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ISRAEL

SELECTED ISSUES

September 2015

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INTERNATIONAL MONETARY FUND

ISRAEL

SELECTED ISSUES

July 22, 2015

Approved By

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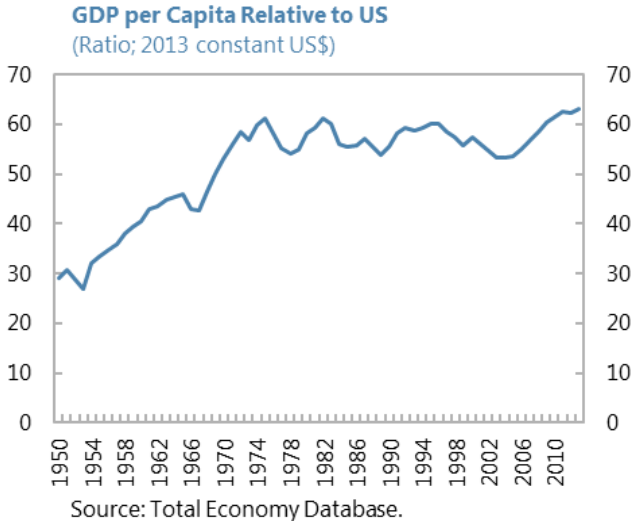
CONTENTS

LABOR PRODUCTIVITY IN ISRAEL—WHY IS IT LOW?[1]

Israel's GDP per capita is low relative to the US, despite high labor input, as labor productivity is low. Catch-up of labor productivity to the US stopped in the 1980s and relative labor productivity has since declined. Low labor productivity is the result of a low capital-to-labor ratio—kept low by high employment growth—and low total factor productivity growth. The latter may reflect lack of competition and product market restrictions, which are amongst the highest in advanced economies. Boosting competition, lowering product market restrictions, and improving the quality of education and infrastructure would help boost productivity.

A. Labor Productivity is Low

1. By advanced countries' standards, Israel's GDP per capita is relatively low. It is similar to Korea and New Zealand, but well below the level in richer Western European countries and the United States.[2]



2. There was rapid catch-up to the United States between 1950 and the mid-1970s, but since then Israel's relative GDP per capita has stagnated at around 60 percent of US GDP per capita.[3] This relative stagnation is of course not unique to Israel, as it has also happened in many Western European countries. However, in Israel, it has stagnated at a lower level.

3. Israel's GDP per capita is relatively low despite high labor input. Labor input (hours worked) per capita is 19 percent higher than the United States. It increased sharply over the last two decades as a result of a sharp increase in the employment to population ratio.[4]

[1] Prepared by Aaron Thegeya.

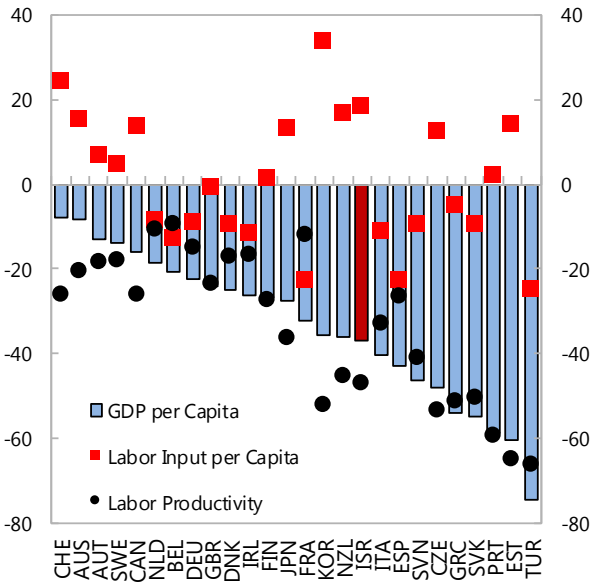
[2] It should be acknowledged that differences in measured GDP per capita may in part reflect differences in the size of the shadow economy.

[3] GDP per capita data are obtained from the Total Economy Database, and measured in 2013 US Dollars with 2005 EKS PPPs.

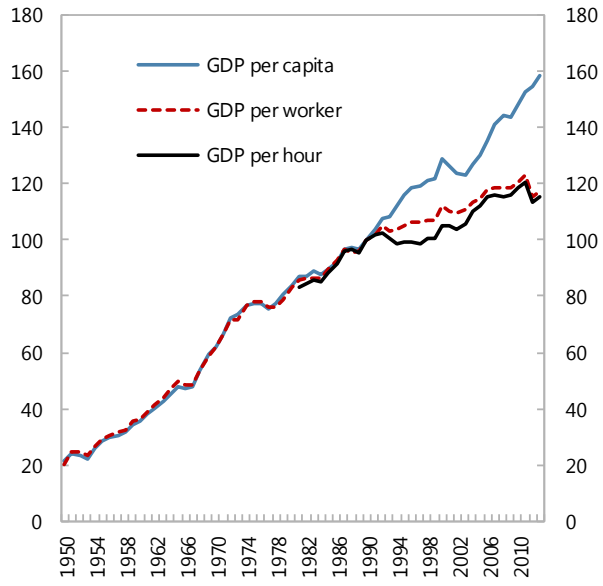
[4] Hours worked per employee did not show a clear trend.

Figure 1. Israel: GDP per Capita and Labor Input

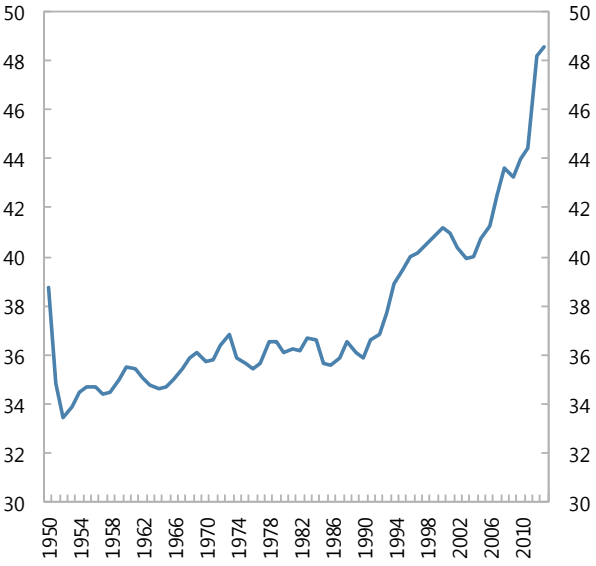
Real GDP per capita and contributors, 2013
(Deviation from US in percent; in PPP terms)



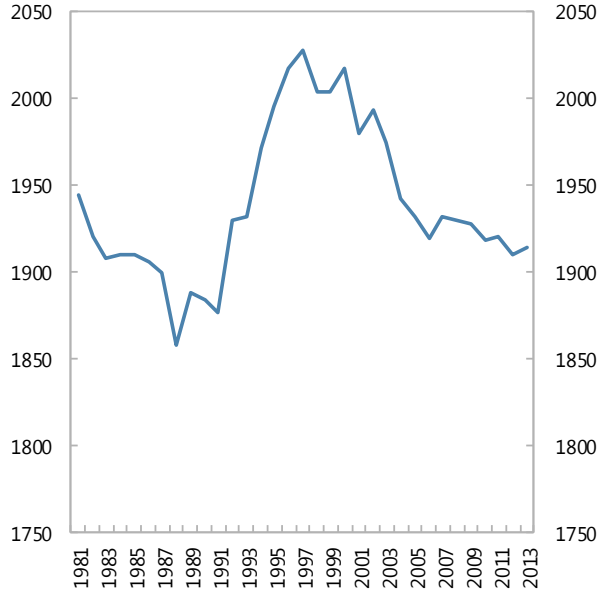
GDP per capita and per worker
(Index, 1990 = 100)



Employment to population ratio
(Percent)



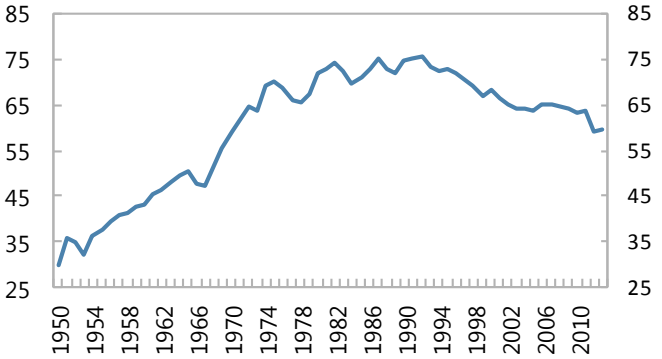
Annual hours per worker



Source: Total Economy Database.

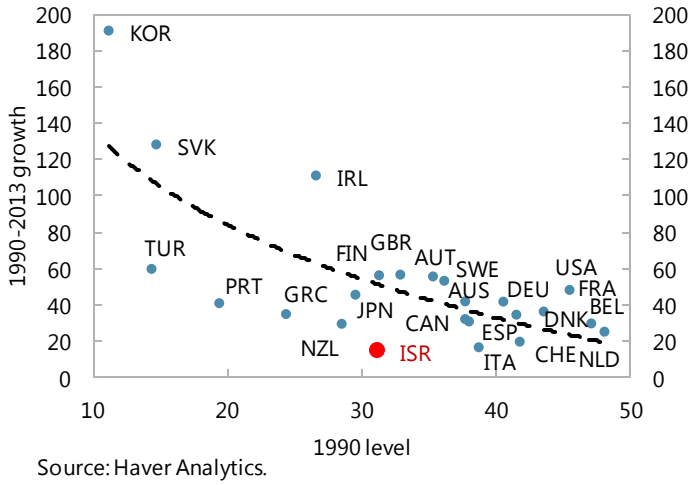
4. Low GDP per capita is the result of low labor productivity. Labor productivity is only 53 percent of the US level, down from 69 percent in the early 1990s. Labor productivity growth since 1990 has been lower than in other advanced countries despite the low initial level of labor productivity. Labor productivity growth has been similar to that in Italy and Switzerland, countries that were much richer.[5]

Labor productivity relative to US
(Ratio per person employed in 2013 US$)



Source: Total Economy Database.
Notes: 2013 US$ converted to 2013 price level with 2005 EKS PPPs.

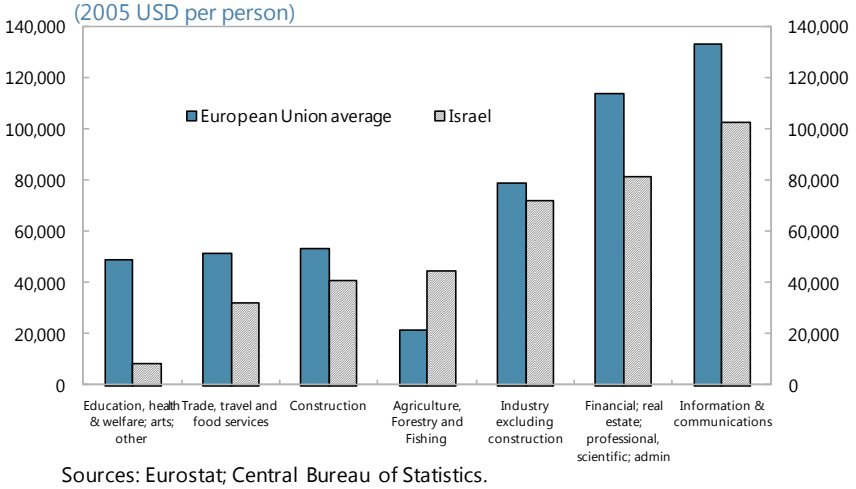
Labor productivity growth
(Percent change 1990-2013 vs 1990 level)



Source: Haver Analytics.

5. An analysis by industry shows that low labor productivity is not just limited to a small number of industries, but is a structural problem across the Israeli economy. Israel's labor productivity is below the European Union average across all industries except agriculture, forestry and fishing. Ben-David (2013) finds similar evidence in an industry-level comparison of Israel to OECD countries.

Labor productivity by industry, 2013
(2005 USD per person)



Sources: Eurostat; Central Bureau of Statistics.
Notes: European Union corresponds to 28 countries.

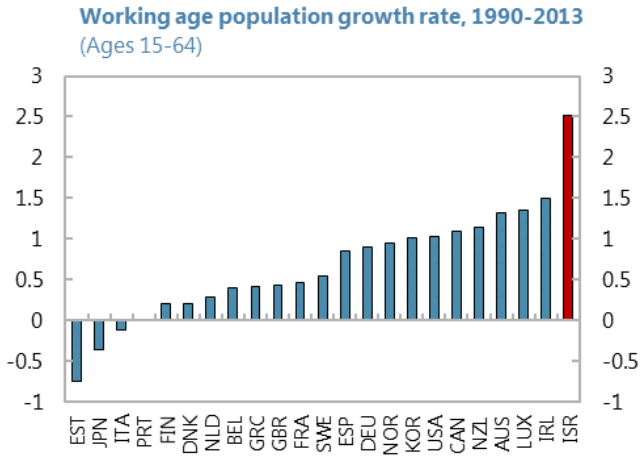
[5] While the unconditional distribution of income per capita across countries has diverged rapidly since the early 1800s, Barro (1991) and Barro and Sala-i-Martin (1992, 2004) show conditional convergence amongst countries with similar initial characteristics. Amongst advanced economies, those with low initial real GDP per capita in 1960 show faster growth over the subsequent 25 years. Neoclassical models such as Solow (1956) and Cass (1965) attribute this convergence to diminishing returns to capital. Countries with lower ratios of capital to labor have higher marginal products of capital, and therefore tend to grow faster.

6. This chapter discusses why labor productivity growth and levels have been low. Two factors are likely to have been important: the low capital labor ratio (Section B) and low TFP growth (Section C). Using a production function approach, the next sections discuss the role of the capital to labor ratio and total factor productivity.[6]

B. The Role of the Capital to Labor Ratio

7. Employment has increased very rapidly, the result of both rapid growth of the working age population, and a sharp increase in the labor force participation rate:

- **Israel's working age population growth rate has been high, reflecting a high birth rate as well as several waves of immigration,** including from the former Soviet Union. Since 1990 its working age population has grown on average by 2.5 percent annually, far higher than most other advanced countries (over the same period, the average annual growth rate in the OECD (except Israel) was 0.7 percent).
- **The labor force participation rate has increased sharply as well.** With the unemployment rate dropping, the result has been that the employment to population ratio increased from 36 percent in 1990 to 48 percent in 2013. The increase in the participation rate is the result of an increase in the general level of education of the population, as well as government policy to encourage individuals to join the labor force.[7]



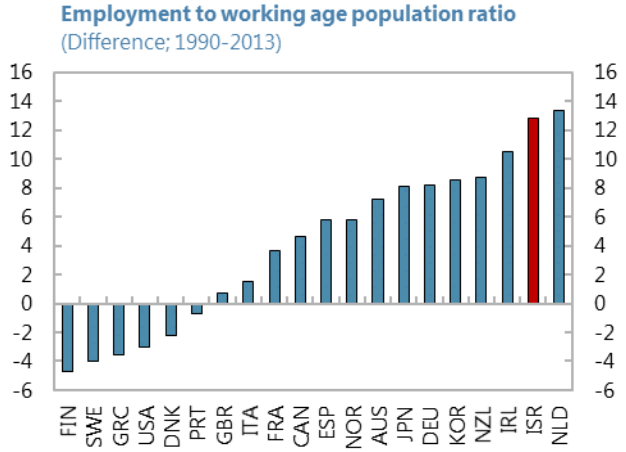
Source: OECD.

8. Rapid employment growth enabled the absorption of the expanding labor force. Since 1990, employment has grown on average by 3.4 percent annually, the highest of all advanced countries. Employment growth was particularly rapid in the 1990s after a large wave of immigration from the former Soviet Union—in 1995 employment grew rapidly by 8.2 percent. Labor market reforms that simplified and reduced the costs of employment contracts helped the economy absorb the inflow of immigrants.[8]

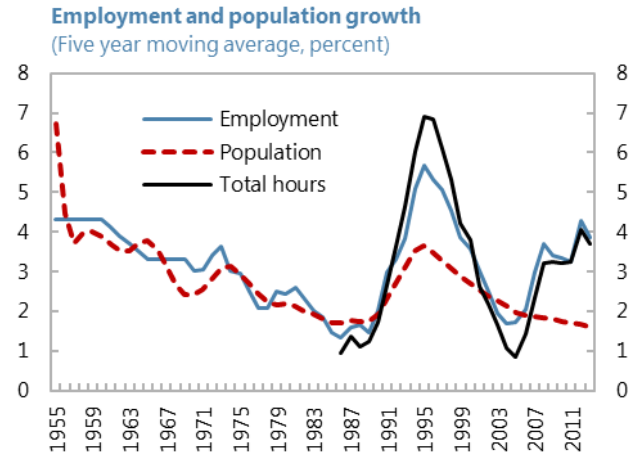
[6] The production function models the relationship between a firm's inputs and output. At the aggregate level, output growth in a simple model is attributed to three factors: capital, labor and total factor productivity, which is a residual term that encapsulates other factors contributing to growth apart from physical capital and labor. Assuming constant returns to scale in capital and labor, the production function can be expressed in intensive form to model labor productivity (see for example: Solow, 1956; Romer, 2001).

[7] See Bank of Israel Annual Report (2012), Box 5.1; Friedman and Zussman (2008).

[8] See Bank of Israel Annual Report (2013), p. 128. Wascher (2007), p. 73, shows that countries with less regulated labor markets tend to have smaller differentials between native and immigrant unemployment rates.

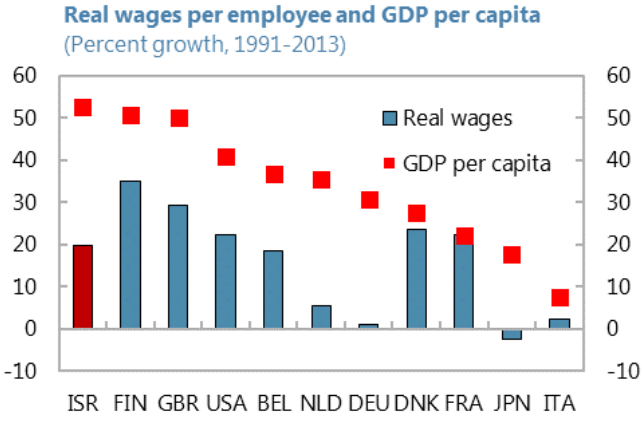


Sources: Haver Analytics; Total Economy Database.



Source: Total Economy Database.

