Israel and the OECD. At the top end, the highest two income deciles in the OECD account for half of the total direct tax revenues while in Israel they account for nearly two-thirds.

At the other end of the income spectrum, the share paid by the poorest 50% of the population is 90% greater in the OECD than in Israel (19% to 10%).

SHARE OF DIRECT TAXES AND SOCIAL SECURITY CONTRIBUTIONS PAID BY INCOME DECILES, 2011

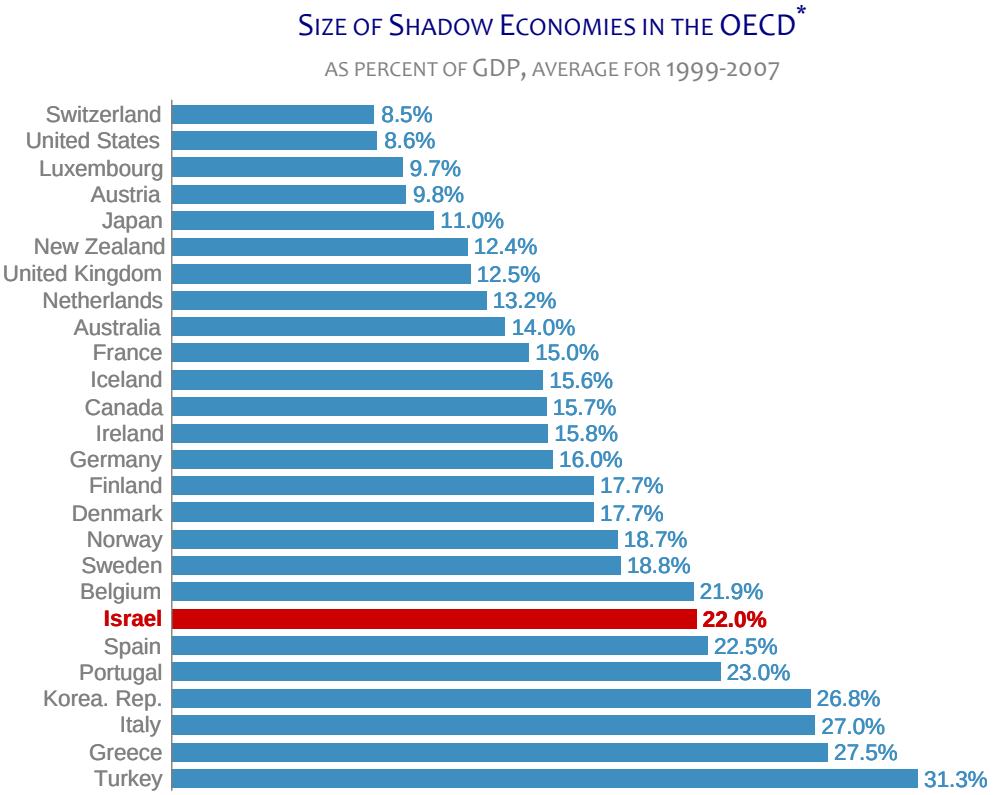


Source: Dan Ben-David, Shoresh Institution and Tel Aviv University
Data: OECD

Shadow economy size among the highest in developed world

The above would appear to indicate that tax burden direction is a dead-end, unless one takes into account the following. Israel has one of the largest shadow economies in the developed world. The average share of unreported business activity in the country between 1999 and 2007 exceeded one-fifth of its entire GDP. Assuming no change in recent years in the shadow economy's share of GDP, this amounted to 239 billion shekels in 2014 ($60 billion in ppp-adjusted dollars), just over half of the government's entire expenditures that year.

Cutting the shadow economy in half would, in effect, bring the country into line with nations as varied as the UK, New Zealand, Japan and Austria – and would still leave Israel above the countries with the smallest shadow economies. Not only would this provide a considerable contribution on the tax revenue side, both in terms of quantity and in terms of greater equity in shouldering the burden, it would also provide some relief on the expenditure side – enabling reductions in some areas and reallocation of expenditures in other areas.



* excluding E. Europe and S. American countries.

Source: Dan Ben-David, Shoresh Institution and Tel Aviv University

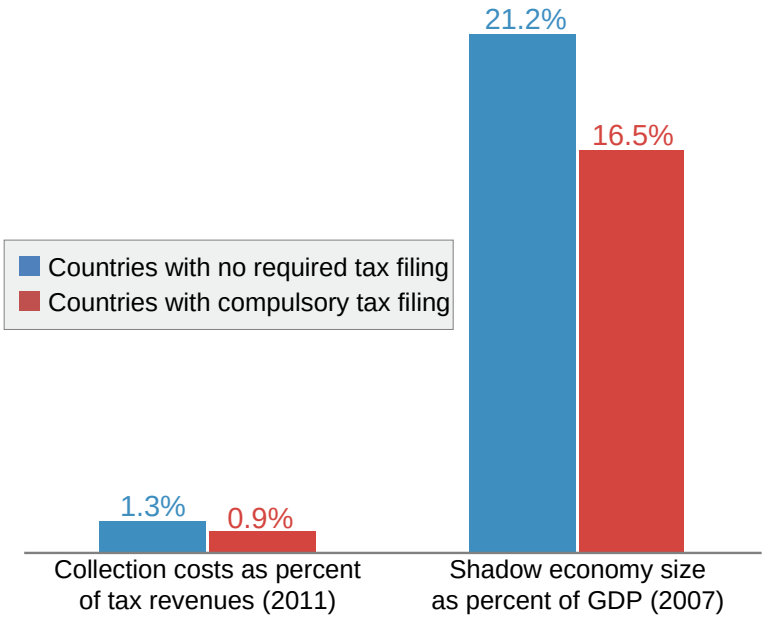
Data: Buehn and Schneider, 2012

Shadow economy is smaller in countries with compulsory tax filing

Heightening law enforcement in Israel is both doable and cost effective – not to mention important and relevant in a host of additional areas unrelated to tax collection.

One place to start is with the initiation of compulsory tax filing. Countries that require such filing have shadow economies that are a fifth less, on average, than countries that do not have such a requirement. Not only is the collection cost just a very small fraction of tax revenues, but it turns out that countries with compulsory filing end up with considerably more cost effective tax collection systems.

SHADOW ECONOMIES VERSUS COLLECTION COSTS IN THE OECD



Source: Noam Gruber, Shoresh Institution
(in the Taub Center's *State of the Nation Report 2014*)
Data: World Bank, Buehn and Schneider, 2012

A glimpse at the future: the current default

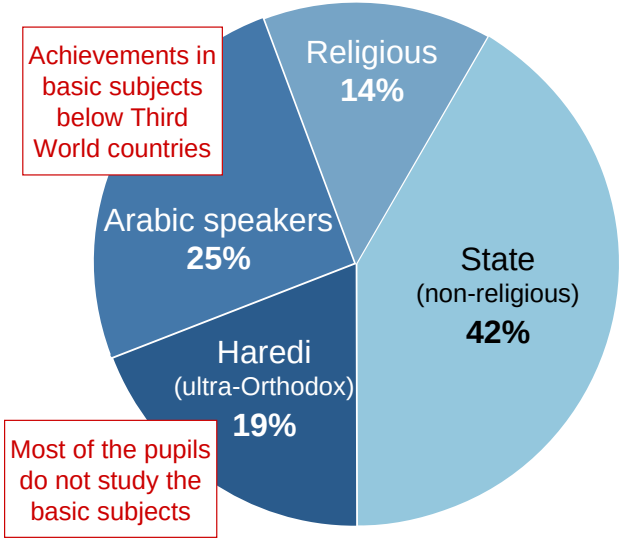
Highly varying birthrates are leading to rapid changes in the size and composition of Israel's population. Today's policies – particularly with regard to the young – will determine the future viability of Israel. The current default trajectory will not be sustainable in the long run. Avoiding the unsustainable outcome requires immediate policy attention today.