9. Rapid employment growth was encouraged by modest real wage growth, which substantially lagged GDP per capita growth. Between 1995 and 2014, real wages increased by 16 percent, while GDP per capita increased by 38 percent. This pattern—real wages lagging GDP per capita growth—has also been observed in other countries where the employment rate has increased sharply, such as the Netherlands and Germany.[9]



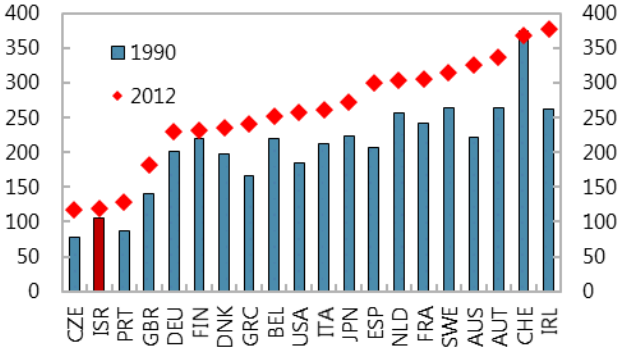
Sources: Bank of Israel; Haver Analytics.
Notes: Wages are deflated by CPI. Wage data includes gross wages and salaries to households.

10. The flipside of high employment growth has been lower labor productivity growth. Several channels exist that may explain the negative link between employment growth and productivity growth: i) new jobs have on average lower pay and productivity than existing jobs; and ii) rapid employment growth keeps the capital to labor ratio subdued.[10]

[9] See Bakker, Bas. B. "Employment and the Great Recession: The Role of Real Wage", IMF Working Paper, forthcoming.

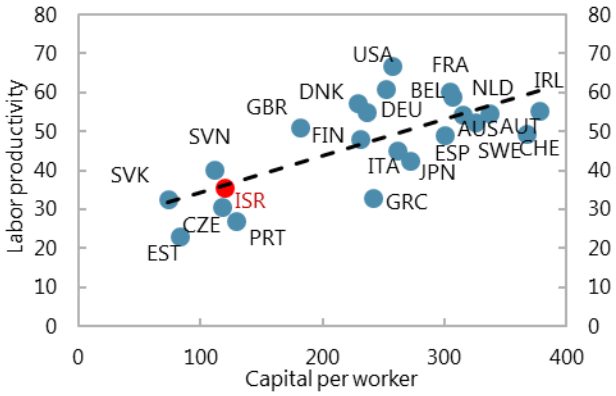
[10] Similarly, poor employment may lead to high productivity growth if many of the jobs that are lost have below-average productivity. In this context, high labor productivity growth in the United States may partly reflect its poor employment performance in the past two decades, with the employment to working age population dropping from 72 percent in 1995 to around 58 percent currently.

Capital per worker
(2005 US$ thousands per person; exchange rate adjusted)



Sources: Haver Analytics; Bank of Israel.
Notes: Constant 2005 net capital stock; data adjusted to 2012 US$ exchange rates.

Labor productivity and capital per worker
(2012)

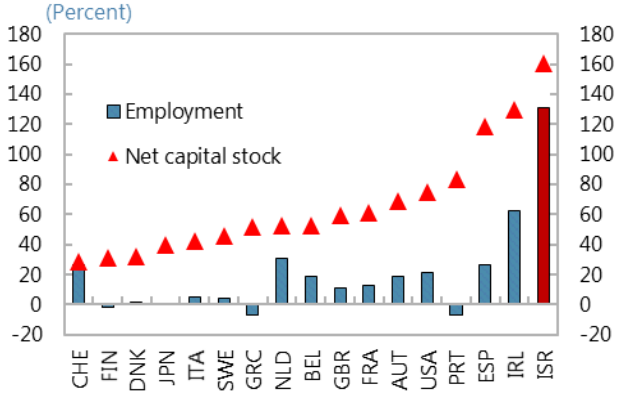


Sources: Total Economy Database; Haver Analytics.

11. The slow increase in capital per worker since 1990 has been the result of rapid employment growth—not a slow increase in the capital stock. In fact, the percentage increase in the net capital stock in Israel was relatively rapid.

12. Indeed, with very high employment growth, high investment rates were needed just to keep the capital-labor ratio from falling. To see, this, consider the following example. Assume the capital-output ratio is 2—the capital stock is 200 percent of GDP. If employment grows by 4 percent annually, the capital stock needs to expand by 4 percent annually as well—which requires net investment of 8 percent of GDP just to keep the capital-labor ratio constant.

Increase in employment and net capital stock,1990-2013
(Percent)

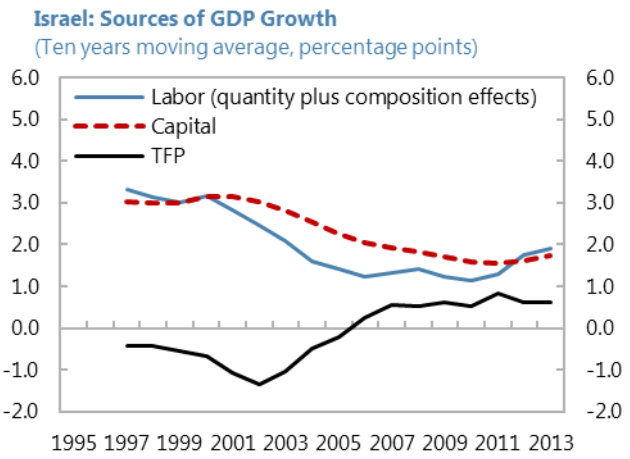


Sources: Haver Analytics; IMF WEO; Central Bureau of Statistics.
Notes: Net capital stock in 2005 constant prices.

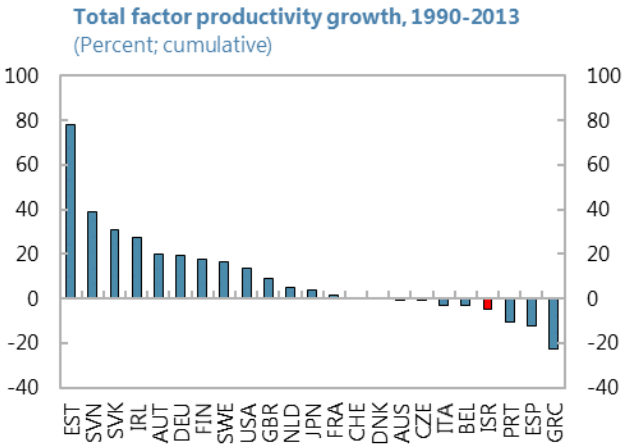
13. Aggregate low capital-labor ratios in part reflect the dual nature of Israel's economy. Capital-labor ratios are particularly low in the low-tech industry, which has absorbed a lot of labor. In the high-tech industry, by contrast, capital-labor ratios do not seem low.

C. Why Has TFP Been So Low?

14. Israel's total factor productivity since 1990 has been one of the lowest amongst advanced economies. There was in fact a slight decline of total factor productivity levels, the result of a sharp decline in the 1990s and a recovery since.



Sources: Conference Board, Total Economy Database.



Source: Total Economy Database.

Low TFP growth and levels may in part have been inevitable and reflect Israel's position as a small isolated economy with few direct trade links with immediate neighbors, high defense expenditure due to its geo-political situation that limits productivity-enhancing public spending, and compulsory military service that lowers private sector employment amongst young individuals.

But there have also been some factors that were not inevitable. These include product market restrictions, quality of education, and quality of infrastructure, which are discussed below.

The Role of Product Market Restrictions

15. Israel is the most restrictive amongst advanced economies in terms of product market regulations (PMR). State control, barriers to entrepreneurship, and barriers to trade and investment all rank amongst the highest across its peers.[11] In terms of sectors, Israel ranks amongst the highest in regulation of network sectors, retail trade and professional services (see Box 1 for a description of PMR indicators).

The Impact of Product Market Restrictions on TFP—What Does the Theoretical Literature Say?

16. Many papers have argued that lower product market restrictions will boost TFP. The theoretical literature suggests that lowering product market restrictions improves allocational efficiency, boosts managerial performance, and increases incentives to innovate and adopt new technology.

[11] The World Bank's Doing Business Indicators (2015), show that enforcement of contracts in Israel takes 890 days, with most time spent in trial and judgment, compared to 150 days in Singapore; construction permits take 209 days, compared to 26 days in Singapore.

- **Improve the efficiency of allocation of factors of production across sectors**. This results from increased competition and lower margins, inducing reallocation of resources to sectors with higher value-added, as well as increasing productivity and resource allocation within sectors by forcing the exit of less-productive firms. Blanchard and Giavazzi (2003) suggest that lower restrictions lead to lower mark-ups, increased employment and higher real wages.

- **Overcome principal-agent problems and therefore boost managerial performance**. Lower PMRs incentivize higher effort from management to avoid bankruptcy, and allow market entry, thereby enabling better monitoring of performance through comparison with peers (for example, Hart, 1983, Meyer and Vickers, 1997).

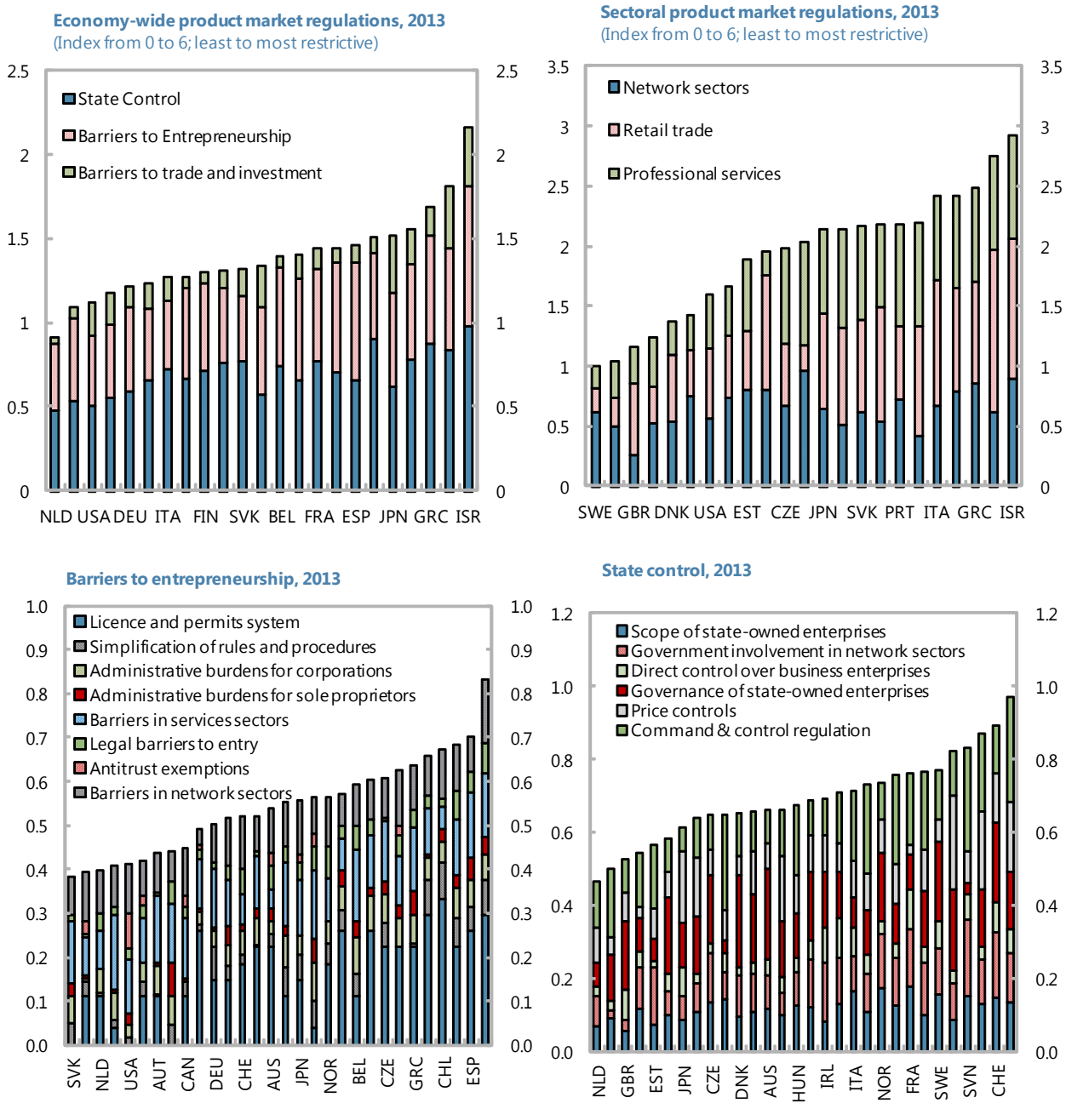
- **Increase incentives to innovate and the speed of technology adaptation**. Lower PMRs increase the threat of competition through market entry, and therefore stimulate innovative activity in order to escape competition (Aghion, et al., 1997, 1999, 2001). Schleifer and Vishny (1997) argue that incentives for innovation and cost efficiency are stronger in private firms because owners can fully appropriate the benefits, whereas in public enterprises these benefits ultimately accrue to tax-payers that do not exercise any direct control.

17. However, other papers point to possible side-effects of lower product market regulations, arguing that they:

- **Diminish incentives for innovative activity.** Monopoly profits provide an incentive for innovation, and a reduction of rents due to regulatory changes lowers ex-ante incentives to innovate if firms are unable to recoup any investment required for research and development (Aghion and Howitt, 1992; Grossman and Helpman, 1991).

- **Potentially increase principal-agent problems**. Although increased competition diminishes shirking incentives for managers, it also reduces firm profits in equilibrium, thereby lowering total payoffs available to incentivize effort from managers (Scharfstein, 1988).

Figure 2. Product Market Regulations



Source: OECD.

Notes: 2013 data missing for USA; 2008 values are used instead. Network sectors include energy, transport and communications. Professional services include accounting, architecture, engineering and legal.

Box 1. OECD Product Market Regulation (PMR) Indicators

OECD Product Market Regulation (PMR) indicators have been collected since the end of the 1990s to turn qualitative information concerning laws and regulations that may affect competition into quantitative indicators. They include economy-wide indicators and sector-wide indicators. All product market regulations are ranked across countries on a common scale from 0 to 6, ranging from least to most restrictive. Indicators are consistent across time and countries.

Economy-wide PMR indicators relate to common restrictions across all industries. Collected data are classified into state control (public ownership and involvement in business operations), barriers to entrepreneurship (complexity of regulatory procedures, administrative burdens on start-ups and regulatory protection of incumbents), and barriers to trade and investment (explicit and other barriers).

Sector-wide PMR indicators focus on regulations that are specific to certain non-manufacturing sectors. The sectors covered include professional services (legal, accounting, engineering, and architecture), retail distribution, and network sectors (telecoms, electricity, gas, post, rail, and air passenger transport and road freight).

The Impact of Product Market Restrictions on TFP—What Does the Empirical Literature Say?

18. Empirical estimates on product market regulations broadly lend support to a positive impact of lower product market regulations on productivity.

- **Results by Nicoletti and Scarpetta (2003) suggest that a one index point decrease in product market regulations increases multifactor productivity by 8 percent**. They use a standard multifactor productivity growth equation extended to include product market regulation indicators, country and industry characteristics, and the state of knowledge in the technology leader country. Their data cover 23 industries in 18 OECD industries from 1984 to 1998. In an alternate model, they suggest that product market regulations have a negative effect on multifactor productivity by slowing down technological catch-up. The estimated impact on multifactor productivity is 2 percent (this model has the possibility of mis-specification bias as it excludes country dummies).[12]

- **Alesina et al. (2005) find that the investment rate increases by 0.9 percent in the long run for a one index point decrease in regulation**. They use a dynamic model of investment to

[12] Dabla-Norris et al. (2015) run a similar model where TFP growth is dependent on the global TFP frontier growth rate, the gap between the frontier and a country's TFP level, and normalized PMR variables in addition to other variables. They find a significant coefficient of -0.537 for the impact of a decrease in PMR in the services sector on TFP growth.

capital stock regressed against product market regulation data within network sectors[13], country sector-specific fixed effects, and common (or sector-specific) year dummies. PMR data include overall regulation, barriers to entry and public ownership from 1975 to 1998 in 21 OECD countries.

Application to Israel

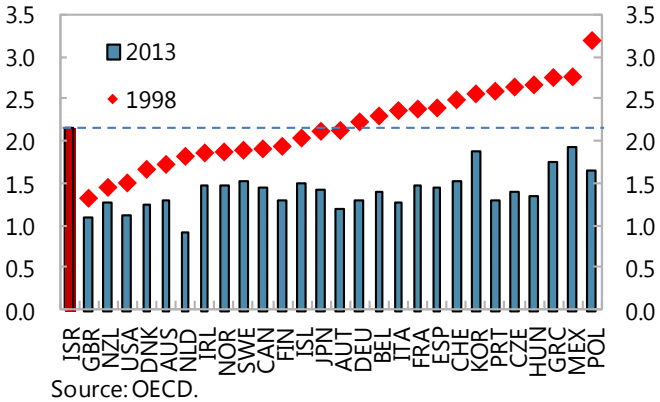
19. Applying estimated coefficients from empirical literature suggests that there may be labor productivity gains from lowering product market regulations in Israel.

- Lowering overall economy-wide product market regulations from current levels to the best practice would increase multifactor productivity by 10 percent (a gradual change over 10 years would imply an annual boost to multifactor productivity growth by 1 percentage point).[14] While these estimates are indicative, they suggest significant gains from product market reforms.

- Decreasing product market regulations in Israel's network sectors from current levels to those of the most liberal OECD country could increase long-run investment by 1.6 percentage points.[15]

20. Benefits of product market liberalization may take a significant period of time to be realized. On average, PMRs decreased by 0.77 of an index point in the OECD over the 15 years between 1998 and 2013. Compared to its peers, Israel's current PMR levels rank in the middle of the distribution of peer PMR levels in 1998. While there is scope to lower PMR levels, the evidence also suggests that reforms may take time to implement.

Economy-wide product market regulations
(Index from 0 to 6; least to most restrictive)



Source: OECD.
Notes: No data available for Israel in 1998. 2013 values missing for United States; 2008 values used instead.

[13] Network sectors include electricity and gas supply, road freight, air passenger transport, rail transport, post and telecommunications (fixed and mobile).

[14] See Nicoletti and Scarpetta (2003). Israel's overall economy-wide regulations are 1.25 index points higher than the Netherlands, which has the lowest overall economy-wide product market regulations.

[15] See Alesina et al. (2005). Israel's network sector regulations as of 2013 are 0.79 points higher than United Kingdom, which has the most liberal network sector.