Roughly half of Israel's children receive a Third World education

A demographic perspective of the education picture is provided in the first grade enrollment in 2014. While not all of the Arabic-speaking children receive a poor education (for example, there are vast differences between the few Christian Arab schools and the Muslim Arab schools which comprise the vast majority) and not all of the Haredi children are deprived of the core curriculum, it should be clear that not all of the Religious and State school pupils receive a good education either. In short, roughly half of Israel's children today are receiving a Third World education – and they tend to come from the fastest growing portions of the population.

This is essentially a redefinition of the national security paradigm that plays so influential a role in Israeli elections. Planes, tanks and battalions are only a part of what Israel needs to defend itself. Children receiving a Third World education will only be able to maintain a Third World economy, which cannot support the First World defense that Israel requires to physically remain alive in the extremely violent neighborhood that it lives in.

DISTRIBUTION OF PUPILS IN FIRST GRADE, 2014

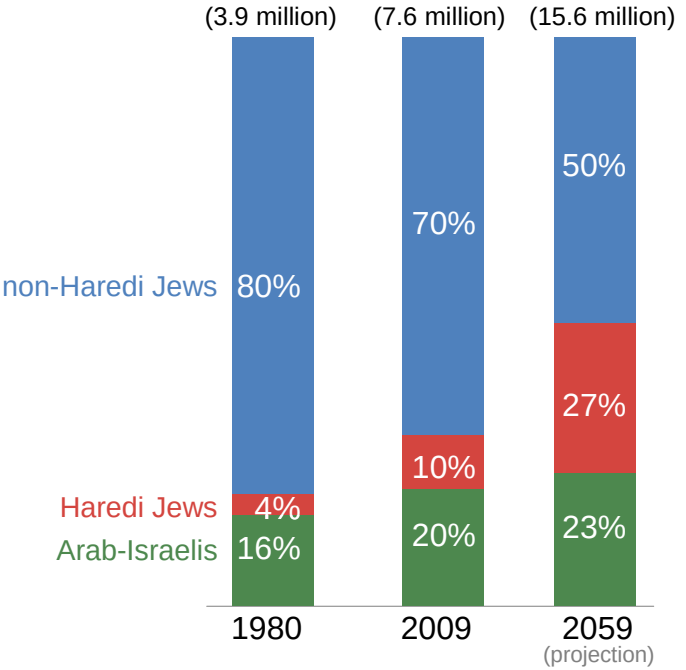


Source: Dan Ben-David, Shoresh Institution and Tel Aviv University
Data: Ministry of Education

Major changes in the future composition of Israel's population

Today's children are tomorrow's adults. A glimpse at the speed in which the future is approaching can be seen in demographic projections by the Central Bureau of Statistics. The fastest growing segments of Israel's population tend to be those who are also receiving the worst core education.

FUTURE POPULATION OF ISRAEL



Source: Dan Ben-David, Shoresh Institution and Tel Aviv University
Data: Central Bureau of Statistics and Bank of Israel

Sharp increase in elderly's share of the population

Demographic projections also indicate that a major aging process has begun in Israel. This is still a very young society in comparison with other developed countries, with the ratio of elderly to working-age population (generally referred to as the elderly dependency ratio) relatively low and steady during the past two decades. However, this ratio has begun to take off and is expected to increase by half over the next two decades.

The question is not just what kind of pensions will tomorrow's elderly be able to accumulate – in a country in which half the population does not even make it to the bottom income tax rung – but who will finance Israel's future social security needs? After all, social security systems are in general financed by the working-age population who needs to care not only for its own welfare needs, but also for those of the previous generation receiving monthly checks in the mail.

This, and more: how many in the future working-age population will have the skills and conditions to work in a modern economy to support such a system at developed world levels?

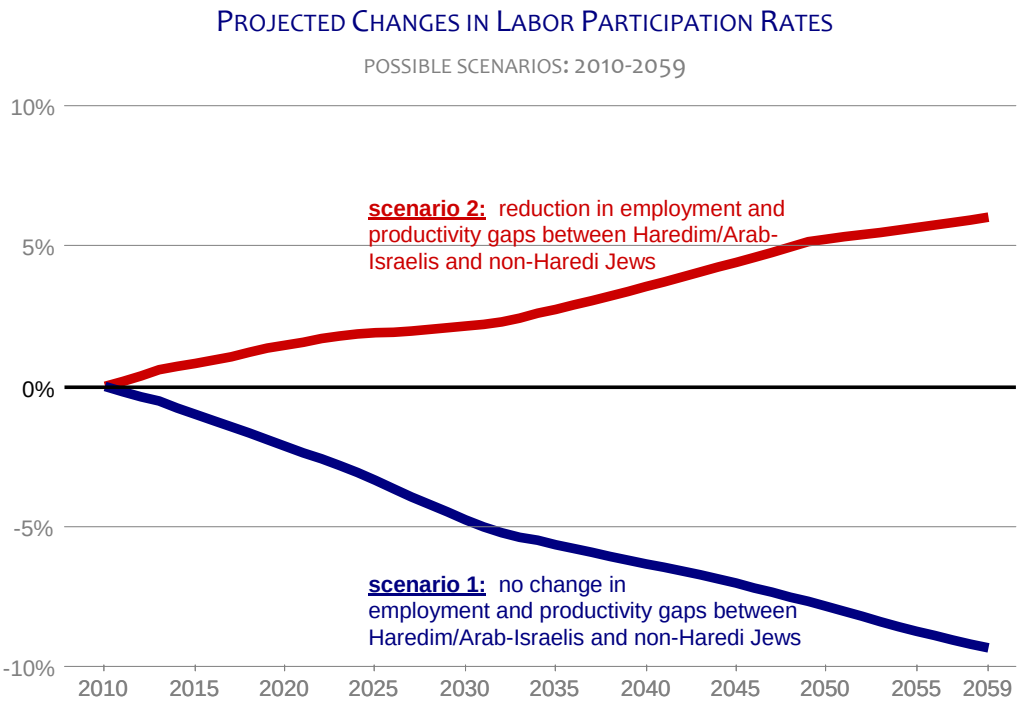
ELDERLY DEPENDENCY RATIO

source: Eliahu Ben-Moshe (2011), Ministry of Industry

The labor participation choice

In just over four decades from today, what will happen if employment and productivity rates among Haredim and Arab-Israelis remain as they are and do not converge to those of the rest of society? The result will be an almost 10% decline in national labor participation rates.

With a smaller share of the population working, this will have a negative impact on the tax base. In addition, many of these same individuals will need government assistance to keep their heads above the poverty line, so spending will need to rise.



Source: Karnit Flug (2015), Bank of Israel

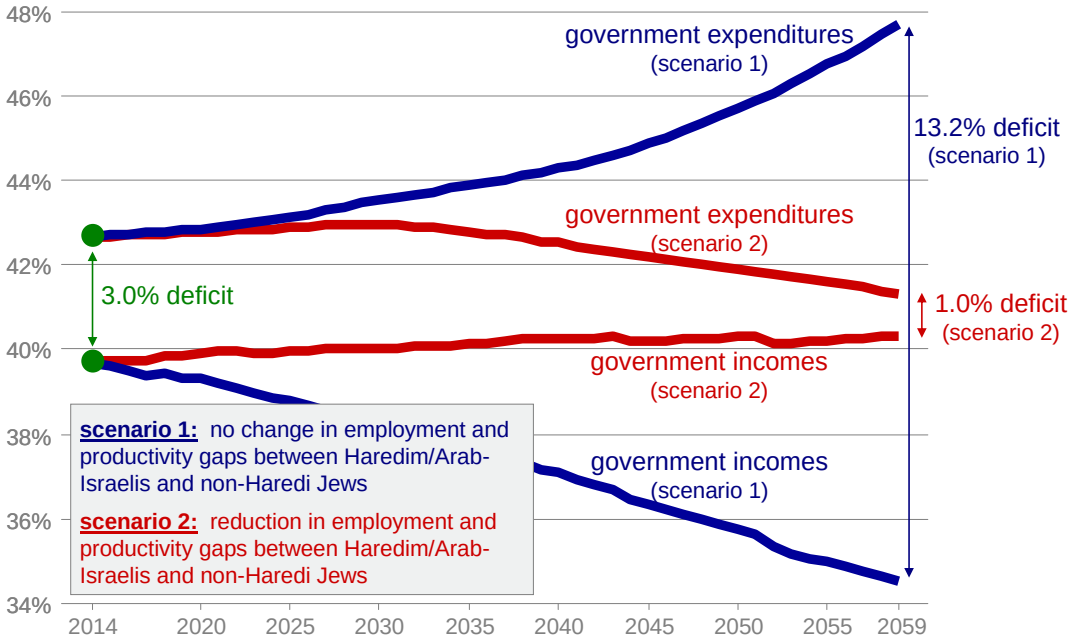
Two future fiscal scenarios

If employment and productivity rates among Haredim and Arab-Israelis do not converge to those of the rest of society, then – despite the expected increase in tax revenues from Israel's newly-found gas fields – the ratio of government tax revenues to GDP is expected to fall sharply alongside a steep increase in the ratio of government expenditures to GDP.