The Role of Education

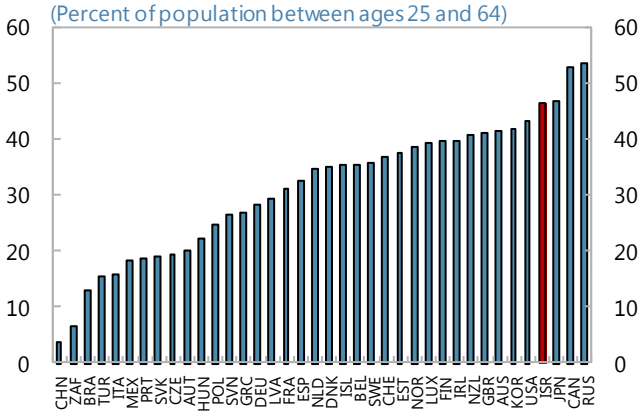
21. Data on the educational level of Israel's labor force pose somewhat of a puzzle:

- On the one hand, Israel has one of the highest shares of population with tertiary education.
- On the other hand, it has one of the lowest PISA scores among OECD member countries.[16]

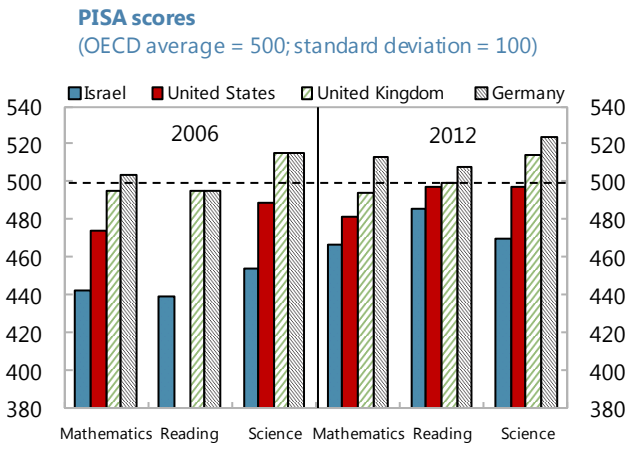
22. Low average PISA scores partly reflect a high share of poorly scoring students. Arab-Israelis score particularly low, which in part may reflect the lower quality of their schools compared with non-Haredi Jewish schools. Haredi schools do not participate in PISA examinations, although their inclusion would likely lower scores even further. The Haredi curriculum focuses on religious studies, and especially for boys, does not teach mathematics, science, or English to a level comparable with other schools.

23. But the share of students with high scores is also relatively low. The share of top performers in mathematics and science is below the average share within OECD countries, suggesting a gap in technical knowledge. However, the share of top performers in reading is higher than the OECD average.

24. While secondary education may be below average, tertiary education and military service may contribute towards closing any skills gaps. The fact that, in spite of low PISA scores, Israelis excel in some human-capital-intensive industries such as information technology may be explained by the outstanding quality of some of its institutions at the tertiary level, as well as skills gained during military service within some units of the Israeli Defense Forces.



Source: OECD.



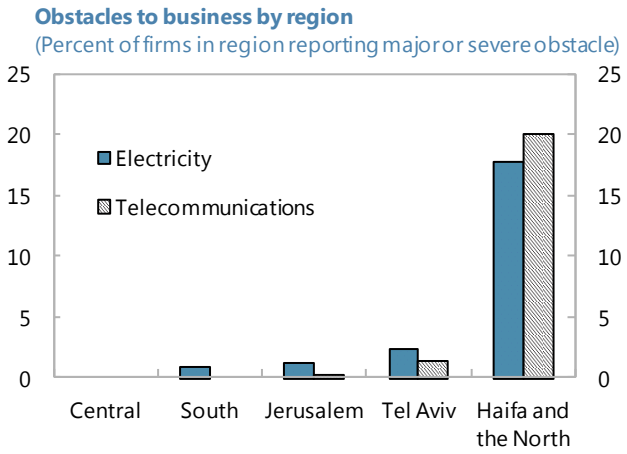
Source: OECD. 2006 reading score missing for United States.

[16] Program for International Student Assessment (PISA) is a cross-country, comparable assessment by the OECD of 15-year old pupils' performance in mathematics, reading, and science.

25. The changing composition of Israeli students creates an important forward-looking issue for TFP growth. The share of ultra-Orthodox Jews and Arab-Israelis in the population is projected to increase by 18 percentage points to 50 percent in the next 45 years. The increasing share of ultra-Orthodox Jews and Arab-Israelis in the labor force is likely to have a negative impact on TFP growth if the skills gap is not closed.[17]

The Role of Infrastructure Quality

26. Geographical disparities in the quality of infrastructure hinder business. For example, while firms in central Israel do not report electricity or telecommunications as obstacles to their operations, over 17 percent of firms in Haifa and the North find access to electricity a major or severe obstacle to their operations. Over 30 percent of firms in Haifa and the north experienced power outages at least once in 2012, compared to 7 percent in the central region.



Source: World Bank Enterprise Survey on Israel, 2013.

27. The overall quality of Israel's transportation infrastructure is below that of other advanced economies. Rail networks are under-developed and congestion on Israel's roads is high, in part because of the paucity of transportation alternatives.[18] In part, the underdeveloped transport network may increase job search costs amongst lower income earners as transportation inefficiencies and fares to potential areas of employment are prohibitively high.

28. Lack of competition in network sectors is an impediment to productivity growth. Market power within Israel's ports and commodity distribution networks (such as electricity and produce) are an impediment to productivity growth through inefficiency and high mark-ups that are passed on to other industries.

Policies to Increase Total Factor Productivity Growth

29. The following policies have the potential to increase labor productivity growth:

[17] As skilled labor and advanced technology are complementary, a larger share of unskilled labor in the workforce may have an effect on total factor productivity by discouraging businesses from adopting technology-intensive production processes. Lewis (2005) finds in the United States that plants in markets with a larger share of unskilled labor use less automation. Acemoglu (1998) and Beaudry and Green (2005) model innovation and endogenous choice of technique and demonstrate that technique may respond to skill mix.

[18] See Ben-David (2012), p. 57–66.

- **Lowering product market restrictions**. Lower economy-wide and sectoral product market restrictions have the potential to increase market entry and competition, thereby leading to efficiency gains and higher productivity.

- **Increasing international competition to low- and medium-technology industries**. Low- and medium-technology industries have productivity levels below the OECD average. Increasing international competition to these industries may stimulate efficiency-gaining innovation. While international competition will also force the exit of lower-productivity firms, with a potential negative impact on employment, it will also improve labor productivity.

- **More active regulation by the anti-trust authority**. A more active anti-trust authority will identify and address market failures due to anti-competitive behavior. The anti-trust authority has made significant recent progress in addressing competition concerns. Measures taken include establishing a market studies division to identify market failures, introducing administrative fines for anti-competitive behavior, and raising the level of fines for violations.

- **Practical on-the-job training**. On-the-job training could prove effective in increasing the labor mobility of less productive workers by giving them the necessary training to move up the productivity scale.

- **Outsourcing labor-intensive processes within high-productivity sectors to lower-productivity regions**. Potential cost savings from outsourcing labor-intensive tasks from higher productivity to lower-productivity and lower-wage industries should be explored. Outsourcing would prove effective in generating employment and growth in smaller towns situated in the periphery of cities.

D. Conclusion

Over the past few decades, labor productivity growth in Israel has been very modest, which has held back relative GDP per capita levels. This partly reflects rapid employment growth, which has kept the capital-labor ratio low. But it also reflects low TFP growth. As labor force and employment growth slow in the future, an increase in the capital-labor ratio, assuming sustained investment rates, would increase labor productivity growth. However, low total factor productivity growth could remain a drag on labor productivity growth.

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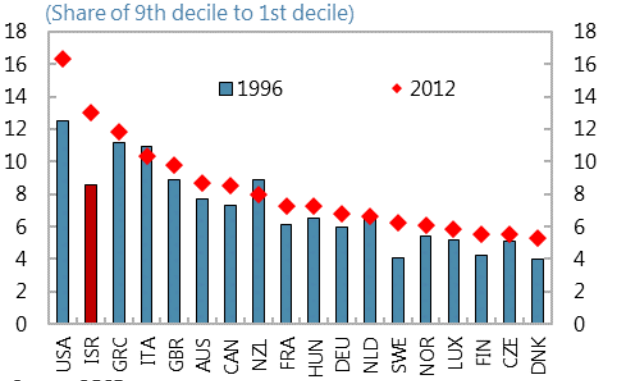
INCOME INEQUALITY IN ISRAEL[1]

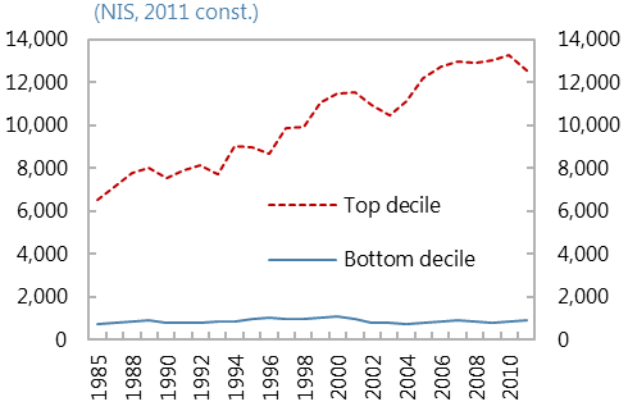
Income inequality in Israel is high. This reflects both high inequality of wage income, with a high share of both high-paying and low-paying jobs relative to other countries, as well as less redistribution through the tax and transfer system. Poverty is concentrated among the Arab-Israeli and Haredi populations, which have lower labor force participation rates, less education and larger families.

A. Characteristics of Inequality

1. *Net* income inequality—i.e., inequality of income after tax and transfers—in Israel is among the highest in the OECD. The income share of the top decile is 13 times the share of the bottom decile, a ratio that is exceeded only by the United States. Real disposable incomes of the top decile have increased since the 1980s, while incomes of the bottom decile have stagnated. Israel's Gini coefficient of disposable income is among the highest in the OECD.

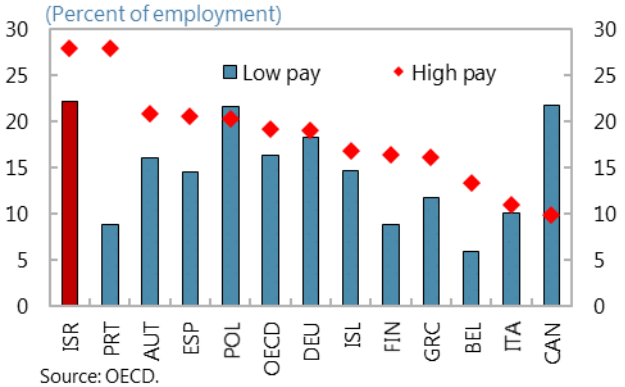


Source: OECD.
Notes: 3-year moving averages of income received by top decile divided by share of the first. Where data are missing a constant value is assumed.



Source: IDC.

2. High inequality partly reflects high wage inequality, with high shares of both high-paying and low-paying jobs relative to other advanced economies. As of 2011, 28 percent of jobs were high pay and 22 percent of jobs were low pay, both significantly higher than the OECD average. These shares have remained high over the last decade, declining only slightly since 2002.



Source: OECD.
Notes: Low pay corresponds to less than two-thirds median earnings. High pay corresponds to greater than one-and-a-half times median earnings. Data refer to 2011 for Israel.

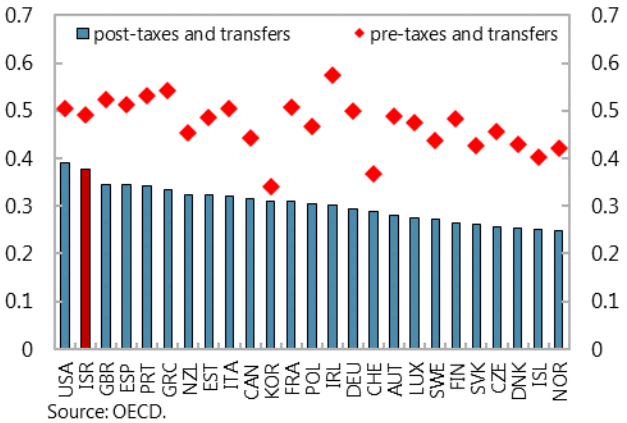
[1] Prepared by Aaron Thegeya.

3. Inequality also reflects a tax and transfer system that is less redistributive than in other countries. Reforms introduced in 2003 have significantly reduced the redistributive role of the tax and transfer system (see section C). As a result, the difference between inequality pre- and post-taxes and transfers is now smaller than in most other countries: taxes and transfers reduce inequality by 25 percent in Israel, compared with an average of 35 percent in the OECD.[2]

4. Pre-tax and transfer inequality of *market income is* less pronounced than inequality of *wages*. This reflects a relatively low *pre-tax and transfer* poverty rate among pensioners. Unlike in many other countries, pensioners get a significant part from their retirement income from *private* pensions and retirement saving products, rather than from government transfers only.

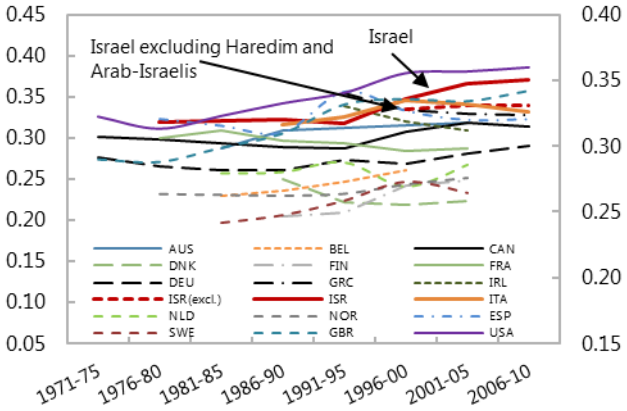
5. High net income inequality is not just the result of low incomes among Arab-Israelis and Haredi Jews. While disposable incomes are particularly low amongst the Haredi Jews and Arab-Israelis, net income inequality levels in Israel excluding these two groups are still greater than in all advanced countries except the United States and United Kingdom.

Gini index, 2011



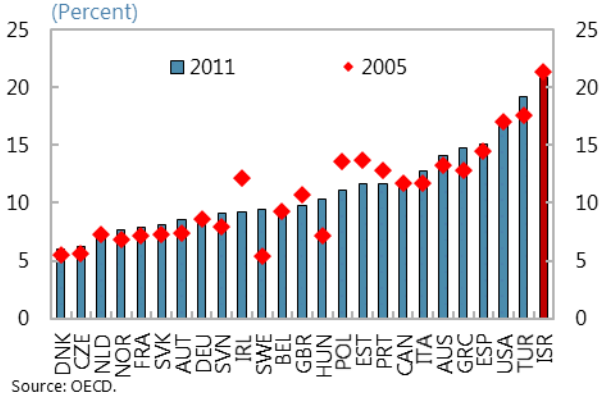
Source: OECD.
Notes: Gini indices represent average between 2010 and 2012.

Disposable income inequality
(Gini coefficient)



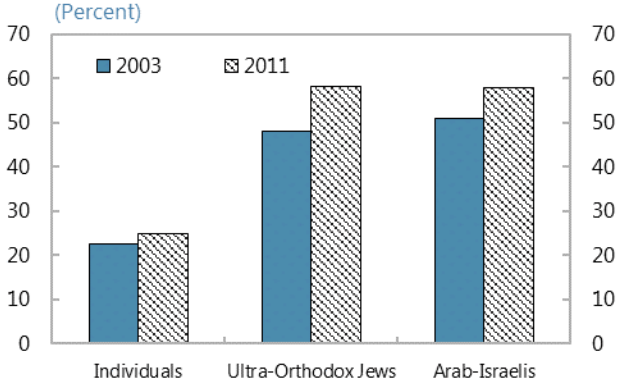
Source: Taub Center for Social Policy Studies, Israel.

Relative poverty rates
(Percent)



Source: OECD.
Notes: The relative poverty line is calculated as half of the median income per household after taxes and transfers. 2005 and 2011 data represent averages between 2004 and 2006, and 2010 and 2012 respectively.

Relative poverty indices
(Percent)



Source: Bank of Israel.
Notes: Relative poverty line is calculated as half of the median income per individual (equivalized).

[2] See Bank of Israel, Annual Report (2013), p. 242.

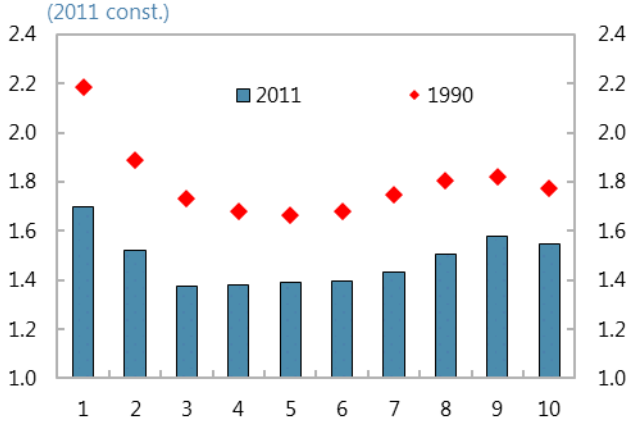
6. *Relative* poverty—the proportion of households earning less than half of the median household disposable income—is the highest in the OECD. One fifth of Israeli households have an income below this poverty line.

7. Poverty is particularly high among Arab-Israelis and Haredi Jews. The relative poverty rate among Arab-Israelis and Haredi Jews was 58 percent, more than double the overall poverty rate. Higher poverty rates amongst these groups are due to lower wages, lower employment, and higher numbers of children than the rest of the population.

8. Gender differences in earnings have declined significantly over the last two decades. By 2011, the average wage income of women was 67 percent of that of men. The earnings gender gap is partly the result of fewer hours worked by women, but gender gaps persist in average hourly wages as well. Among salaried workers, inequality between men and women is highest within the highest and lowest sets of earners.

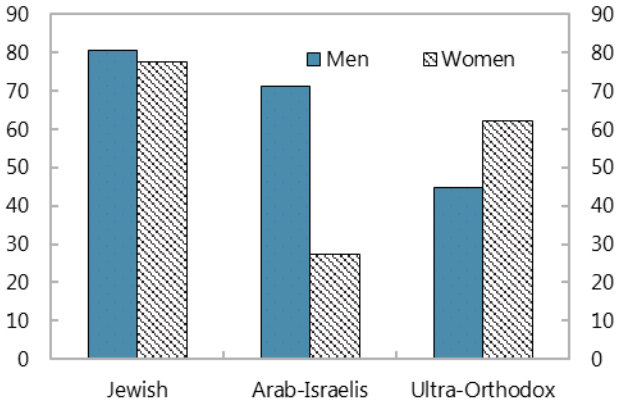
9. There are significant differences in male-female participation rates across population groups. Among Arab-Israelis, the participation rate of women is relatively low, while among the Haredi Jews the participation rate of men is low.

Ratio of male to female salaries by decile
(2011 const.)



Source: IDC.

Employment rates by population group, 2011
(Percent)



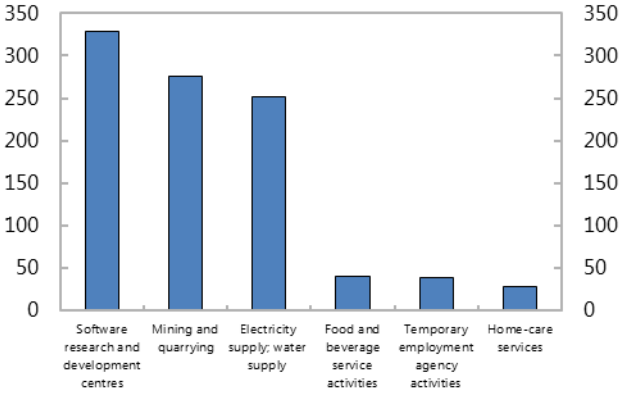
Source: Bank of Israel.