According to this Finance Ministry scenario, the government deficit, as a share of GDP, will increase more than four-fold.

PROJECTED FUTURE GOVERNMENT INCOMES AND EXPENDITURES*

AS PERCENT OF GDP, 2014-2059



* based on Central Bureau of Statistics' middle projection.

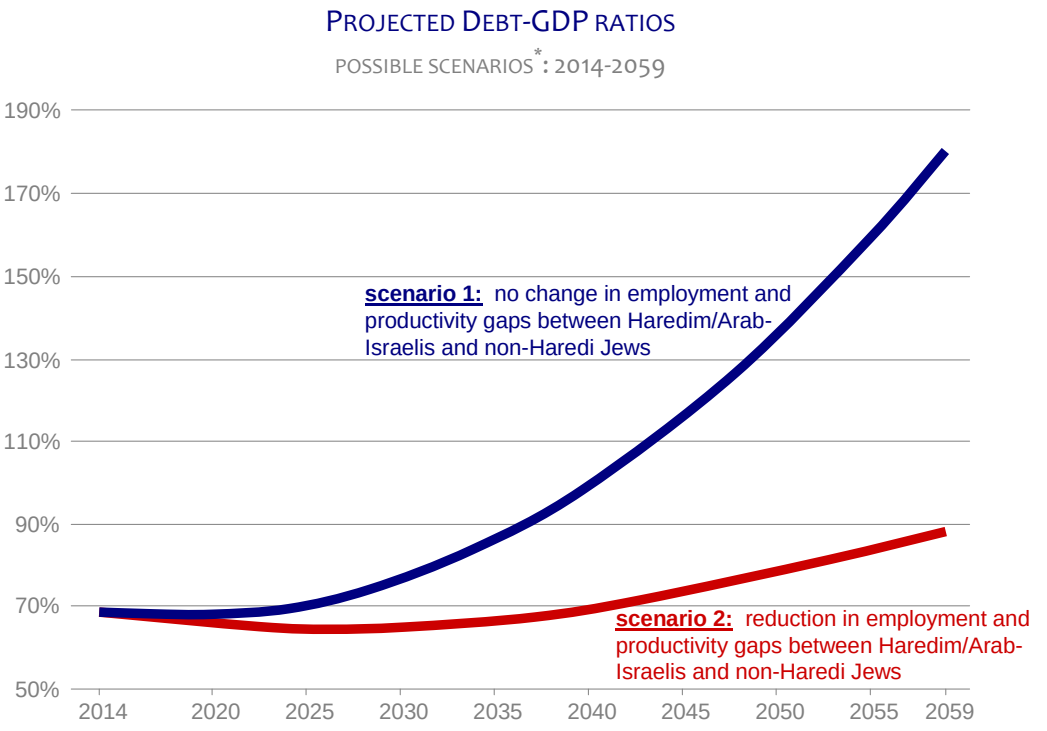
Source: National Economic Council, Prime Minister's Office

Data: Assaf Geva (2015), Finance Ministry

The debt implications

With government incomes falling and expenditures rising under the scenario in which employment and productivity rates among Haredim and Arab-Israelis do not converge to those of the rest of society, Israel's debt will rise to unmanageable heights.

While defaults are seismic events on any national scale, the Israeli predicament will be far worse than common scenarios. Israel's primary problem is that a very large share of an entire generation will have grown up without the skills to support a modern economy. If this occurs, then it is possible that a major percentage of those with the education and the skills – and alternatives in other countries – will no longer be in Israel to pass these skills on to the next generation if and when the country defaults.



* based on Central Bureau of Statistics' middle projection.

Source: Assaf Geva (2015), Finance Ministry

Low future growth

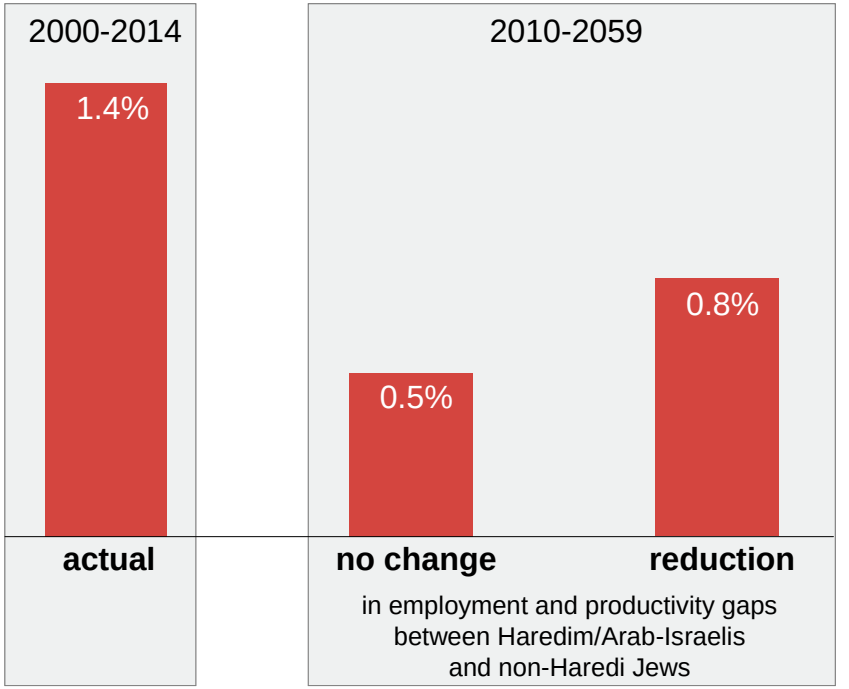
Israel's future growth picture under each of the Bank of Israel's existing scenarios is not a good one. The country's productivity levels are already among the developed world's lowest and have been growing more slowly than the G7 countries for the past forty years.

Looking ahead, the rate of growth in Israel's standard of living – as measured by GDP per capita – is expected to drop from the current 1.4% over the past decade and a half (this has not been a good period for other developed countries either) to 0.5% or 0.8% a year depending on whether or not there is convergence of employment and productivity rates among Haredim and Arab-Israeli with the rest of society.

As should be clear, the issue that Israel faces extends far beyond simply bringing the Haredim and the Arab-Israelis up to the average non-Haredi Jewish levels of productivity and employment. There is a need to take the entire country up to a higher level. This is possible – still – but the window of opportunity for a major turnaround in Israel's current long-run trajectories will not remain open indefinitely.

PROJECTED ECONOMIC GROWTH

AVERAGE ANNUAL RATES OF GROWTH IN GDP PER CAPITA



Source: Karnit Flug (2015), Bank of Israel

A vision for the future: Changes in national priorities

The emphasis needs to be on three policy spheres. The first policy sphere, focusing on the individual and firm levels, has to create incentives to work and hire while providing the necessary tools. The second policy sphere concentrates on the next level up – creation of surrounding conditions that will increase employment and productivity while reducing poverty and inequality. The third policy sphere addresses the overall strategic issues that will not only improve the situation in the present, but also ensure sustainable socioeconomic trajectories in the future. The objective in this handbook is not to get into the minutiae but rather to provide an outline of some of the core areas that these various policy spheres need to focus on.