B. Factors Contributing to Market Income Inequality

Differences in Wages and Job Search Costs

10. High wage differentials partially reflect the dual nature of the Israeli economy, with both high-wage and low-wage jobs. Earnings in software and development, which earned the highest average monthly wages in 2013, were over three times higher than the average monthly wage across all industries. In contrast, average wages in some low-skilled industries such as home-care services were significantly below the minimum wage of NIS 4,300.[3]

Monthly wages by sub-industry, 2013
(Average=100; top 3 and bottom 3 sub-industries)



Source: Central Bureau of Statistics.

[3] Data are from Central Bureau of Statistics, Wages and Employment monthly statistics. Data are not corrected for number of hours worked.

11. Well-paying jobs are concentrated in the center, and much less available in the north and south. This is a particular issue for Arab-Israeli women. Arab-Israeli communities are situated in the north and south of Israel, away from large labor markets. Transportation between these communities and the center is limited, which makes commuting difficult. As women stay within their own communities rather than within economic centers, and employment opportunities in their own communities are limited, the result is a lower level of employment.

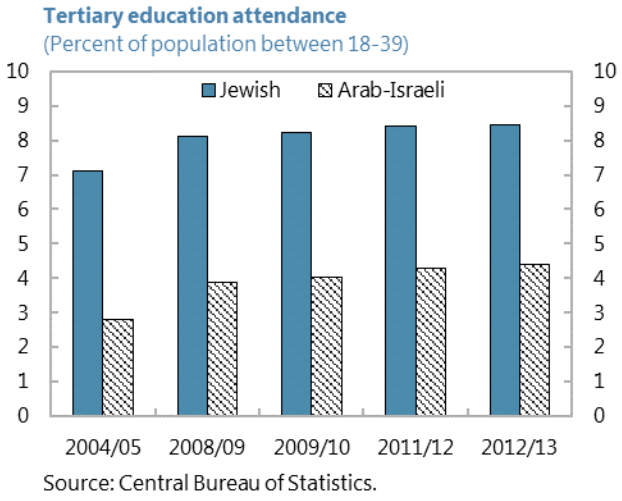
Large Differences in Education Achievement

12. There are large differences in educational achievements between non-Haredi Jews[4] on the one hand and Haredi Jews and Arab-Israelis on the other.

13. These gaps are already evident at the high-school level:

- PISA scores of Arab-Israeli students are 22 percent lower than those of non-Haredi Jews, and lower than the scores of students in developing economies including Jordan and Tunisia.[5]
- In the Haredi curriculum, boys do not learn mathematics, science or English beyond an eighth grade level.[6] While this reflects the cultural preference of the Haredi community, and not government policies, it places students at a significant disadvantage relative to peers in the labor market.

14. Education gaps widen further at university level. As of 2013, Jewish students enjoyed tertiary school attendance rates that were almost twice as high as those of Arab-Israeli students. Although tertiary school attendance rates have been trending upwards for both groups since 2005, a significant gap remains persistent over time.

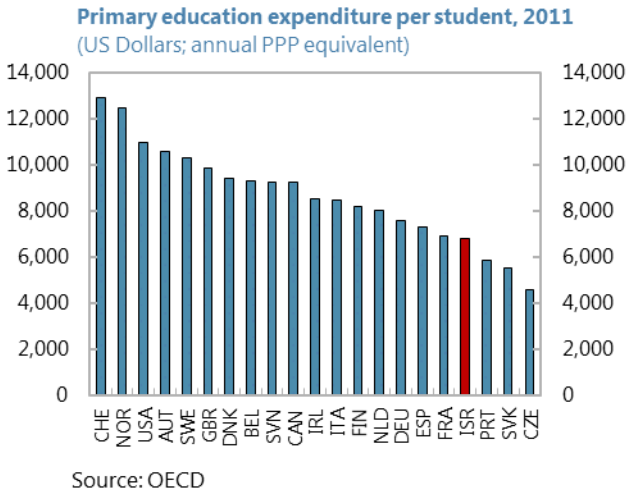


[4] Haredi Jews do not participate in PISA tests.

[5] See Ben-David (2011), Figure 1.

[6] See Ben-David (2012), p. 49. Empirical economics literature has established a strong correlation between education levels, measured in years of schooling, and earnings (see for example Cohn 1998 and Addison, 1998 for an analysis of OECD countries).

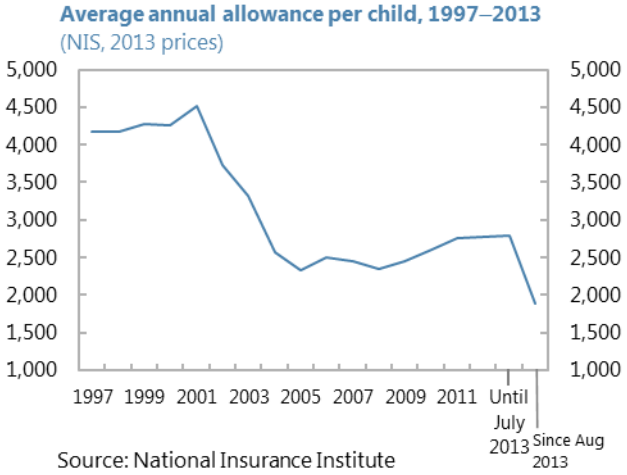
15. Differences in education expenditure allocation amongst various groups further contribute to disparities in education achievements. Resource allocation to Arab-Israelis is significantly lower than allocation to non-Haredi Jews,[7] although some steps have been taken to remedy this with a recent public initiative to allocate education budgets asymmetrically, with a preference to weak socioeconomic schools. Additionally, overall education expenditure per student in Israel in 2011 was 18 percent lower than the OECD average.



16. With the rapidly rising share of the Haredi and Arab-Israeli students, differences in educational performance have become macro-relevant. Between 2000 and 2010, enrolment in Haredi schools increased by 57 percent and enrolment in Arab-Israeli schools increased by 37 percent, while enrolment in state schools increased by only 0.3 percent. By 2010, the share of Haredi and Arab-Israeli students had increased to 48 percent of all Israeli students.[8]

C. The Distributive Role of the Tax and Transfer System

17. The Israeli government traditionally played an important redistributive role. The Income Support Law was introduced in 1982, and provided support for households headed by individuals that were unemployed or earned low wages. Transfers were determined in accordance with parameters such as the composition of the household, age of the recipient and duration of time within the support framework. Income support was coupled with reductions and exemptions from payments such as municipal rates, rent, transportation fares and medical fees.[9]



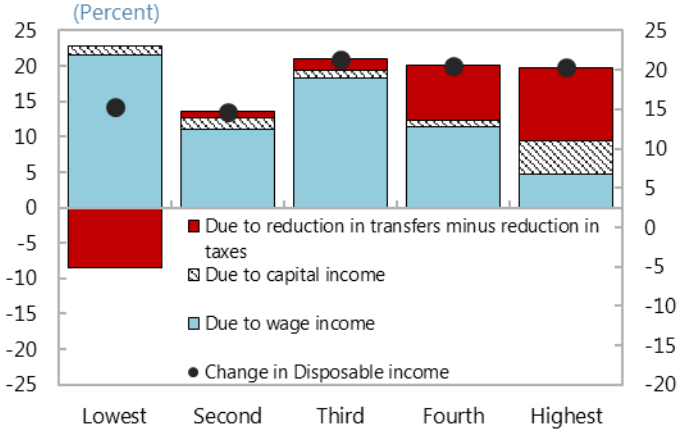
[7] See Blass (2012), p. 381.

[8] See Ben-David (2012), p. 49.

[9] Bank of Israel, Annual Report (2002), Box 2.1.

18. In 2003/04, redistribution was reduced as the government made significant cuts to child benefits and income support. These cuts were motivated both by the desire to reduce public spending and the fiscal deficit, and to boost the employment rate among the growing number of parents with weak labor force attachment—including in particular the Haredi Jews.[10] Other policies that made working more attractive included provision of an earned income tax credit for employees, raising the minimum wage, and subsidizing child care to encourage employment of mothers.

Change in Real Disposable Income between 1999–2001 and 2009–11 by Quintile
(Percent)



Sources: Bank of Israel

Israel: Poverty rates among Households with a Working-Age Head
(After taxes and transfers; in percent)

Type of household	2000	2005	2010
In work, no children	4.2	5.1	5.5
In work, with children	8.3	16.2	18.2
of which			
sole parents	7.0	29.4	30.2
one-earner couples	19.2	35.4	44.1
dual earner couples	1.4	3.8	4.0
Not in work	19.5	77.3	76.0
Total	14.0	20.7	20.3

Note: Relative poverty rates calculated on basis of the poverty threshold of 50%, of median incomwhile accounting for household size.

Source: OECD, 2013.

19. These policies were successful in boosting employment. Employment rates have increased since 2003 across the entire population. Employment rates of Ultra-Orthodox Jews have seen the sharpest increase with male and female employment increasing by 8.6 and 11.4 percentage points respectively. The increase in employment had a significant positive impact on disposable income, especially amongst the lowest quintile of earners.

20. They also reduced inequality of *market* income. Market income of the bottom quintiles has increased more sharply than that of the top quintiles.

21. However, inequality *after* taxes and transfers increased, and relative poverty rates rose. The decline in transfers had a large negative impact especially on the lowest quintile of earners. Poverty rates of one-earner couples with children and those not working increased significantly. Poverty rates of Arab-Israelis and ultra-Orthodox Jews also increased over this period *despite* higher rates of employment, by 7.1 and 10 percentage points respectively.[11]

[10] See OECD (2013), page 22.

[11] See Bank of Israel, Annual Report (2013), Table 8.1.

D. Conclusion

22. High income inequality in Israel reflects both high wage inequality and less redistribution through the government. High wage inequality is in part the counterpart of the employment miracle—Israel's labor market has been very good in absorbing new workers, including those with fewer skills.

23. Reforms in the past decade that have boosted employment and which have contributed to higher *market* income of the lower quintiles, have resulted in higher inequality in disposable income—that is income *after* taxes and transfers. The decline in child benefits may have been particularly important in this respect—both in encouraging employment among parents of large families, and increasing poverty rates.

24. The challenge forward will be to reduce poverty, while maintaining incentives to work. Possible options the government could consider include raising the Earned Income Tax Credit.[12] Boosting education and skills, and improving transportation costs could further contribute.

[12] Israel has an earned income tax credit, but the amounts are relatively low compared with the UK and the US. See OECD (2013).

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LOW INFLATION IN ISRAEL—SHOULD WE WORRY ABOUT IT?[1]

A. Introduction

1. **In a context of global disinflationary pressures, inflation in Israel has slipped into negative territory.** This paper aims to better understand why this has happened. In particular, the paper aims to answer two questions.

- Is the decline in inflation solely due to external shocks (the fall in energy prices and the appreciation of the shekel) or have domestic factors contributed as well?

- What is the transmission channel of external shocks on inflation in Israel? Do lower energy prices only affect non-core inflation, or do they also have an impact on core inflation? Is the impact confined to first-round effects only, or are there also second round effects—with lower inflation expectations leading to lower inflation?

2. **To answer these questions, we employ a semi-structural empirical model.** We apply a slightly modified version of the model developed in Arnold, Chen, and Christiansen (2015) to Israel (see Section C and Appendix I).

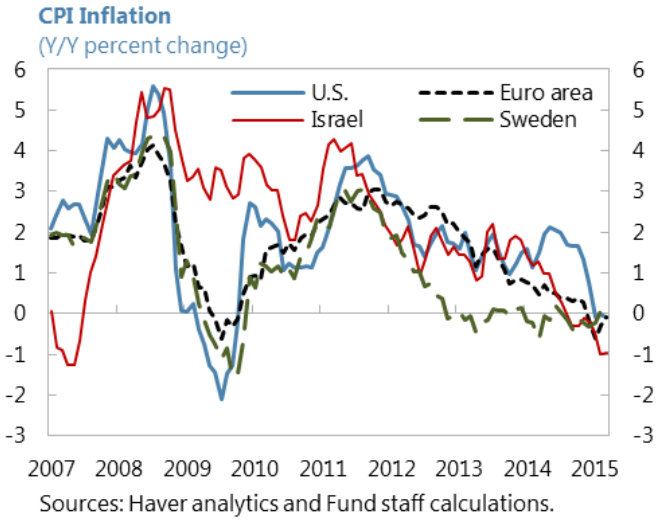
3. **The empirical results suggest that the fall in inflation is largely due to external factors.** As discussed in further detail below, it appears that oil price changes and nominal effective exchange rate (NEER) fluctuations have been contributing negatively to inflation for the past two years. In contrast, domestic factors, such as the output gap, were mostly contributing positively.

4. **We also find that, the impact on headline inflation from external shocks can be sizable and relatively long-lasting.** The analysis suggests the pass through from a NEER shock is large. For example, a 10 percentage point depreciation of the NEER increases headline inflation by 0.5 percentage points after 2 quarters of the shock. An oil price shock tends to have a smaller impact; however, the effect tends to be more persistent, lasting for several years.

5. **The paper is organized as follows:** Section B presents some stylized facts related to low inflation in Israel and the monetary policy response so far. Section C discusses the empirical model and the results. Section D concludes.

[1] Prepared by Jiaqian Chen.

B. Inflation and monetary policy responses: Stylized Facts



Sources: Haver analytics and Fund staff calculations.

6. Inflation in Israel has declined from 3.5 percent in 2011 to minus 1.0 percent in March 2015. It has been below the lower end of the Bank of Israel's (BOI) target band of between 1 and 3 percent since mid 2014. This decline is not unique to Israel, but has also been observed in both major economies (e.g., the United States and the euro area) and small open economies (e.g., Czech Republic, Poland, Sweden, and Switzerland).

7. The drop in inflation has occurred despite robust economic growth. In the last three years, GDP growth has averaged about 3 percent (Figure 1). Unemployment has fallen steadily, and the output gap—if any—has likely been modest.

Decomposing inflation

8. In our analysis we distinguish between core and non-core inflation, and between first and second round effects.

- We decompose inflation into ***core*** (headline inflation excluding energy) and ***non-core*** inflation (energy) components. Domestic factors can only influence core inflation, while external factors can affect both core and non-core.

- We will look at both ***first round*** and ***second round*** effects. First round effects are the impact of shocks on inflation, while second round effects are the impact of shocks on inflation expectations**.**

9. Using these decompositions we can break down the contribution of external factors into ***direct first-round effects*** on headline inflation (e.g., oil price shocks impacting fuel prices), ***indirect first-round effects*** operating through core inflation (e.g., oil price shocks impacting firms' input costs), and ***second-round effects*** where external factors impact on inflation expectations which then feeds through into prices.

10. Figure 1 (upper right panel) shows that both core and non-core inflation have declined. The contribution from core inflation has been declining since early 2014, while falling energy prices have been contributing negatively to headline inflation since mid-2014. This corresponds to the decline in global commodity prices, especially oil prices, over the same period (Figure 1, middle left panel).

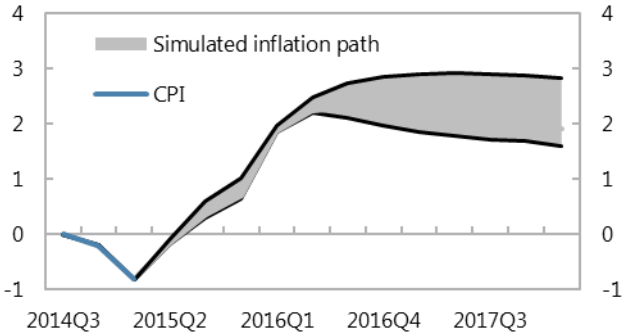
11. The fall in core inflation may have been due to exchange rate appreciation. The shekel appreciated by nearly 20 percent in nominal effective terms between the late 2012 and mid-2014 (Figure 1, middle right panel). This appreciation translated into falling import prices, which could have an impact on both core and non-core inflation.

12. The Bank of Israel has responded with a series of easing measures. Since mid-2012, the BOI lowered its policy rate by a total of 2.4 percentage points to 0.1 percent. Interest rate cuts in August and September 2014 brought an end to the shekel appreciation, and triggered a sharp, if temporary, depreciation of the shekel. When upward pressure on the shekel resumed, the BOI cut interest rates by 0.15 percentage points in March 2015. In addition, the BOI intervened in the foreign exchange market by a cumulated amount of USD 4.9 billion since 2014.[2]

13. These measures seem to have succeeded in stabilizing inflation expectations. Even though headline inflation was still declining, shorter-term inflation expectations bottomed out in late 2014 and have risen slightly since then, with 2-year ahead expectations at 1 percent in March 2015.

14. With current policies, inflation is expected to converge back to the target in 2016. The year-on-year decline in oil prices is expected to slow during the latter part of 2015, providing sufficient support for inflation converging to the target. Moreover, the current policy mix is very accommodative reflecting the near-zero interest rates and broadly neutral fiscal policy, despite a near-zero output gap and declining unemployment.

Simulated CPI Inflation
(Y/Y percent change)

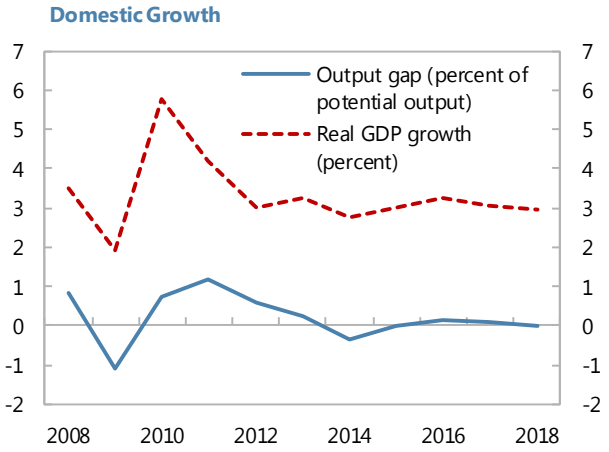


Source: Fund staff calculations.
Note: The simulated inflation path is generated based on an estimated open economy Philips curve, with the assumptions on output gap and oil prices from the WEO and GAS and an unchanged shekel exchange rate against the USD.

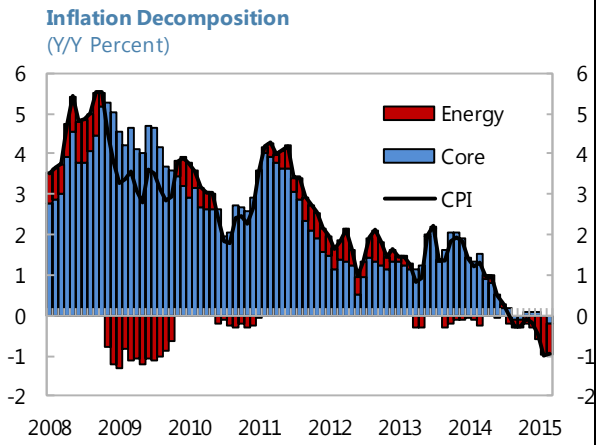
[2] The amount excludes the foreign exchange purchases aiming to offset the effect of natural gas production on the exchange rate.

Figure 1. Drivers of low inflation: stylized facts

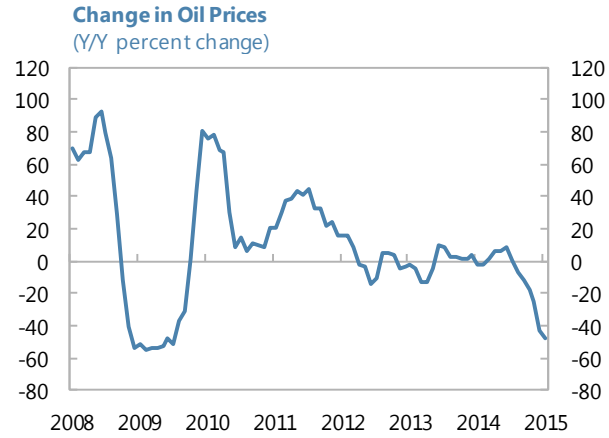
The Israel economy is growing at a healthy pace…



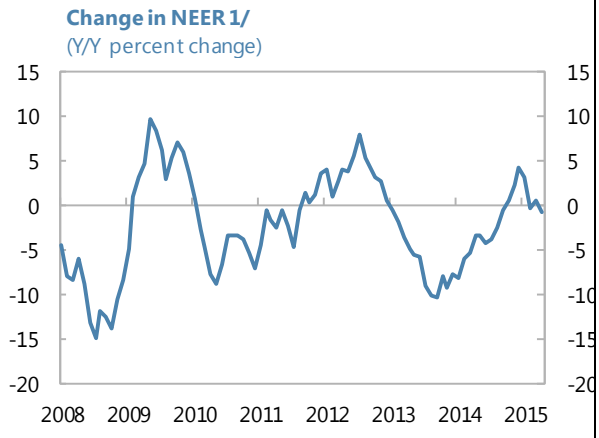
… However CPI inflation has fallen driven by falling contributions from core inflation.



External factors such as oil prices …

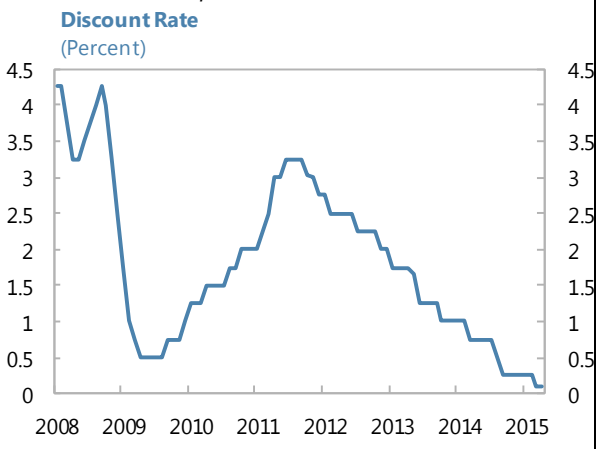


… and exchange rates have played a major role.



Long run expectations have remained well anchored, and short and medium-term expectations have stabilized…

… after sizable BOI rate cuts, end to the NEER appreciation and rebound in oil prices.



Sources: IMF WEO, IMF GAS database, Haver analytics , and Fund staff calculations.
1/ A negative change indicates appreciation of the shekel.

C. Empirical Approach and Results

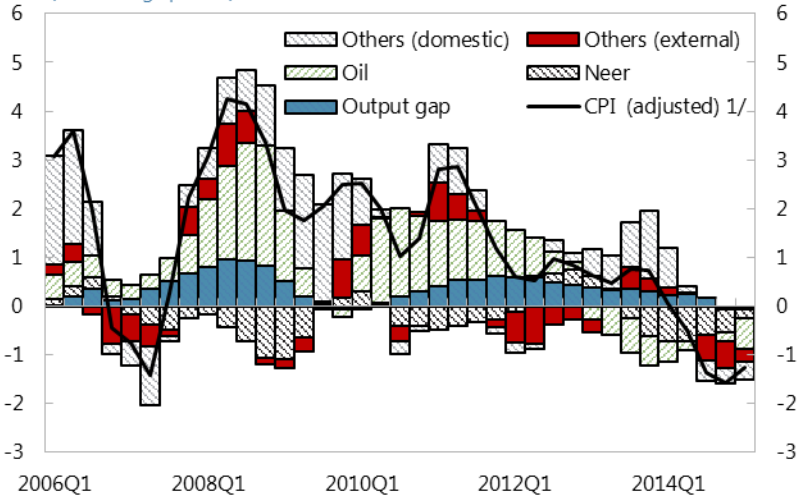
15. Identifying the drivers of inflation and the channels through which they operate is important for determining the appropriate policy response. When expectations are well anchored, temporary external shocks should not have permanent effects on inflation, and policymakers can "look through" these shocks as inflation will converge back to target as the shock dissipates. However, if there is a series of external shocks in the same direction or the shocks are very persistent, then policymakers may need to respond to ensure inflation expectations remain well anchored. Thus, it is important to understand the factors driving low inflation and whether those factors have second-round effects that raise the risk of low inflation becoming entrenched in inflation expectations.

16. As noted above, we employ a semi-structural empirical model to identify various domestic and external factors driving inflation. We use a modified version of the model from Arnold, Chen, and Christiansen (2015). The model uses the identity of headline inflation as the sum of core and non-core inflation to inform the estimation of a hybrid open economy Phillips curve equation for core inflation and non-core inflation equation based on external factors. This allows us to differentiate between domestic and external factors' contributions to inflation, including the persistence of any shocks, as well as their direct and indirect first-round effects on headline inflation. The model also includes an equation for inflation expectations to assess the second-round effects of domestic and external factors. A more detailed discussion of the model and its empirical specification can be found in Appendix I.

Empirical Results

17. The empirical results suggest that external factors have indeed been significant drivers of inflation. Historical decompositions confirm that the external factors accounted for the largest contribution to CPI inflation (Figure 2).

- *External drivers.* Oil price changes and NEER fluctuations have generally had a larger impact than the output gap, particularly in combination. NEER appreciation in 2013 and first half of 2014 had sizable and persistent negative effects on inflation. For instance, the appreciation of the shekel pulled down CPI inflation by more than 0.7 percentage points in



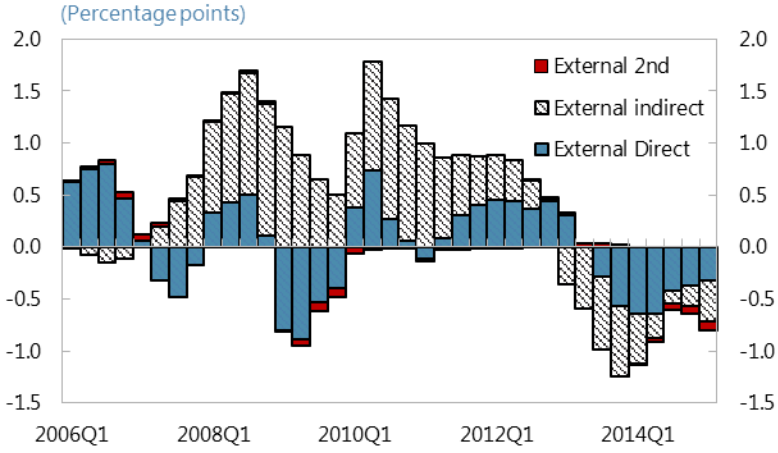
Sources: Bank of Israel, Haver analytics and Fund staff calculations.
1/ CPI inflation is adjusted to account for the constants in the regression framework and any insignificant external factors (see Appendix II). "Other domestic" are the residuals and base effects from the core and expectations equations, while "Other external" are the base effects and residuals from the non-core inflation equation.

2014Q2. However this impact is fading away following the shekel's depreciation in the second half of 2014. Even as the drag on inflation from past NEER appreciation wanes, the decline in oil prices between mid-2014 and January 2015 has become a significant source of disinflationary pressure. The analysis suggests the contributions from oil prices to CPI inflation have fallen by 1.6 percentage points to -0.6 percent in 2015Q1 compared to 2012Q1

- *Domestic factors.* The impact of domestic factors has been modest. The key domestic factor we examine is the output gap, with positive output gaps contributing positively to inflation both before the global financial crisis and in its aftermath. More recently, the contribution from output gap has declined, turning slightly negative in the last two quarters, and is rather small. In particular, the contributions to CPI inflation from the output gap have declined by 0.6 percentage points to 0.0 percent in 2015Q1 compared to 2012Q1.

18. Second round effects have been modest. The model allows us to decompose the sum of the external shocks impact on headline inflation into ***direct first-round effects*** (through non-core inflation)***, indirect first-round effects*** (through core inflation), and ***second-round effects*** (affecting core inflation through inflation expectations) (Figure 3). The direct effects (blue bars) from external factors largely correspond to oil price changes, though NEER fluctuations also contribute to the direct effects at times. Usually though, external factors have their largest impact through indirect effects (orange bars). There is also evidence of second-round effects (red bars), which have recently contributed negatively to headline inflation, but the magnitude of these effects is small.

First-Round and Second-Round Effects of External Factors
(Percentage points)



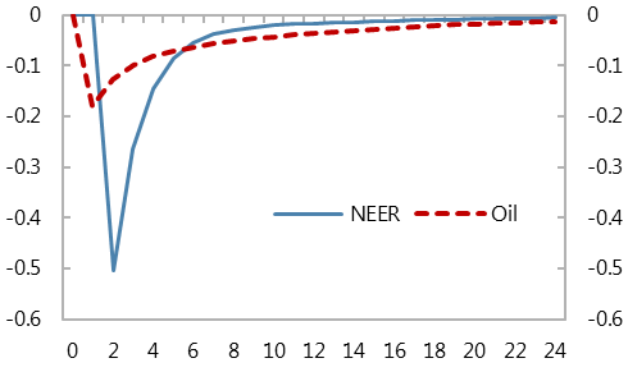
Sources: Bank of Israel, Haver analytics and Fund staff calculations.

19. The impact of exchange rate shocks rapidly tapers off after about five quarters, while the impact of oil price shocks is more persistent. The model can also be used to generate impulse responses of inflation to external shocks, as illustrated in Figure 4. Indeed, the impulse responses of inflation to external shocks illustrate that the impact from an oil price shock tend to be much more persistent compared to a shock to NEER, while the peak impact from a NEER shock can be twice as large.

- ***Oil price shock.*** Figure 4 illustrates the impact of a one-period 10 percentage points decline in the oil prices. As expected, the peak impact (about -0.18 percentage points) occurs at the time of the shock, and inflation will be 0.49 percentage points lower 1 year following the shock. Moreover, the results indicate that the oil price shock has a very long lasting effect.

- ***NEER shock***. The figure also shows the impulse response to a one-time 10 percentage points appreciation in the NEER. Unlike with the oil price shock, the peak impact occurs one quarter after the shock. Also, the effect is less persistent despite the peak impact being more than twice as large (-0.50 percentage points). Moreover, inflation will be 0.9 percentage points lower in 1 year time.

Inflation Responses to NEER and Oil Shocks
(Percentage points)



Source: Fund staff calculation.
Note: Impulse response of CPI inflation to an oil price or NEER appreciation shock of 10 percentage points. The x-axis represents quarters after the shock.

D. Conclusion

20. External factors have been largely responsible for low inflation in Israel. The analysis shows that domestic factors, particularly the output gap, have played only a limited role in the recent episode of low inflation. External factors, including the recent sharp decline in oil prices and NEER fluctuations, have been the key drivers of disinflation.

Appendix I. Main Empirical Methodology and Results[1]

Empirical approach

1. **We closely follow the empirical methodology in Arnold, Chen and Christiansen (2015).** First, we separate headline inflation into core inflation and non-core inflation which allows us to distinguish between direct and indirect first-round effects of shocks. For example, an oil price shock will impact non-core inflation directly but might also affect core inflation through input prices. In addition, we assess effects of shocks to inflation that work through price setting and expectations, so-called second-round effects. This allows us to document how different domestic and external factors impact headline inflation through the different channels. Domestic factors are captured by the impact of the output gap on inflation. External factors are captured by oil price changes and nominal effective exchange rate (NEER) fluctuations.

2. **We employ a semi-structural empirical modeling approach.** We start with the identity of headline inflation as the weighted sum of core and non-core inflation. Core inflation is modeled as a hybrid open-economy Phillips curve equation, which includes lagged core inflation, forward-looking expectations, and domestic and external variables. Non-core inflation is linked to external factors only. Inflation expectations are modeled based on all domestic and external factors impacting headline inflation. This allows us to capture the second-round effects from shocks.

3. **The system of equations is estimated using the Seemingly Unrelated Regressions (SUR) approach to account for possible correlation between the error terms across equations.** Empirically, we use tradable and non-tradable inflation as proxies for core and non-core inflation, this would allow us to have longer time series for the empirical estimation. In particular, the system is estimated using quarterly data using data between 2005Q1 and 2014Q4.

System of SUR equations

4. **Five equations represent the system of equations estimated using the SUR approach.** Let π_t^{CPI} denote headline inflation, π_t^{core} denote core inflation, $\pi_t^{noncore}$ denote non-core inflation, and w_t^{core} ($w_t^{noncore}$) denote the weight in the consumption basket of the core (non-core) components. Also, let $\pi_t^{E\_2yr}$ denote (2-year ahead) inflation expectations formed at period t, and $RULC_t$ denote the real labor costs. External factors include NEER fluctuations ($NEER_t$) and oil price changes (oil_t^{all}). The component of oil price changes due to global aggregate demand is denoted oil_t^D (see Arnold, Chen and Christiansen, 2015).

[1] The model mostly follows Arnold, Chen and Christiansen (2015) with some minor modifications. Thus, this appendix is copied largely verbatim from the Arnold, Chen, and Christiansen (2015).

5. **Headline inflation identity.** Including this indentify in the estimation of the system means minimizing the weighted sum of squared error terms for equations (2) and (3), with the weights corresponding the weights of core and noncore inflation in headline inflation.

(1) $\pi_t^{CPI} = \mathrm{w}_t^{core}\pi_t^{core} + \mathrm{w}_t^{noncore}\pi_t^{noncore}$

- **Core inflation.** We model core inflation using a hybrid open-economy Phillips curve (Gali and others, 2001; Svensson, 1998), with the constraint that the coefficients on the backward and forward-looking inflation terms sum up to 1 (Mavroeidi, 2005). To control for potential endogeneity or multicollinearity issues when estimating the system, we use one period lagged NEER changes and oil price shock. In addition, we use a fitted value for the real unit labor costs as described in equation (5).

(2) $\pi_t^{core} = \alpha_{21} + \alpha_{22}\pi_{t-1}^{core} + (1-\alpha_{22})\pi_{t-1}^{E\_2yr} + \alpha_{23}RULC_t + \alpha_{24}NEER_t + \alpha_{25}oil_t^D + +\varepsilon_t^{core}$

- **Non-core inflation**. Non-core inflation is a function of changes in oil prices and the NEER, using predicted NEER values from equation (6) when estimating the model.

(3) $\pi_t^{noncore} = \alpha_{31} + \alpha_{32}\pi_{t-1}^{noncore} + \alpha_{33}NEER_{t-1} + \alpha_{34}oil_t^{all} + \varepsilon_t^{HICP}$

- **Inflation expectations.** We assume inflation expectations are formed based on all available information at time *t*, including the domestic and external factors affecting core and non-core inflation, as well as the previous period's inflation expectations.

(4) $\pi_t^{E\_2yr} = \alpha_{41} + \alpha_{42}\pi_{t-1}^{E\_2yr} + \alpha_{43}RULC_t + \alpha_{44}NEER_t + \alpha_{45}oil_t^{all} + \varepsilon_t^{E\_2yr}$

- **Real unit labor costs.** We assume real unit labor costs are a function the past output gaps and its own lagged values.

(5) $RULC_{\mathrm{t}} = \alpha_{51} + \alpha_{52}RULC_{\mathrm{t-1}} + \alpha_{53}Ygap_{\mathrm{t-1}} + \alpha_{54}Ygap_{\mathrm{t-2}} + \varepsilon_t^{RULC}$

6. **Empirically, we control for potential endogeneity or muticollinarity issues by using either fitted or lagged values of the independent variables.** Within a given quarter, the NEER changes could be affected by contemporaneous feedback from inflation (or inflation expectations). Thus, we use one period lagged NEER changes. Given trade consists of an important share of Israeli growth, change in oil prices may in part reflects global business cycle which is correlated with Israeli real unit labor costs. As a result, we use lagged oil price change. Finally, any potential measurement errors associated with the real unit labor costs may be correlated with the contemporaneous error terms in the inflation equations. Thus, in both equation 1 and 3, we use fitted value of RULC which is modeled through equation 5. Moreover, equation 5 allows us to distinguish part of the RULC is driven by changes output gap which allows us to identify the part that is driven by output gap.

Historical decomposition

7. **The historical decomposition accounts for the contribution of domestic and external factors including their lagged effects.** Following Burbidge and Harrison (1985), we estimate the individual contributions of each external and domestic factors to the headline inflation over the sample period. Equations 2 – 4 essentially describe core, noncore inflation and inflation expectations as AR(1) processes with some external (exogenous) shocks (i.e. NEER, oil prices and euro area inflating). Using backward substitution, core, noncore inflation and inflation expectations at each point in time can be represented as a function of initial values plus all the external shocks as well as the residuals in the model. Also, when constructing the decompositions, for the external factors we set the coefficient to zero if it is insignificant and a test of joint significance of the coefficients on that factor across equations (using the Wald test) is not significant at the 5 percent level.

$$\pi_t^{core} = \alpha_{21} \sum_{j=0}^{t-1} \alpha_{22}^{j} + \alpha_{22}^{t} \pi_0^{core} + (1 - \alpha_{22}) \sum_{j=0}^{t-1} \alpha_{22}^{j} \pi_{t-1-j}^{E\_2yr} + \alpha_{23} \sum_{j=0}^{t-1} \alpha_{22}^{j} RULC_{t-j}$$
$$+ \alpha_{24} \sum_{j=0}^{t-1} \alpha_{22}^{j} NEER_{t-j} + \alpha_{25} \sum_{j=0}^{t-1} \alpha_{22}^{j} oil_{t-j}^{D} + \sum_{j=0}^{t-1} \alpha_{22}^{j} \varepsilon_{t-j}^{core}$$

$$\pi_t^{noncore} = \alpha_{31} \sum_{j=0}^{t-1} \alpha_{32}^{j} + \alpha_{32}^{t} \pi_0^{noncore} + \alpha_{33} \sum_{j=0}^{t-1} \alpha_{32}^{j} NEER_{t-j} + \alpha_{34} \sum_{j=0}^{t-1} \alpha_{32}^{j} oil_{t-j}^{all} + \sum_{j=0}^{t-1} \alpha_{32}^{j} \varepsilon_{t-j}^{noncore}$$

$$\pi_t^{E\_2yr} = \alpha_{41} \sum_{j=0}^{t-1} \alpha_{42}^{j} + \alpha_{42}^{t} \pi_0^{E\_2yr} + \alpha_{43} \sum_{j=0}^{t-1} \alpha_{42}^{j} RULC_{t-j} + \alpha_{44} \sum_{j=0}^{t-1} \alpha_{42}^{j} NEER_{t-j} + \alpha_{45} \sum_{j=0}^{t-1} \alpha_{42}^{j} oil_{t-j}^{all}$$
$$+ \sum_{j=0}^{t-1} \alpha_{42}^{j} \varepsilon_{t-j}^{E\_2yr}$$

Results

8. **As table 1 shows, most of the estimated parameters are significant with expected signs.** Higher real unit labor costs pushes domestic inflation upwards, at the same time, it also has impact to increase expected inflation. Oil prices seem to have significant impact on core, non-core as well as inflation expectations. Interestingly, NEER only works through non-core inflation and inflation expectations. Our estimates suggest 10 percent deprecation implies inflation to increase by about 1.5 percentage points in the long run.