In light of the substantial budgetary limitations on a nation with such a significant defense burden, the magnitude of the changes outlined here will require a major reset in Israel's national priorities and a fundamental turnaround in its budgetary allocations. Implementing significant changes in direction is not a foreign concept to Israel. The willingness and ability to do so would reflect a return to the mindset of an era in which the pressures were greater and more readily apparent, and a population and leadership that understood the need to focus on the greater good instead of narrow interests.

First policy sphere: creating incentives and providing tools

a. Increasing incentives to work and to employ

- *replacing non-work incentives with incentives to work*
- *substantial reduction in the number of foreign workers*

b. Providing tools and conditions – a comprehensive employment package

- *second chance program for completing high school and college*
- *vocational training coordinated with the needs of the private sector*
- *job placement with incentives based on the workers' success*

Israel currently provides benefits at levels enabling an inordinate share of its population to choose non-work as a lifestyle. The reduction in child benefits and other forms of support over the past decade and the concurrent increase in employment among this share of the population provide an indication of the impact that these have had. Rather than considering an increase in the benefits, as the current government is doing, it would be better advised to replace these with income supplements that also act as an incentive to work

One such policy already in place – albeit, with very confusing incentives and extensive bureaucratic impediments – is the negative income tax. Revenues accruing to workers from the negative tax (which is, for all practical purposes, a subsidy that is a fixed percent of every Shekel earned) rise with income, making this an increasingly attractive incentive to work – and an incentive to report all earned income (which is of course important in other realms as well).

While it is crucial that Israel move from incentives not to work to work-incentives, it also needs to wean employers from their addiction to cheap foreign labor. In a country inundated with relatively unskilled and uneducated Israeli adults, it is inconceivable that the government allows the import of hundreds of thousands of additional unskilled and uneducated workers from abroad. Roughly one in eight workers in Israel's business sector is not Israeli. Of these non-Israeli workers, 70% come from abroad and 30% are Palestinians.

While a turnaround in incentives to work and to hire is vital, it is insufficient. Forcing an able, but unskilled, person to work can create a major problem at the individual level and it is inefficient at the national level. A restructuring of incentives must be accompanied by a major improvement in the tools provided Israelis to work. This should begin with an intensive effort to enable those who are able and interested in completing high school and beyond to be able to do so. Included in the package should be the possibility to receive vocational training in areas required by the economy – vocational training whose efficacy is constantly measured, monitored and evaluated in real time to ensure that such expensive projects are effectively attaining their goals. The accompanying job placement should be based on the workers' success rather than on benefits that it saves the government. In the long run, successful workers will emerge from poverty, increase productivity – and not only stop receiving welfare, but also begin paying income tax and shouldering the overall responsibility for the nation.

Second policy sphere: creating a supportive environment

including, but not limited to

a. Extended school days and subsidized afternoon youth enrichment programs

b. Substantial upgrade of the transportation infrastructure

Changing the structure of work incentives and providing tools and skills is insufficient. It is also imperative to focus on the surrounding conditions. If a person with basic skills is finally looking for a minimum wage job, but the children return home from school at noon, there is a reduced likelihood that this individual will ever be able to get their foot into the labor market door.

Israel's schools need to not only offer a better education (a part of the third policy sphere below focusing on strategic issues), they also need to change their schedules and move from six day school weeks to five day ones that match the labor market while lengthening the school days. This is particularly important in the country's poorer towns and neighborhoods – the natural places for beginning to implement such a change.

The billions of shekels currently being spent on child benefits each year should be diverted toward the building of lunchrooms and the provision of hot nutritional meals (particularly in the poorer areas) – and only in schools providing a full core curriculum. This will ensure that the current funds are better spent on today's children and it will also improve the employment prospects of many of these children in the future.

In Israel's poorer areas, there is also the need to support after-school enrichment programs for the children in sports, music or other activities warranted important by their parents. These will benefit the children while keeping them out of harm's way and enabling their parents to begin entering the labor market.

Being able to actually find and reach work is the next rung on the employment ladder. The fact that Israel is physically very small means that nearly all of its population could be within 30 minutes of one its major cities – where most of the jobs are – had there been a quick, reliable and inexpensive transportation infrastructure.

This policy sphere provides an illustration of why current crises need to be addressed through strategic perspectives that include the core issues rather than being dealt with via short-run solutions focusing only on the burning symptoms. One particularly important case in point is the sky-rocketing price of housing in Israel. A key long-term approach would be to improve the schools in what is currently referred to as Israel's periphery so that they will become some of the country's best schools, while at the same time constructing the rails and roads that will convert these peripheries into suburbs.

Such a double-pronged policy will deal with the two most important issues – after personal safety and health – facing young families in Israel's cities: the education of their children and access to jobs. These families will be able to move to outlying areas, substantially increasing the size of their homes at significantly lower cost while the children receive a good education and the parents will be able to reach their jobs quickly and cheaply.

As educated families move outside the big cities and the transportation infrastructure improves, firms will also take advantage of the lower real estate prices in the periphery/suburbs, the changing demographics, and the quicker transportation, to relocate there. Expensive tax benefits currently provided firms in antiquated low-skilled industries can be replaced with infrastructure investments that are game-changers.

Important positive side effects to the above feed into the bigger, strategic picture. Specifically, improving the education in these outlying areas will benefit the children already living there while improvements in transportation to the cities will improve the job prospects of their parents – as of course will the relocation of firms. This will have an effect not only on current employment and poverty rates, but also on future ones. It will also have an effect on relative real-estate prices, reducing the gap between those in the cities and those in what will become suburbs.

Third policy sphere: multiyear strategic plan

including, but not limited to:

a. significant increase in budgetary transparency

b. comprehensive and system-wide education reform

c. heightened law enforcement by upgrading and increasing the efficiency of the police and court systems

Transparency

One of the anomalies of present-day Israel is that no one really has any idea how much money is actually going where. There is a plethora of budget items, thousands of them at the highest resolution, eight-digit level. And yet, Israel's actual budgetary priorities are far from transparent. Not all public spending on education is by the education ministry, nor is all public spending on welfare by the welfare ministry, or even all defense spending by the defense ministry. In the prevailing budgetary environment, it is possible to give politically powerful sectors and interests sizeable amounts behind the veil of public scrutiny and discussion. It is not a coincidence that Israel's civilian expenditures were roughly similar to those of the OECD while its socioeconomic trajectories fell further and further away.

For the democratic process to actually work, voters need to know the alternatives and their consequences. This is an ideal that is rarely attainable abroad as well. But for a country in such a hostile region, with so little margin for error, the area of transparency is one in which Israel must become a world leader.

In an internet-savvy country like Israel, public discourse could be transformed if the budget was made publicly available in a downloadable spreadsheet with all of the budget items in rows and all of the primary budgetary directions and priorities in the columns – with additional columns showing the average amount spent per recipient along with social rates of return. This would allow anyone to download the file and sort and resort the columns to see who is actually receiving what. In addition, easily accessible socioeconomic graphs and tables – like those in this handbook – showing long-term trajectories alongside international comparisons need to be made known and available to all. Accessible data and figures would play an important role in the subsequent elections, providing voters with the facts so that they will better understand the implications of their various choices.

Education

Systemic education reform is long past due in Israel. It is key to the country's future. As such, there is a need to determine a common curriculum that will focus on the subject areas most important in opening up future employment possibilities. Such a determination of what works more and what works less can be carried out using advanced research methods combining survey data with administrative data. This common core, once determined, needs to be mandatory in each of the country's schools. Schools not providing the complete core curriculum should not receive any public support.

The intention here is not for the entire curriculum to be identical for all children – only the common core. Clearly, there is a wide spectrum of social norms, religious beliefs and preferences that need to be addressed, considered, and enabled when determining the overall curriculums provided the various population groups. However, there is only one economic market and the tools that the children will need there do not vary according to a person's religious or

cultural preferences. The right to receive the core tools needed for entering the labor market is one of the basic rights that children have in democracies, and it is no coincidence that schooling is mandatory for all children below a certain age in all of them.

In addition to a core curriculum, there is a need to upgrade the way that Israel chooses its teachers, trains them and compensates them. After the parents, these are the individuals charged with ensuring that the children be able to achieve the most that they can later in life. In light of the high correlation between parental education levels – especially the mothers' – and children's achievement levels, the primary route to enabling upward socioeconomic mobility is to provide children with what too many do not receive at home. This requires finding and employing the best teachers possible.

Israel has some two dozen teaching colleges that provide the bulk of its teachers. The entrance requirements to every single teaching college are below the entrance requirements for every single academic department (except a handful in humanities) in every single research university in Israel. While there are clearly some teachers who could do anything and are in the teaching profession because of conviction, ideology, or a number of other possible reasons, a large share become teachers because they simply could not find anything better. But how can individuals who are not at the university level themselves be expected to bring children up to that level?

One alternative to the current method of finding and educating teachers is to close down all but the best teaching colleges (converting the top ones that remain into general academic colleges) and diverting the resources to more urgent issues. Anyone wanting to become a teacher should attain a BA or BSc, at least, in an academic discipline and then obtain the necessary teaching credentials. In other words, the process should be turned on its head, with individuals first having passed the university screening for acceptance and then

becoming experts – at the undergraduate level, at least – in a discipline that will provide them with alternatives, one of these being teachers.

Then, if Israel wants math teachers (for example), it will have to pay market wages to such people who have alternatives. It will then also be in a position to demand that these individuals provide work time on a par with those market alternatives, in terms of both daily hours and annual days of work.

Herein lies another problem, one that is not only faced by Israel. Competitive markets offer different wages for different skillsets. That is why it is more difficult to hire teachers in math, English, and other disciplines whose graduates receive higher pay in the private market. Individuals may receive less or more in the private market, depending on their area of specialization and abilities. This variance in compensation must invariably be reflected in the school system.

It should be clear that paying a teacher in one field more than a teacher in another field is not an artifact of any value system. Rather, it is simply facing the economic facts of life. If a country wants a good education system, it requires good teachers and it needs to pay more to those who have higher-paying alternatives. Continuing to compensate all teachers identically, regardless of their areas of specialization, will either result in an inability to draw good teacher in the scarce fields, or it will "break the bank" if all teachers receive the maximum amounts.

The third and final aspect of systemic education reforms needs to focus on the archaic, byzantine bureaucracy called the education ministry in Israel. It is extremely cumbersome, unwieldy and expensive. Its use of basic measurement tools is minimal at best, with similarly ineffective quality control.

For example, Israel has been administering matriculation exams to high school graduates for decades. But it has yet to calibrate these exams in any meaningful way that could provide some guidance as to whether or not there is any improvement or deterioration in the high school graduates' knowledge base.

All that society is left with is anecdotal evidence suggesting a deterioration. Instead of being able to rely on an identical nationwide scale upon which all high school graduates can be compared, higher-education institutions are forced to look for private solutions – which favor the more wealthy – in determining who to accept and who not to accept.

Another example are the Meitsav exams administered at the primary and lower secondary levels. While these have finally been calibrated so as to be comparable over time, they are still missing one of the primary informational tools that any planner must have: how many children actually know what they are supposed to know at each grade level? The reason that this is not known is because the education ministry has never determined what the pupils in each grade level actually need to know.

Law enforcement

Lack of sufficient law enforcement is felt in a variety of different realms. At one end of the spectrum are those who work and are compensated below the minimum required by law: roughly half of those qualifying for minimum wage do not receive it. At the other end is the otherwise legal economic activity that goes unreported, with Israel the home to one of the largest shadow economies in the developed world.

The result is that an already unequal country becomes even less equitable under the law. When transactions are made, but remain unreported, the entire tax burden falls on those who abide by the law. When individuals work, but it is not listed anywhere official, then not only do they not help shoulder the tax burden, many actually increase it because they are incorrectly listed as entitled to benefits. When someone is finally apprehended, the courts are very slow in determining guilt or innocence. For the innocent, the result can be ruined lives and livelihoods. For the guilty, justice is delayed.

When fewer people shoulder the tax burden, there is a need to increase tax rates to try and maintain revenues. But an increase in tax rates only heightens the incentive to hide economic activity and search for ways – legal and illegal – to avoid the payment of taxes. The current situation is not written in stone and it is definitely possible to institute a change. This involves simplifying tax laws, reducing loopholes, enacting compulsory income reporting by all – and substantially beefing up enforcement. It is less a question of setting exorbitant fines and severe punishment and more one of increasing the understanding that if you cheat, there is a reasonable chance that you will be caught and punished.

Improving enforcement can be enormously cost effective if done in a systemic and efficient manner, with the extra tax income more than offsetting the added cost of enforcement. The result would not only be a more equitable tax system, it would also provide the government with the additional resources that it needs to pay for many of the policy changes that it must institute. And to the extent possible, it could also enable reductions in tax rates that would further encourage economic activity – which in turn, would offset at least a part of the fall in revenues – and also reduce the incentive to cheat.

The opportunity

In some respects, the situation in Israel is analogous to the passengers and crew of the Titanic who are focusing only on the rearrangement of deck chairs instead of on that huge iceberg ahead and the need to chart a new course. The ability to change direction is definitely one that Israelis have. Israel is not a developing country by any stretch of the imagination. All the knowledge that Israel needs for implementing a turnaround is already within its borders and does not have to be learned or imported from abroad. Confidence in the ability of Israelis to think outside the box and find solutions to myriad issues has led to more money flowing into Israel than flowing out – with a very strong and stable currency just one indication of this confidence.

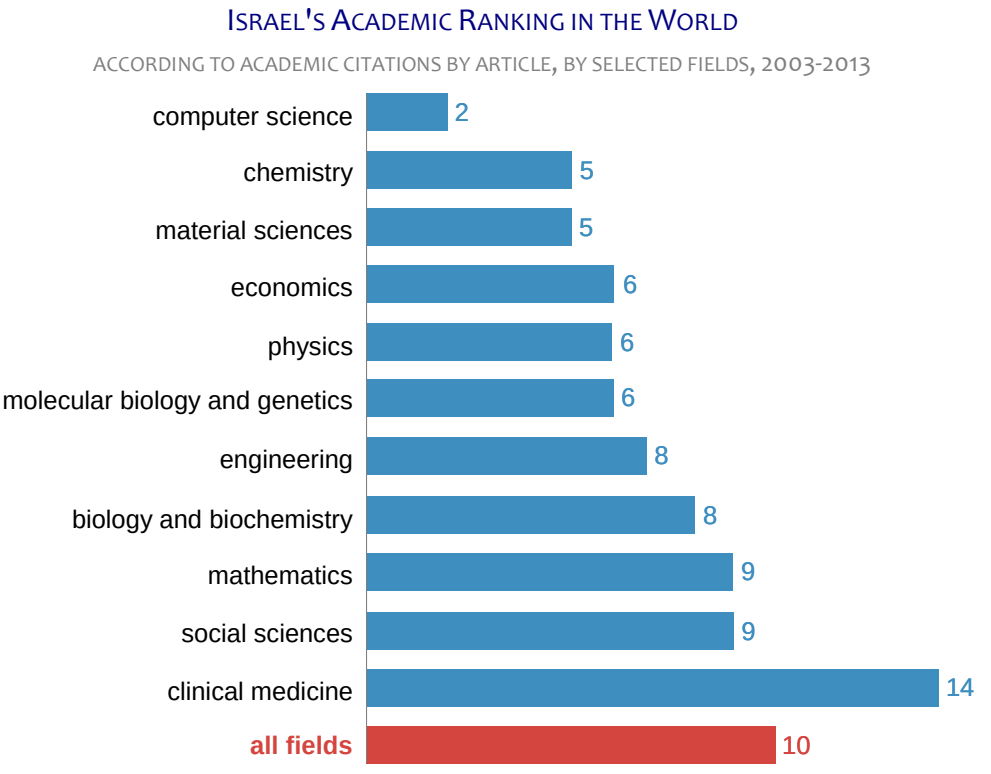
The country's primary problem is a political one. Israel has a very dysfunctional political system that is inherently unstable and laden with incentives for centrifugal policies that favor sectoral, business and personal interests above the common, national interests.