Table 1: Estimated Coefficients

Equation 1: core equation (indirect effects)	
constant	-1.431*
lagged core inflation	0.918***
RULC	0.246*
NEER	-0.034
Oil_d	0.014**
N	40
adjusted R^2	0.80
Equation 2: non-core equation (direct effects)	
constant	0.392**
lagged noncore inflation	0.490***
NEER	0.131 ***
Oil	0.024***
N	40
adjusted R^2	0.67
Equation 3: expectation equation (2nd round effects)	
constant	1.003**
lagged inf. Expectations	0.414***
RULC	0.042
NEER	0.041***
Oil	0.004*
N	40
R^2	0.51

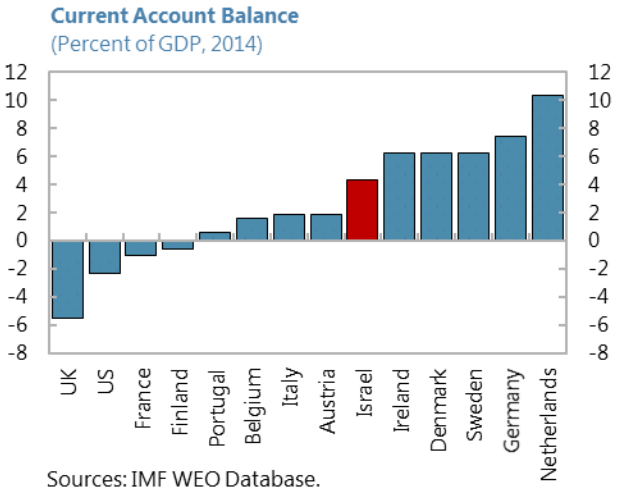
EXTERNAL SECTOR ASSESSMENT[1]

This chapter aims to explain why Israel's current account surplus has improved in recent decades, assess whether the Israel's current account balance and real exchange rate is in line with fundamental.

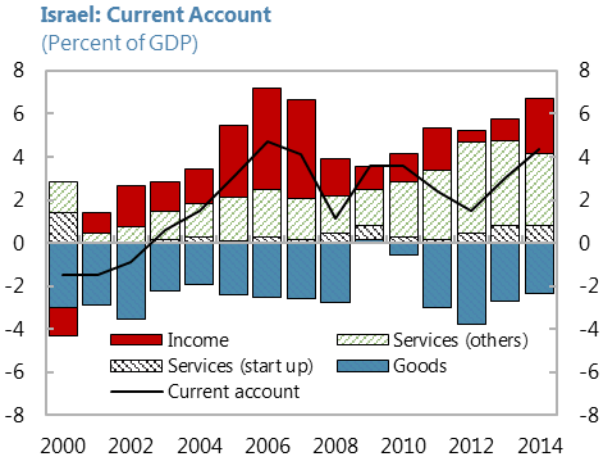
A. Introduction

1. Israel's current account balance does not stand out compared with other advanced countries. Israel's current account balance shows a moderate surplus (4.3 percent of GDP in 2014), slightly above the average for advanced countries.

2. Current account surpluses do stand out, however, compared to Israel's economic history. Until the mid 1990s, Israel used to have large current account deficits. Between 1995 and 2006, Israel's current account balance improved from a deficit of 5 percent to a surplus of 4 percent. Since 2007, the current account balance fluctuated around 2.5 percent of GDP.



Sources: IMF WEO Database.



Sources: Bank of Israel, CBS and Haver Analytics.

[1] Prepared by Marco Semmelmann.

Table 1. Israel: Current Account Components, 1995–2014

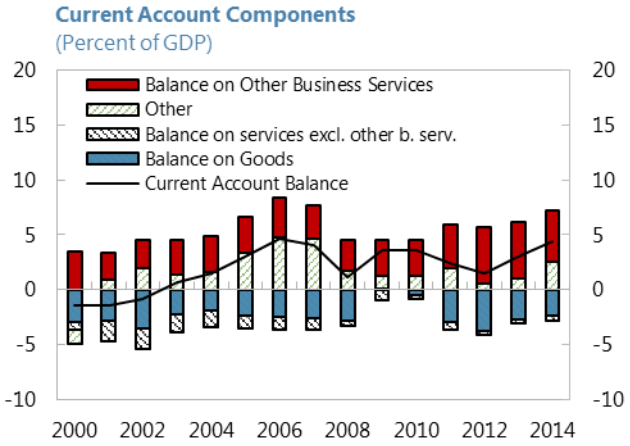
(Percent of GDP)

	1995	2000	2005	2007	2010	2014
Current Account Balance	-4.8	-1.4	3.1	3.1	3.4	4.3
Balance on Goods and Services	-7.9	-0.2	-0.3	-0.5	2.3	1.8
Balance on Goods	-7.4	-3.0	-2.4	-2.6	-0.5	-2.4
Balance on Services	-0.5	2.8	2.1	2.1	2.9	4.1
Primary Income Balance	-2.7	-6.3	-1.0	0.5	-2.2	-0.7
Net Income: Compensation of Employees	-1.2	-2.3	-1.3	-1.3	-1.4	-1.4
Net Investment Income	-1.4	-4.0	0.3	1.8	-0.8	0.7
Secondary Income Balance	5.5	5.0	4.3	4.1	3.5	3.3
Net Current Transfers: Governments	3.3	3.4	2.4	1.9	1.6	1.3
Net Current Transfers: Other Non-Government Sectors	2.3	1.6	1.9	2.2	1.9	1.9
Current Account: Total Receipts	35.1	44.1	49.6	52.7	42.7	39.4
Exports of Goods & Services	27.7	35.6	40.5	41.2	35.3	32.4
Exports of Goods	19.7	23.6	28.7	29.0	24.4	20.9
Exports of Services	8.0	12.0	11.8	12.1	10.9	11.5
Receipts of Primary Income	1.7	2.7	4.0	6.2	2.8	3.0
Income Recpts: Compensation of Israeli Employees Abroad	0.2	0.1	0.3	0.3	0.2	0.3
Receipts of Income from Residents' Investment Abroad	1.5	2.6	3.7	5.9	2.5	2.7
Secondary Income/Current Transfer Receipts	5.8	5.8	5.1	5.3	4.6	4.1
Current Transfer Receipts: Governments	3.3	3.4	2.5	2.0	1.7	1.5
Current Transfer Receipts: Other [Non-Govt] Sectors	2.5	2.3	2.6	3.3	2.9	2.6
Current Account: Total Payments	40.1	45.6	46.5	48.6	39.1	35.1
Imports of Goods & Services	35.5	35.7	40.8	41.7	33.0	30.6
Imports of Goods	27.1	26.6	31.1	31.6	25.0	23.2
Imports of Services	8.5	9.2	9.7	10.0	8.1	7.4
Payments of Primary Income	4.3	9.1	5.0	5.7	5.0	3.7
Income Payments: Compensation of Foreign Employees	1.4	2.5	1.6	1.6	1.6	1.7
Payments of Income on Foreign Investments in Israel	2.9	6.6	3.4	4.1	3.3	2.0
Secondary Income/Current Transfer Payments	0.3	0.8	0.8	1.2	1.1	0.8
Current Transfer Payments: Government	0.0	0.1	0.1	0.1	0.1	0.1
Current Transfer Payments: Other [Non-Govt] Sectors	0.2	0.7	0.7	1.1	1.0	0.7

Source: Haver Analytics.

B. Current Account Developments: A Balance of Payments Perspective

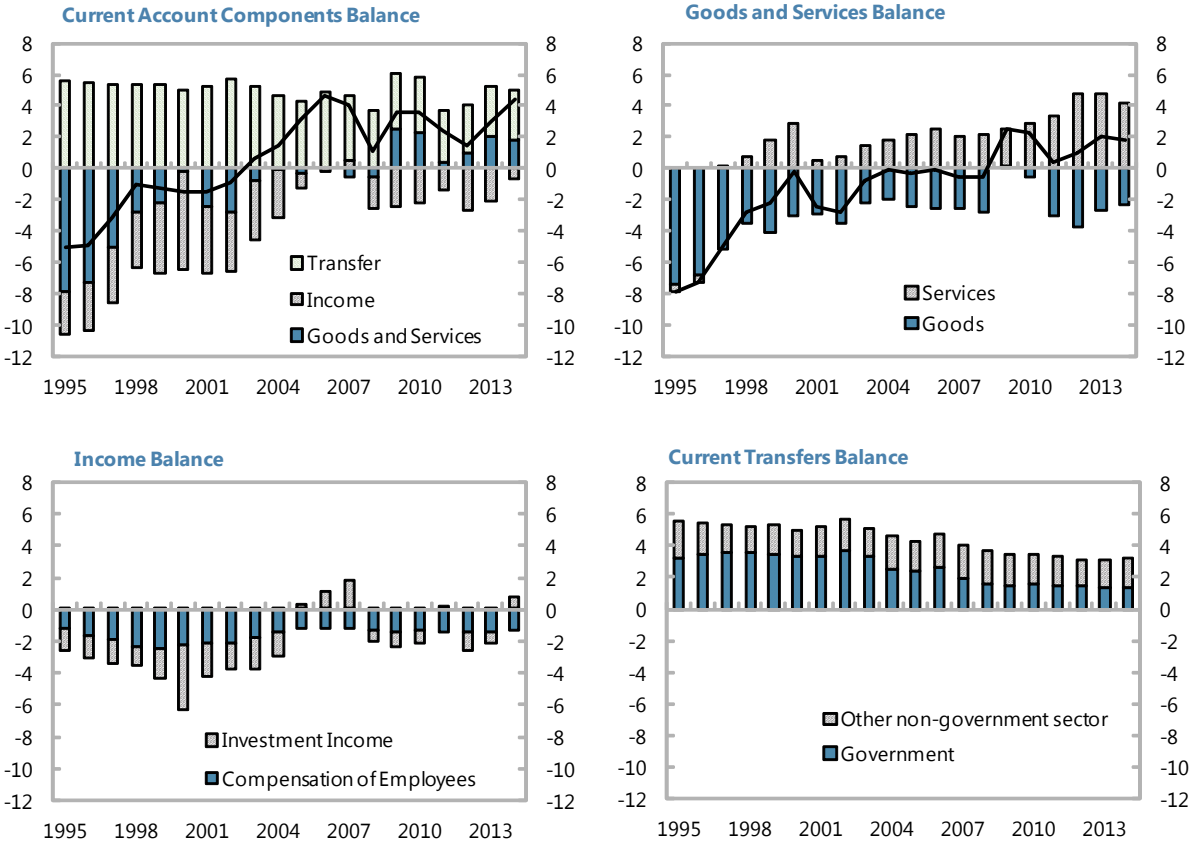
3. Israel's current account surplus is in large part the result of a surplus on "Other Business Services" (largely IT and communications)[2] and transfers (part of "Other" in the chart to the right). The balance on goods is negative, as is the balance on services excluding other business services.



Source: Haver Analytics.

Israel Current Account Components

(Percent of GDP)



Source: Haver Analytics.

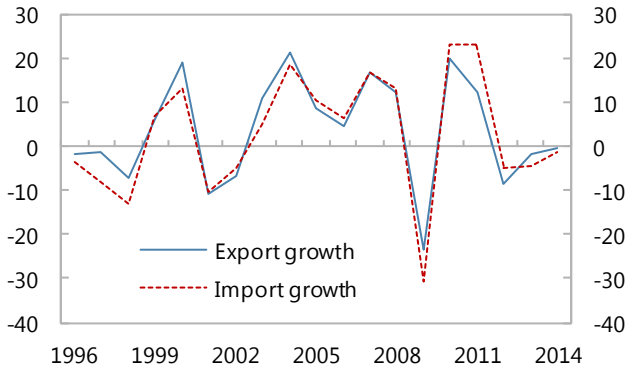
[2] Other business services include electronic components, electronic communications equipment, command and control equipment, scientific medical equipment, communications, computer services, research and development.

4. The *improvement* in the current account balance since the mid-1990s has been the result of a reduction of the goods balance deficit and an increase of the service balances. Reduced investment income payments have also played a role.

Balance of Goods

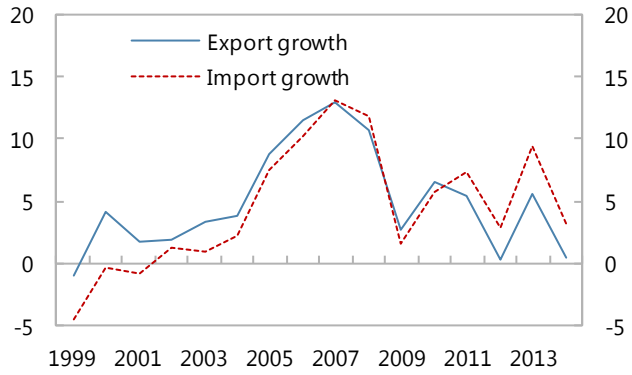
5. From the late 1990s to the mid-2000s, Israel had a goods export boom, interrupted only by the dotcom bust. The export to GDP ratio increased from 19 to 29 percent. The export boom in the late 1990s was the result of rising high-tech exports (electronics, IT) and was associated with an increase in world market shares. After the dotcom bust, despite strong export growth, world market shares started to trend down; but the export to GDP ratio still increased. The depreciation of the exchange rate from 2001 until 2006/07 further fueled the boom. The exports to GDP ratio fell after 2007, as global demand weakened, but GDP growth held up relatively well.

Growth of Real Exports & Imports of Goods
(Annual data)



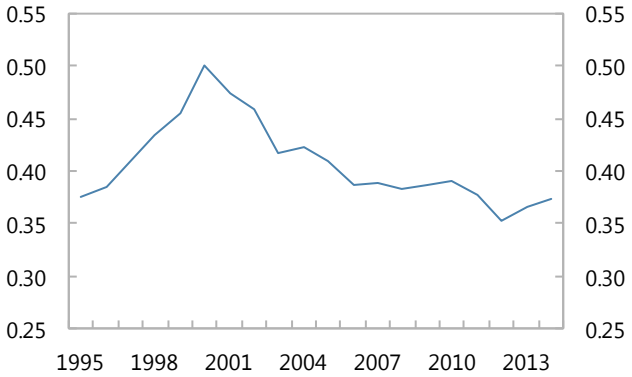
Source: Haver Analytics.

Growth of Real Exports & Imports of Goods
(4 year moving average)



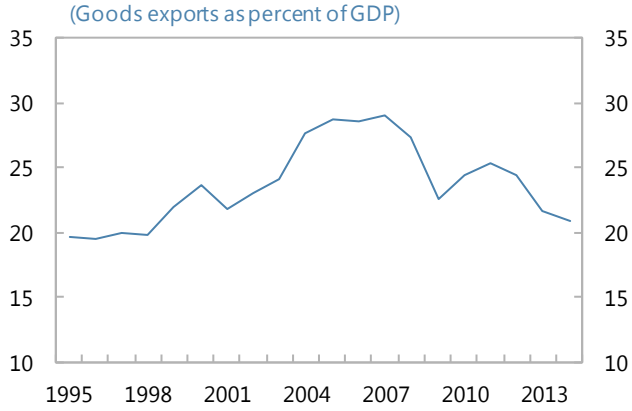
Source: Haver Analytics.

Israel's Share of World Exports
(Merchandise export, percent)



Sources: Haver Analytics; and IMF.

Export to GDP Ratio Israel
(Goods exports as percent of GDP)



Source: Haver Analytics.

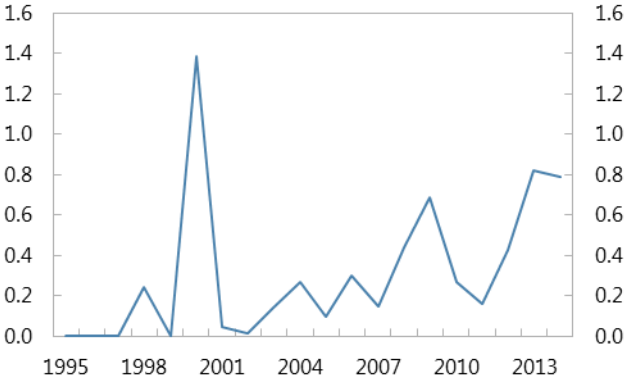
Balance of Services

6. The services balance has been increasing steadily since 2001. This was mostly driven by other business services—which largely consist of IT and communications (see section below)—and tourism.[3] Israel's service export strength is shown by a substantial increase in the share of world services exports since 2007.

Sources: World Trade Organization.

Other business services

7. One important component of other business series is "services from startups," which consists of both services provided by startups as well as the sale of startups, because it includes transfers of intangible services abroad[4]. When startups are sold to other countries—mainly to the US—this is recorded as service exports. Exports of services from startups are volatile, but on an increasing trend since 2001. At 0.8 percent of GDP in 2014, their (positive) net contribution is higher than that of tourism (0.5 percent).