But Israel also has a very engaged and unique population. 400,000 Israelis (5% of the entire population) went out into the streets on one Saturday evening in the summer of 2011 to protest high prices that are just the tip of the iceberg. One can only imagine what kind of a reaction there would be if the majority of Israelis were aware of the magnitude of the entire iceberg, a good portion of which has been laid out in the above pages.

There is still a window of opportunity to implement a turnaround in national priorities. The primary question is whether such a turnaround will occur before this window closes.

Word-class universities

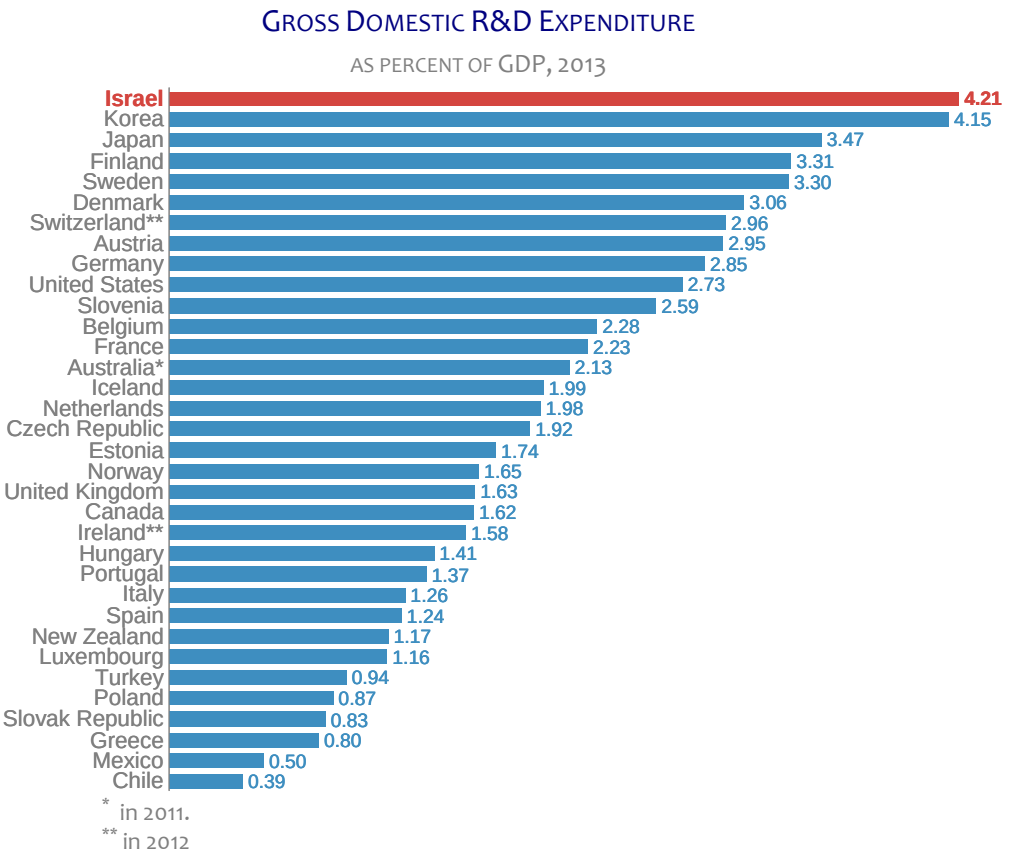
Despite its long-run socioeconomic trajectories, Israel is still home to some of the world's leading research centers. Its universities were ranked second in the world (on the basis of the academically accepted measure of citations per article) in the area of computer science, sixth in physics and tenth overall. Academic excellence is a fundamental cornerstone for technological advances – and Israel still has it.



Source: Uri Kirsh, Technion
Data: ISI Web of Knowledge

Research and development spending at international peak

Ensuring Israel's ability to remain a technological leader requires both research and development. While the basic research done at its universities is among the best in the world, the country invests in R&D at higher rates than any other country. The business sector underwrites 83% of this amount – a greater share than in any other country, and an indication of the attractiveness of such investments in Israel.



Source: Dan Ben-David, Shoresh Institution and Tel Aviv University

Data: OECD

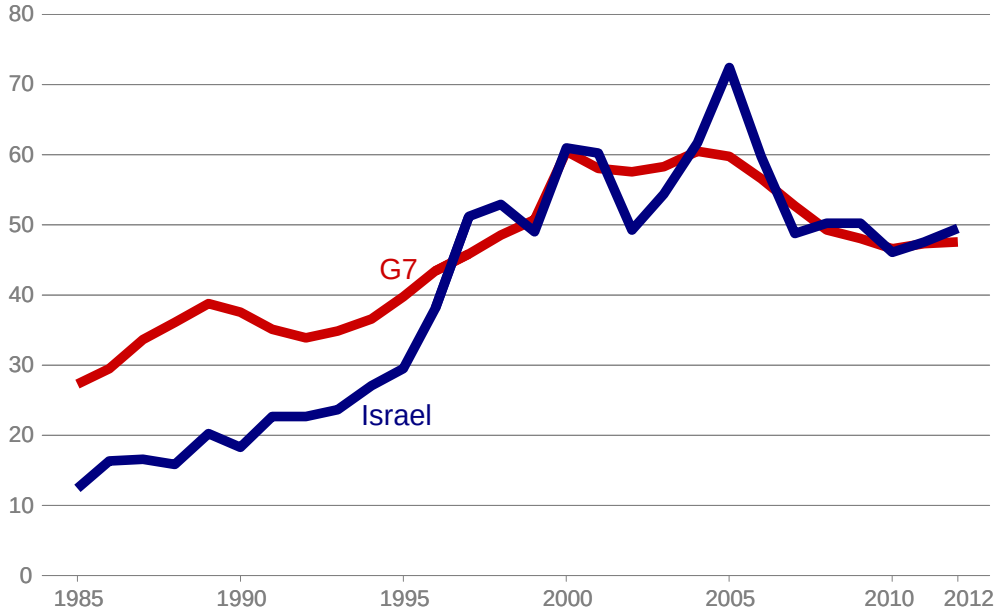
Patents per capita on a par with the G7 countries

Successful research and development needs to result in patents that pave the way for the future. In the 1990s, Israel closed the patents per capita gap with the world's leading economies. Despite the higher volatility in Israel, its path over the past decade and a half has been very similar to that of the G7 countries.

When patents are measured in terms of GDP rather than population, the number of patents relative to each billion dollars of GDP is higher in Israel than in the G7.

PATENTS BY ISRAEL AND G7

PATENTS FILED IN ALL THREE PARTS OF THE TRIAD*: USA, EUROPEAN UNION AND JAPAN
PER MILLION PERSONS, 1985-2012



* patents filed in all three constitute 20%-30% of all Israeli patents

Source: Dan Ben-David and Ira Yaari, Shoresh Institution
Data: OECD

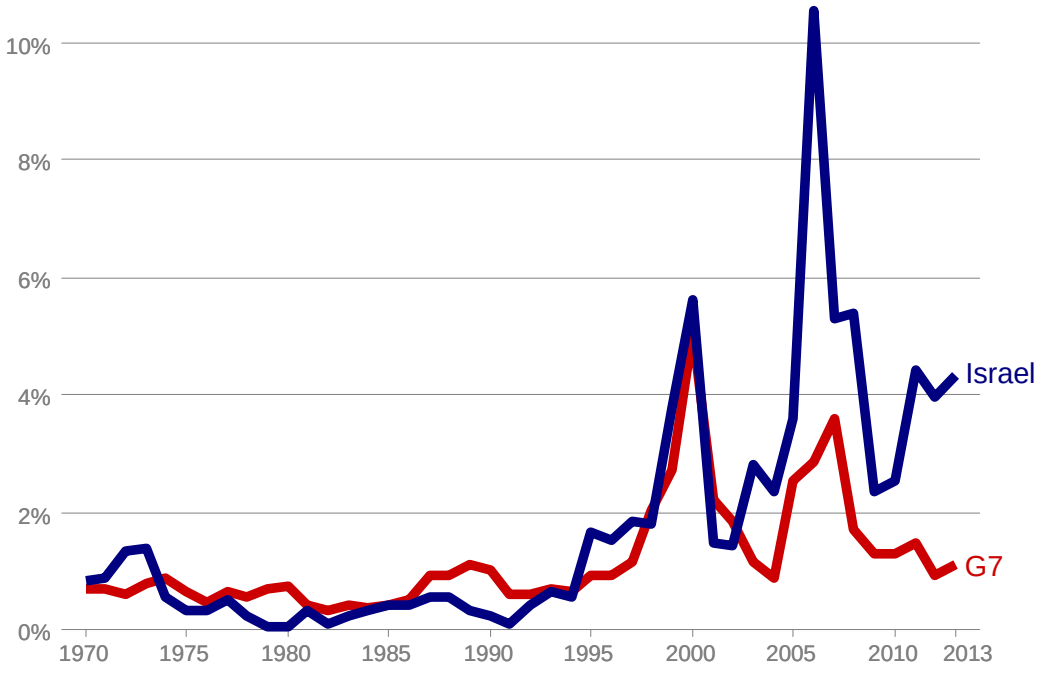
Foreign direct investment surpassing the G7 countries

From the mid-1970s through the mid-1990s, the ratio of net foreign direct investment to GDP into Israel was roughly at or below G7 levels. During the next few years, Israel achieved an approximate parity with the G7 countries.

Since the early part of the last decade, the attractiveness of Israel's business sector has raised the country to above the G7 average as a destination for foreign direct investments.

FOREIGN DIRECT INVESTMENT* IN ISRAEL AND G7

AS PERCENT OF GDP, 1970-2013



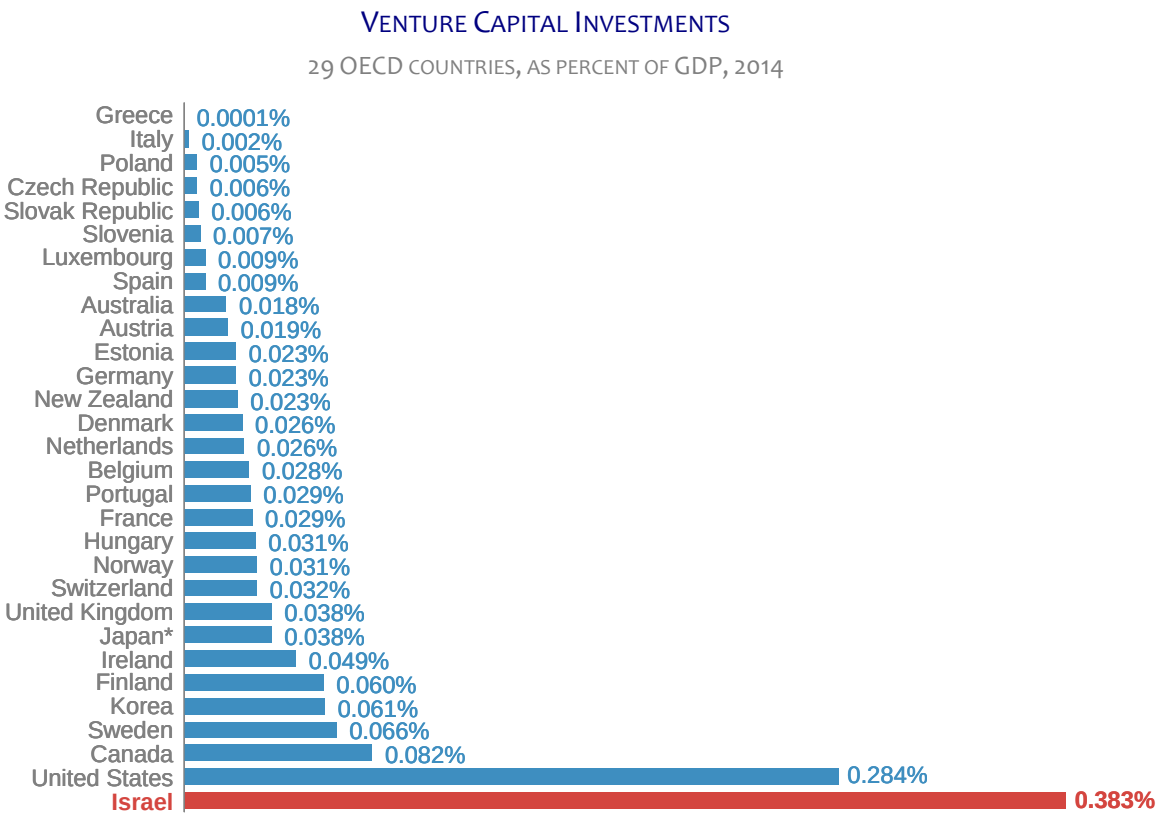
* annual FDI inflows.

Source: Dan Ben-David, Shoresh Institution and Tel-Aviv University
Data: UNCTAD

Venture capital investments in Israel in a league of their own

In an international environment in which developing giants such as China and India are rapidly growing, the ability for Israel to compete in more basic industrial and service areas is diminishing. On the other hand, as these countries grow and become wealthier, their demand will increase for the kind of technological products that Israel has a comparative advantage in.

Israel's combination of research universities, R&D and its innovative capacity have led to technological capabilities that have been consistently attracting venture capital investments at rates unseen elsewhere in the developed world. For Israel, this is where much of its future can be – if it will enact policies enabling a greater share of its society better integration into the labor market and allowing the country's economic engine to utilize more of its existing cylinders.

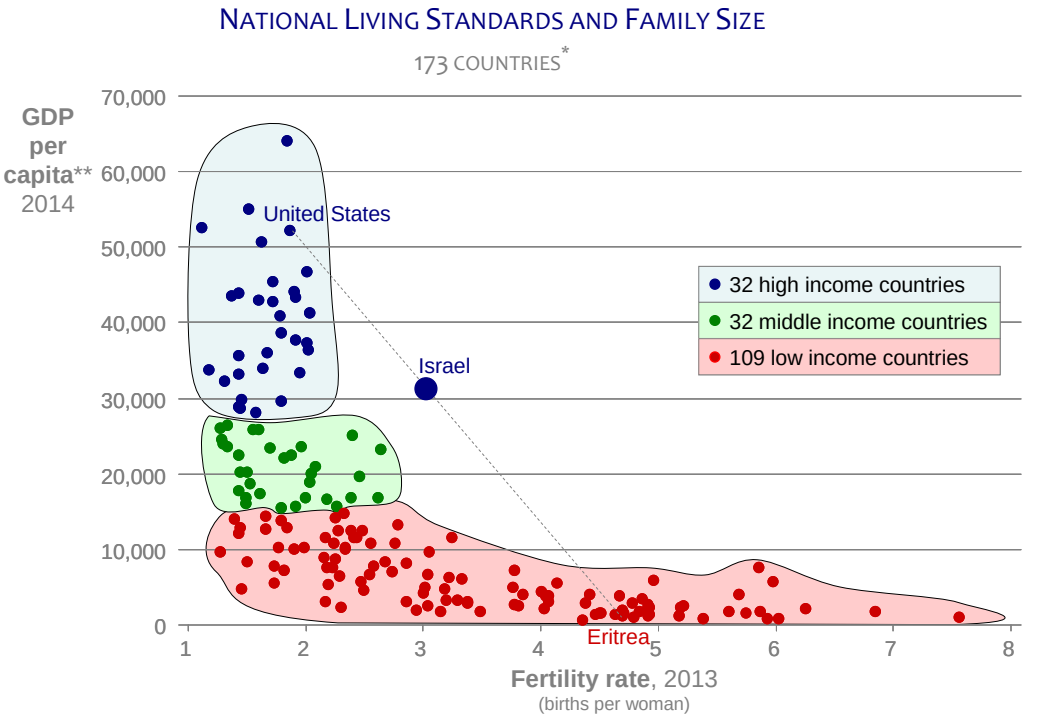


Two nations in one – the choice that Israel needs to make

The primary thread tying together the stark contrasts emanating from the preceding pages is that there are two Israel's in one. One part of the population is literally cutting-edge while there is another part of the population that is not receiving either the tools or conditions to work in a modern, global, competitive economy.