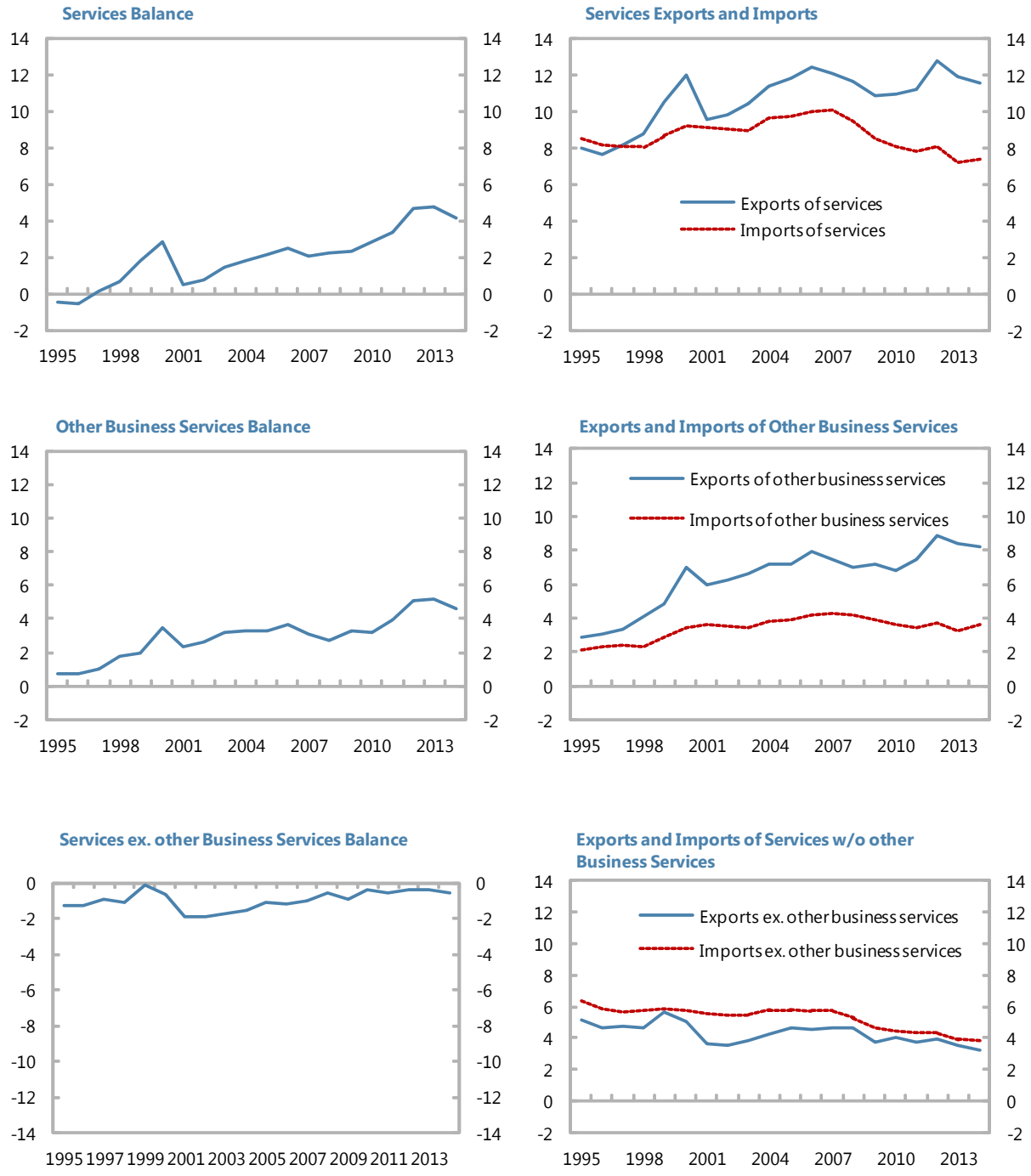
Source: Bank of Israel.

[3] Israel is an innovative nation. The gross expenditure on R&D is 4.38 percent of GDP in 2011, which is the highest among all OECD countries. The same accounts for venture capital (0.36 percent in percent of GDP in 2012) which is three times as high as in the United States (0.12 percent), coming second in an OECD ranking. This environment helped to create an IT startup sector. According to OECD data, Israel's information and communication technology sector accounts for about 20 percent of total industrial output and 9 percent of business sector employment.

[4] CBS, Statistical Abstract of Israel 2012.

Figure 1. Israel Services Trade

(Percent of GDP)

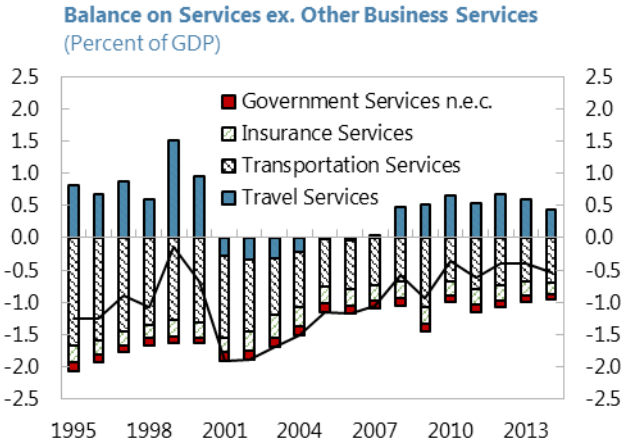


Source: Haver Analytics.

Services other than other business services

8. Since 2000, the balance on services (excluding other business services) has improved by almost 1.5 percentage points to -0.5 percent in 2014, because of an improvement in the balance of transportation services and increasing exports of travel services.

9. Travel services is a sector that has keenly felt the impact of the security situation, although in recent years, the impact has tended to be short-lived. Tourism grew strongly in the second half of the 1990s, collapsed in the early 2000s because of the second intifada and a recession, and recovered from 2003 onwards. Since 2007, there have been a number of conflicts, but they have had only a short-lived influence, with the strongest impact always in the first quarter.

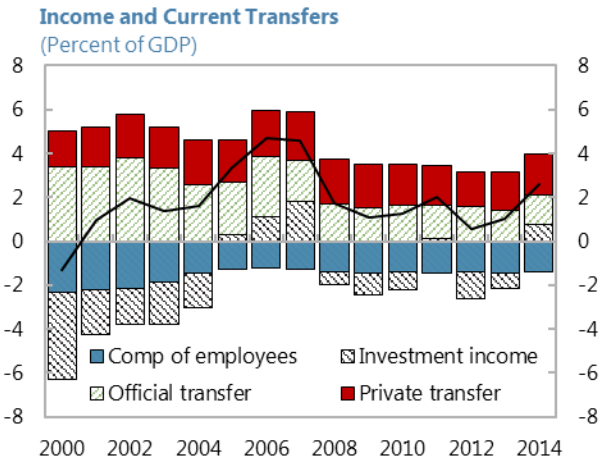


Source: Haver Analytics.

Source: Haver Analytics.

Balance of transfers and income

10. The balance on income and transfers has improved since the early 2000s and its components have changed. Transfers have declined, but so have investment income payments.



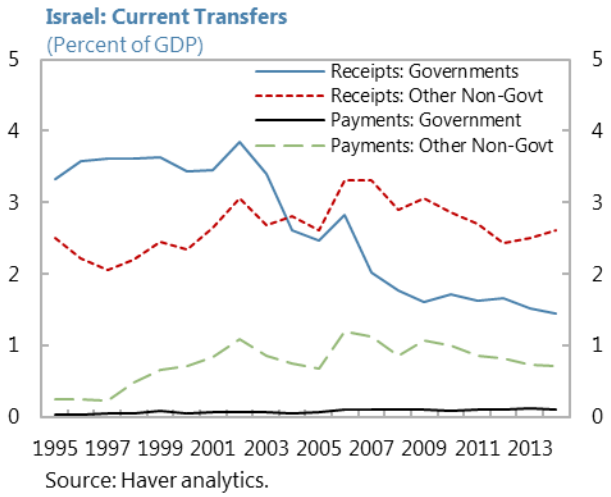
Sources: Haver analytics.

Transfers

11. Public transfers largely reflect US assistance. The US government committed itself to providing $30 billion assistance to the Israeli government for defense needs over 10 years (2009 to 2018)[5], which is about $3 billion per year.

[5] According to the 2011 BoI Annual report.

74 percent of the amount must be used for purchases in the US. In the current transfers account, receipts from "government" amounted to $5bn in 2013, $3bn thereof from the US. The impact of public transfers on the current account balance is however limited, as when transfers from the US increase, the goods deficit increases because the majority of purchases must be imported from the US.

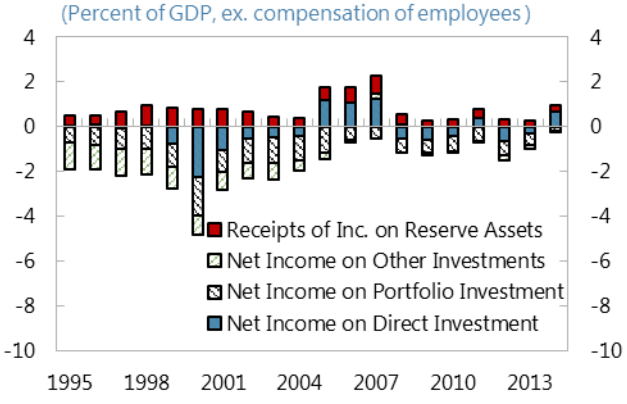


Source: Haver analytics.

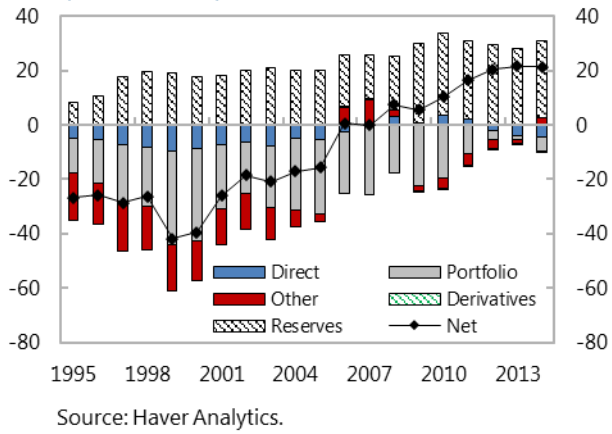
12. Since 2004, private transfers have been higher than public transfers and consist of $8bn in 2014 including personal restitutions from Germany (transfers from the German state to individuals in Israel[6], not the state) and remittances. Private transfers (denominated other non-govt in the chart) are expanding in dollar terms even though not in terms of GDP. Transfers to individuals make up approximately two thirds of transfer receipts, while restitutions from Germany and transfers to institutions account almost equally for the remaining share.[7] According to the Central Bureau of Statistics, personal restitutions paid by the German state were $807 million in 2013.

Income balance

13. The improvement of the income balance is largely driven by the reduction in investment income payments, which is the result of the improvement of the international investment position.



Source: Haver Analytics.



Source: Haver Analytics.

[6] Compensation for injustice of the National Socialist regime.

[7] Source: Bank of Israel.

C. Current account from a Saving-Investment Perspective

The improvement in the current account

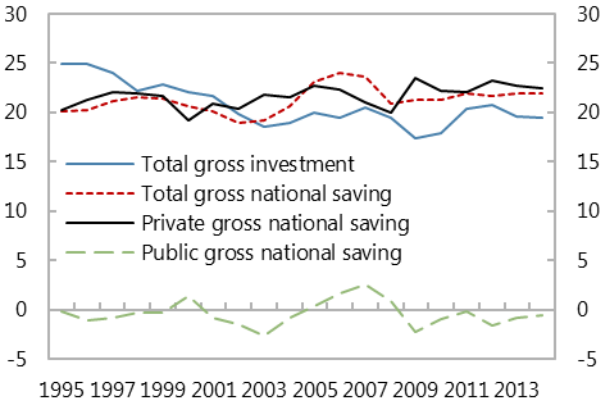
14. From a saving-investment perspective, the improvement in the current account since the mid-1990s initially reflected a decline of investment, but later the impact of rising saving dominated. National saving as percent of GDP rose 2 percentage points from 1995 to 2014, while investment decreased -5.4 percentage points in this time period.

- The decline in investment started in the mid-1990s. In the early 1990s, investment had been elevated after an immigration wave from the former Soviet Union. From the mid-1990s, investment declined, with some pickup from 2003 onwards. A high real interest rate (compared to the United Kingdom, United States, Netherlands, and Czech Republic for example) may also have subdued investment in the 1990s and early 2000s. Since 2009, however, the real interest rate in Israel is around the average of above mentioned peers.

- The improvement in saving occurred from the early 2000s onwards and was largely driven by private saving. National saving increased from 18.9 percent of GDP in 2002 to 21.9 percent in 2014. During this time period, private saving improved from 20.4 percent to 22.5 percent of GDP, while public saving rose from -1.5 percent to -0.6 percent of GDP.

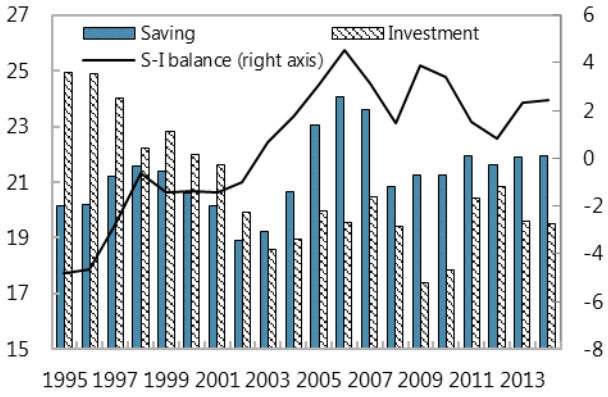
15. The increase in private saving may in large part be due to households,[8] and was boosted by a change in the pension law that boosted saving. The large increase in long-term saving contributions occurred because of the enactment of the Mandatory

Gross National Savings and Investment in Israel
(Percent of GDP)



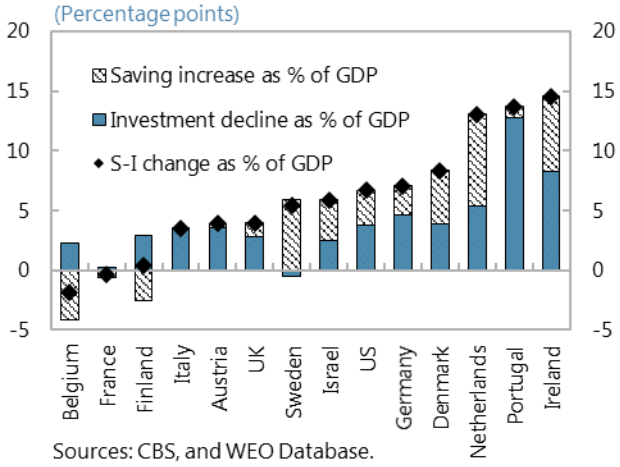
Sources: Bank of Israel and WEO Database.

S-I Balance in Israel
(Percent of GDP)



Sources: Bank of Israel and WEO Database.

S-I Balance Change 2014 vs. 2000
(Percentage points)



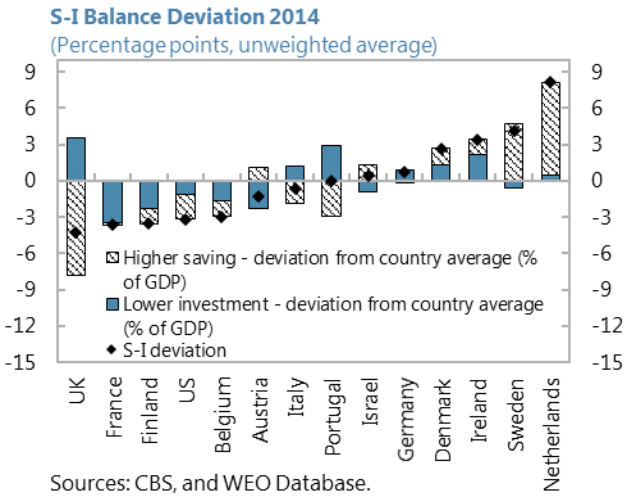
Sources: CBS, and WEO Database.

[8] There are no official statistics that break down private saving into household and corporate.

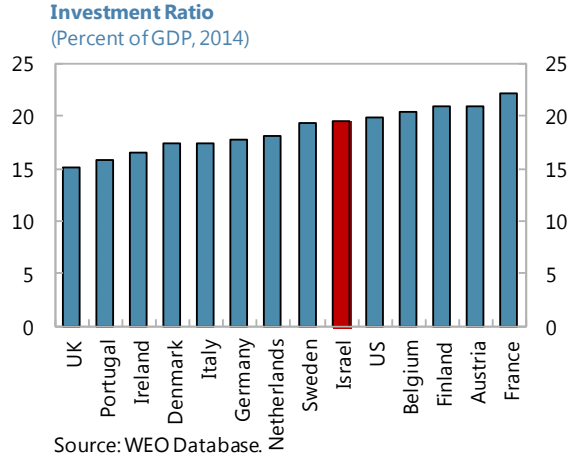
Pension Law in 2008 that requests employers and workers to contribute a significant percentage of their income for pensions.[9,10] Pension savings also have increased because the contribution rate rose. The total contribution rate from employer and employee is currently 17.5 percent in the private sector (5.5 percent employee, 12 percent employer) and 19.5 percent in the public sector (6.5 percent employee, 13 percent employer). In 2015, the contribution rate is going to be raised by one percent, further contributing to higher savings in Israel.

The Level of the Current Account

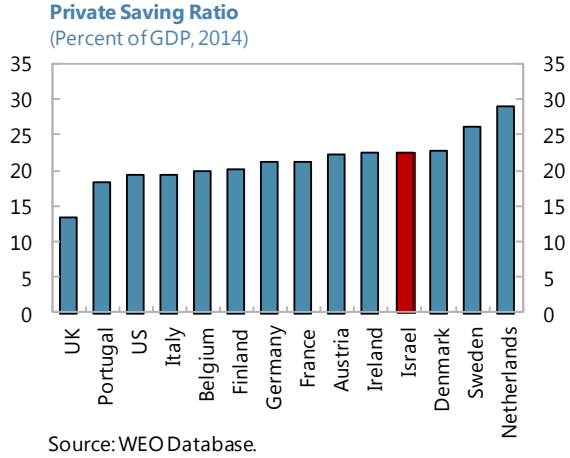
16. Compared with other advanced countries, Israel's current account surplus is the result of higher saving and about average investment. Israel's saving is relatively high, particularly because *private* saving is high compared to a selection of other advanced economies. Israel's investment level (20 percent of GDP) has increased in the past years to a level above average, compared to 20 percent in the US, 15 percent in the UK, 18 percent in Germany, but 22 percent in France.



Sources: CBS, and WEO Database.



Source: WEO Database.



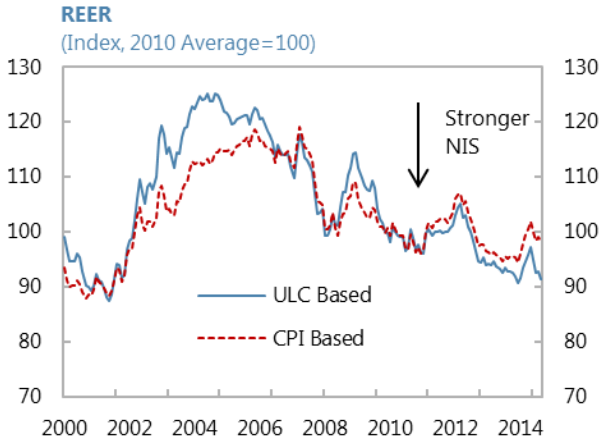
Source: WEO Database.