Consequently, in a world divided into 3 groups on the basis of income and family size, Israel is the outlier – a weighted average of the United States and Eritrea. Among developed nations that are growing old, Israel has a very young population, relatively large families – even among its more educated – and fewer single-parent families. If it can muster the political wherewithal to enable the knowledge already in its universities to reach all of its children, it will be able to catch the wave that will take Israel all the way to the top.

But if Israel does not utilize its existing window of opportunity, the current default is an unsustainable long-run socioeconomic trajectory – with all of the existential implications that this has in one of the least hospitable neighborhoods on the planet.



* excluding countries that are primarily oil-exporters and city-states.

** in 2011 PPP dollars.

Source: Dan Ben-David and Sagit Azary-Viesel, Shoresh Institution and Tel-Aviv University updated graph of Benny Landa and Shmuel Even (2007)

Data: World Bank

The "can do" nation

There is something striking, and telling, in the ranking of the world's developed countries when it comes to the confidence that their children have in learning math. The two leaders in this ranking are Israel and the United States – with neither country actually doing particularly well in this area.

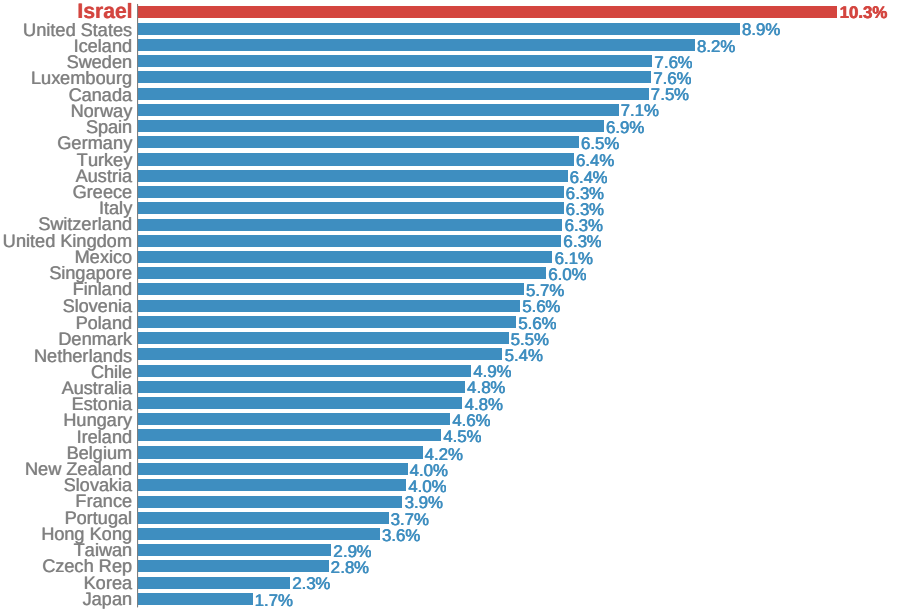
In essence, the confidence ranking reflects two sides of the same national character. In Israel's case, the fact that its pupils are near the bottom of the developed world in terms of educational achievements while at the top in terms of confidence is not just a delusional Achilles heel that manifests itself in what sometimes may appear to be a national state of over-confidence and aversion to dealing with issues that require immediate attention.

It also reflects a "can-do" culture that is extremely confident in its ability to succeed, one that is not afraid to try and fail, one that has repeatedly shown its capability for complete turnarounds in policies and actions when left with no choice.

Israel is an exceptional nation that has turned land that had been arid for thousands of years into a plot of green in satellite daytime photos and into a beacon of light in satellite nighttime photos. It created world-class universities where there was barely even secondary education a century ago – and it is creating drinking water out of sea water today at a pace and magnitude that no other country on earth approaches.

CONFIDENCE IN LEARNING MATHEMATICS

SHARE OF PUPILS WITH HIGH SELF-CONFIDENCE*, 2012



* Percent of pupils answering: "In my mathematics class, I understand even the most difficult work." Comparison includes 37 countries (OECD plus Singapore, Hong Kong and Taiwan).

Source: Dan Ben-David, Shoresh Institution and Tel Aviv University

Data: OECD PISA

Summary

In light of Israel's small size and lack of economies of scale, it's only option for remaining a developed country is to embrace an open economy and adapt accordingly – always remembering that a policy of openness can be a double-edged sword. If a country's basic infrastructures are not at a level that will allow the population to assimilate new technologies and develop them further, then openness and competition may lead to severe socioeconomic problems. On the other hand, good human and physical capital infrastructures alongside efficient regulatory and bureaucratic environments can facilitate a state-of-the-art readiness that can turn the world into a marketplace of unlimited opportunities for a small nation like Israel.

One can only imagine the future if this country with the youngest population in the developed world and cutting-edge technological abilities began to funnel its existing knowledge to all of its schools and provide the world's most confident children with the actual tools to back up that confidence. For such children, the sky would be the limit.

"nurture your mind with great thoughts,
for you will never go any higher than you think"

Benjamin Disraeli
Prime Minister of the United Kingdom, 1874–1880

A quote from a different time and place. And yet, in the final analysis, this is indeed the ultimate barrier that Israel can and should address, if it is to survive – and thrive – in the future.

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About the author

In addition to his position as the president of the Shoresh Institution, Professor Dan Ben-David is a senior faculty member in the Department of Public Policy at Tel-Aviv University. Until recently, he served as the executive director of the Taub Center for Social Policy Studies. Professor Ben-David received his Ph.D. in Economics from the University of Chicago and specializes in macroeconomics, economic growth and international trade. He serves as a Research Fellow at the Centre for Economic Policy Research (CEPR) in London and was a Faculty Research Fellow at the National Bureau for Economic Research (NBER) in Cambridge, Massachusetts. Professor Ben-David also served as an advisor to the World Bank and the World Trade Organization.

In terms of public impact, Dan Ben-David was named "Person of the Year" by the *Calcalist* newspaper in 2010. He was included among the 100 most influential people in Israel by the *Haaretz-TheMarker* newspaper in 2010 and in 2012 while the *Ha'ir* newspaper ranked him among the 50 most influential people in Israeli education in 2007. Academically, Professor Dan Ben-David was ranked among the 1,000 most cited academic economists in the world and among the ten most cited economists in Israel during the years 1990-2000. He received Tel-Aviv University's "Best Teacher Award" in Social Sciences in 2004 and was included in its list of best teachers in 2012.

The Shoresh Institution is an independent, non-partisan policy research center. The institution conducts impartial, evidence-based analyses of Israel's economy and civil society. Its objective is to assist in moving the country towards a sustainable long-term trajectory that raises Israel's living standards while reducing disparity among its citizens. To further this goal, the Shoresh Institution informs Israel's leading policymakers and the general public, both inside and outside the country, through briefings and accessible publications on the source, nature and scope of core issues facing the country, providing policy options that ensure and improve the well-being of all segments of Israeli society and create more equitable opportunities for its citizens.

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