[9] Capital outflows by institutional investors have become important. Net transactions by institutional investors (which include pension funds, profit sharing insurance companies, provident funds and advanced study funds) invest primarily in portfolio investment (in 2013, this accounted for 85 percent of resident investment abroad by institutional investors), followed by other investment (resident deposits, loans). Direct investment only makes up a small share. Also, *total* investment abroad, not limited to institutional investors, has increased between 1995 and now, despite fluctuations.

[10] Additionally, from 2004 on there was a transition in the public sector to contribute to defined contribution pensions instead of defined benefit pensions.

D. Current account movements: The role of the real exchange rate

17. Israel's real exchange rate has seen sharp swings in the past decade and a half. The real exchange rate depreciated between 2001 and the 2008/09 crisis, and had—until August 2014—been on an upward trend since.

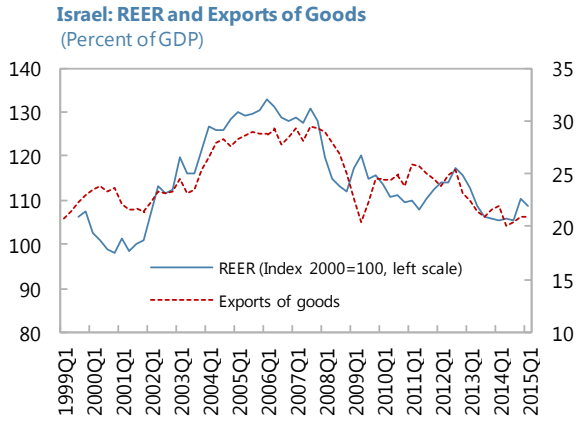


Source: IMF's Information Notice System.

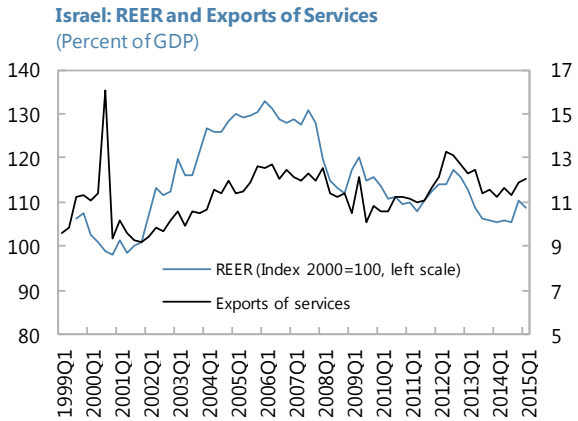
Real exchange rate and exports of goods

18. The real exchange rate has a clear impact on goods exports, but much less on exports of services.

- There is a close link between the REER and the ratio of goods exports to GDP. The more depreciated the exchange rate, the higher the ratio—although this in part reflects valuation effects.



Sources: Central Bureau of Statistics; and Haver Analytics.



Sources: Central Bureau of Statistics; and Haver Analytics.

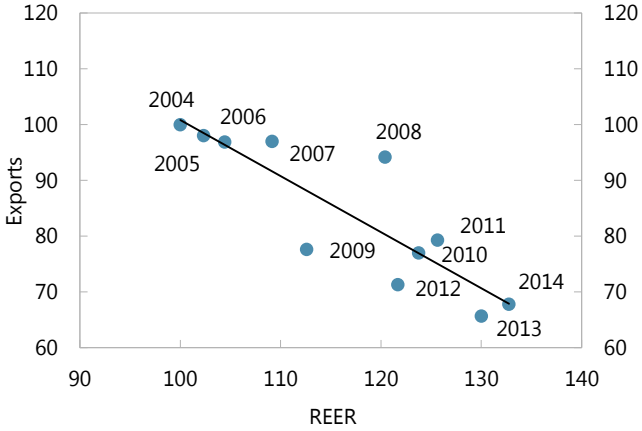
- For services, the link is much less clear-cut (see chart), because a change of the exchange rate has only a limited impact on exports of services, whereas goods exports are more reactive to exchange rate movements. Despite the REER fluctuations, Israel's share of world services exports has been increasing in the past few years.

19. Econometric estimates further confirm that exchange rate appreciation has a clear impact on exports. In an estimated model with Israel goods and services export growth as the dependent variable and REER (ULC) and foreign demand growth as dependent variables, a 10 percent appreciation lowers exports by 1 percent. When estimating a model with the current account balance as percent of GDP as a dependent variable, a 10 percent appreciation lowers the current account balance by 0.25 percent.

20. Low technology exports are particularly affected by an appreciating real exchange rate, while for medium or high-tech exports the impact is not as strong. An appreciating real exchange rate also decreases the profitability of the manufacturing sector (measured by return on assets).

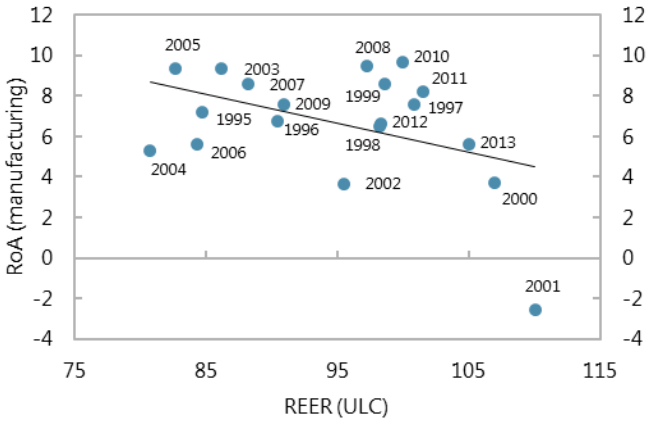
21. Israel's share of world exports differs between exports of goods and exports of services. Goods exports decreased continuously and only slightly recovered in 2013, while services are improving. Despite fairly stable global demand, both from OECD countries and worldwide, Israel's exports have been falling since 2011 and fluctuating since the end of 2012. Export increases comparing 2014 to 2008 have been modest compared to other advanced economies.

Israel: REER and Exports in Low-Tech Manufacturing
(2004=100)



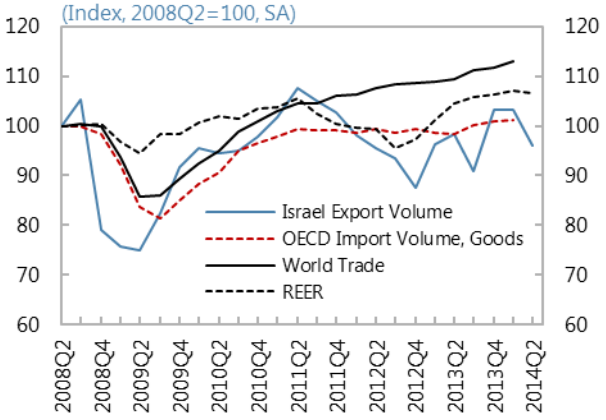
Sources: Haver Analytics; and IMF.

ROA vs REER (ULC)



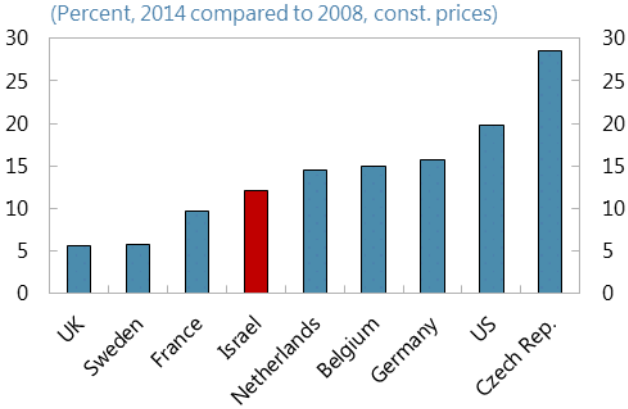
Source: IMF staff calulations.

International Trade, 2008–2014
(Index, 2008Q2=100, SA)



Sources: IMF INS, Haver Analytics, and OECD MEI

Change in Exports of Goods and Services
(Percent, 2014 compared to 2008, const. prices)



Source: WEO April 2015.

E. Is the REER over or undervalued?

22. As discussed in the previous sections, in the past, Israel used to have a current account deficit, but in the last ten years the current account balance has shown moderate surpluses. The improvement occurred in the 1995–2007 period; since 2007, the current account surplus has fluctuated, but now shown a clear further upward trend.

23. How should we assess the shift to a current account surplus—is it a sign that the real exchange rate is undervalued, or does it reflect a "new normal"? There are some arguments suggest that there has indeed been a structural change, and that the current account surplus does not reflect an undervalued exchange rate:

- Government policies have contributed to a structural increase in household saving including in particular the introduction of the Mandatory Pension Law and the transition to a defined contribution pension scheme.

- The outward opening of Israel's capital account for institutional investors has further contributed to the current account surplus. Israeli savings are now partly invested abroad, rather than in Israel. Given the small size of the Israeli economy, and the difficult geo-political situation it is confronted with, such a diversification of household assets, does make sense.

24. Evidence from exchange rate models is mixed, but the average of three existing estimates suggests the shekel is at around its fundamental value:

- The IMF external balance assessment (EBA) macroeconomic balance approach suggests the shekel is undervalued in 2014, reflecting that the current account in 2014 (4.3 percent of GDP) was well above the EBA estimated norm (-0.2 percent of GDP).[11] However, in staff's view the EBA current account norm is too low, as it does not take into account some important structural shifts including the expansion of mandatory household pension saving in 2008. A modified EBA macroeconomic balance approach—adding a fixed effect dummy and pension contributions as share of GDP as additional variables—suggests a current account norm of just above 2 percent of GDP, suggesting the shekel was undervalued by about 9 percent in May 2015.[12]

- The EBA-like REER regression approach suggests the shekel was 0.1 percent above its fundamental value in 2014, implying an overvaluation of 0.5 percent as of May 2015.

[11] The EBA assessment, done in March 2015 when the 2014 current account surplus was estimated at 3 percent of GDP, suggested an undervaluation of 14 percent. More recently, the 2014 current account surplus was revised up to 4.3 percent of GDP.

[12] The modified EBA model takes the revisions to the current account balance into consideration.

- Finally, a CGER-type REER model suggests an overvaluation in the medium term of 6.8 percent.

25. On balance, we therefore conclude that the real exchange rate is broadly in line with fundamentals.

THE RESIDENTIAL REAL ESTATE TAX SYSTEM IN ISRAEL: A COMPARISON WITH OTHER COUNTRIES AND WITH BEST PRACTICES[1]

This paper compares the system of taxation on housing in Israel with other countries and with best practices. It also assesses the role the tax system could play in containing the housing price boom, and in making housing more affordable.

A. Introduction

1. Most economists agree that taxes on immovable property are among the most efficient and least distorting ways for government to raise money. Recent empirical studies also find that taxes on immovable property are among the least detrimental taxes to economic growth (Arnold, 2008; Heady and others, 2009).

2. Taxes on housing are one of the most important forms of immovable property taxes. Taxes on housing are often a key source of revenue for local governments. They are a particularly attractive source of revenue because they are much harder to avoid than taxes on financial assets, and they are less likely to lead to behavior changes. Ironically, because they are so transparent and hard to avoid, they are also very unpopular (Norregaard, 2013).

3. This paper discusses the system of taxation on housing in Israel in the context of the recent increases in housing prices. The structure of the paper is as follows. Section B discusses the various taxes on housing in the context of tax theory. Section C compares the system of taxation on housing in Israel with best practices. Section D compares revenue yields from housing taxation in Israel with its peers. Section E discusses tax policies and housing affordability/prices. Section F concludes.

B. Taxes on Housing: What does theory say?

4. Taxes on housing can be divided into "core" property taxes and other taxes.

- **Core property taxes** include property transaction taxes, recurrent property taxes, recurrent tax on net wealth, and other non-recurrent taxes on property;[2]

[1] Prepared by Aiko Mineshima.

[2] A transation tax is a tax (fee) imposed on the transfer of title to property from one entity to another. Examples for such taxes include some forms of stamp duty, real estate transfer tax, and levies for the forma registration of a transfer. Recurrent property taxes consist of taxes payable regularly, usually each year, in respect of the use or ownership of land, buildings, or other structures utilized by enterprises in production, whether the enterprises own or rent such assets. A recurrent tax on net wealth is a levy on the net value of personal assets. Assets include owner-occupied housing, cash, bank deposits, money funds, and savings in insurance and pension plans, investment in real estates and unincorporated businesses, and corporate stock, financial securities, and personal trusts. Other non-recurrent taxes on property include estate, inheritance, gift taxes, and others.

- **Other taxes** include value-added tax (VAT) and capital gains tax for housing.[3]

5. Assuming a government wants to raise revenue by taxing residential real estate, how should the corresponding tax system be designed so that it is most efficient and least distorting? To answer this question, it is important to realize that residential estate is both an investment asset and a durable consumption good. From this it follows that housing taxation should be designed so that it does not distort the neutrality between housing as an investment asset and other financial assets nor that between housing as a durable consumption and other consumer goods and services.

Housing Taxes that Treat Housing as a Consumption or Investment Good

6. Taxes on the consumption value of housing. As discussed above, residential property can be considered as a durable consumption good.

- Economic logic suggests that VAT should be levied on real estate. VAT is a tax levied on the consumption of goods and services, and real estate is a durable good par excellence. It likely yields services over more than one period, and it is commonly resold. Thus the issues that arise in its VAT treatment are simply those that apply to all such goods, but writ large (Ebrill and others, 2001). For the case of owner-occupied properties, VAT could be levied annually on the consumption value of the housing service (i.e., imputed rents). However, imputed rents are rarely taxed not only because of the challenges in properly and fairly estimating imputed rents but also the political unpopularity in taxing housing services for owner-occupied housing.[4]

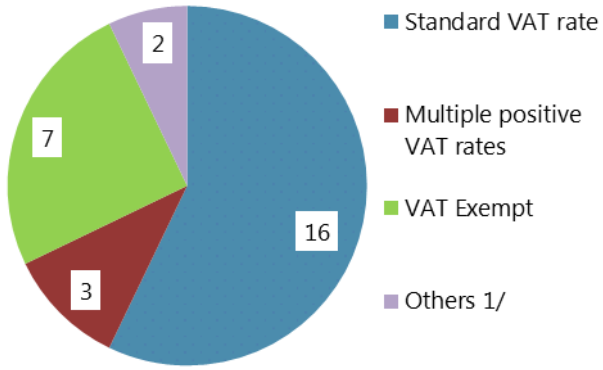
- Alternatively, VAT can be levied at the time of purchasing a new house, assuming a house is priced at the present discounted value of the stream of housing services that the house will generate in the future.

[3] VAT is a tax levied on all sales of commodities at every stage of production. Its defining feature is that it credits taxes paid by enterprises on their material inputs against the taxes they must levy on their own sales. A capital gains tax is a tax on the profit realized on the sale of a non-inventory asset that was purchased at a cost amount that was lower than the amount realized on the sale.

[4] For example, among the EU member states, only few countries (e.g., Luxemburg, Netherlands) tax imputed rents for main dwellings. In the case of the United Kingdom, the Mirrlees review proposed a Housing Service Tax to approximate a VAT on housing services. It reflects the fact that the United Kingdom applies a zero VAT rate on construction and sale of residential property, and difficulties of covering both new and old houses.

- The majority of European Union (EU) member states apply either a standard VAT rate or positive VAT rate to the supplies of new buildings (Figure). Seven EU states exempt VAT on the supply of new buildings while the United Kingdom offers a zero VAT rate for the sale of new properties.[5] The European Commission is generally fond of applying simple and uniform VAT rates because it minimizes otherwise substantial compliance costs and smoothes the functioning of the internal market. However, the EU VAT law allows member states to maintain reduced rates and exemptions that were already in force before 1991, provided they were maintained for "clearly defined social reasons and for the benefit of the final consumer."[6]

EU: VAT Rates for Supplies of New Buildings, as of January 1, 2015 (Total number of countries=28)



Source: EU (2015)

1/ Include Austria, which exempts VAT if a new house is acquired for letting and leasing (otherwise applies the standard rate;))and the U.K., which applies a zero rate for social housing (otherwise applies the standard rate).

7. Taxing housing on capital income. Residential property can be regarded as an investment asset, which should be taxed just as other investment assets.

- To ensure consistency between residential property and other financial assets, the theory is in favor of taxing imputed returns while fully deducting mortgage interest, maintenance costs, and depreciation.[7] In addition, capital gains from selling a house should also be taxed. In practice, however, imputed returns are seldom taxed for the reasons discussed above.

- Alternatively, a government can levy recurrent property tax—not as a charge for local service discussed below—to approximate the return from the house while not allowing for mortgage interest deductibility (EC, 2012). For the alternative case, too, capital gains tax should be levied when a house is sold.

[5] The final value that a purchaser faces would be lower if, everything else is same, a country imposes a zero VAT rate to the supply of houses than exempting VAT from new houses. It is because builders would factor in the lack of input credits into the final value for the case of VAT exemption. Among the countries that exempt the sale for new buildings, Germany and Portugal apply instead the property transfer tax (registration duty). The rate of the transfer tax is lower than the standard VAT rate. However, no inputs credit is available.

[6] Article 110, "COUNCIL DIRECTIVE on the common system of value added tax" (2006/112/EC, November 28, 2006).

[7] A number of studies (e.g., IMF, 2009; Crowe and others, 2011; Hendershott and others, 2003), however, raise the issue of a bias toward debt-financed homeownership through providing mortgage interest relief. In light of such concern, several countries have taken steps to reduce these distortions. For example, Ireland and Spain have eliminated mortgage interest deductibility on new loans, and it is being gradually reduced in Denmark and the Netherlands (IMF, 2014).

8. This suggests that two broad options exist that are in line with best practice

- **Option I**
  Consumption: Levy VAT on the consumption value of housing (i.e., imputed rents)
  Investment: Tax imputed net return; Deduct mortgage interest; Tax capital gains

- **Option II**
  Consumption: Levy VAT on new constructions
  Investment: Levy recurrent property tax (to proxy imputed net return, inclusive of mortgage interest cost); Do not deduct mortgage interest; Tax capital gains

Other Housing Taxes

9. Taxing housing as a charge for local services. Recurrent property tax as a charge for local services is widely used, and it is often considered efficient and good local taxes.[8] If a **recurrent** property tax is levied on top of the taxes listed above, the tax neutrality would no longer hold, but it can be justified from the tax efficiency point of view. Some studies, meanwhile, argue that the value of a property normally reflects the quality of local services—for example, the average housing price in the area with high-quality public schools could be higher than the average housing price in other areas—therefore the charge for local services could be regarded as a capital (or consumption) tax.

10. Taxes on immovable property transfers are widely used but distortionary. They are distortionary because they tend to reduce turnover of properties (cause a friction) and hence result in resource misallocations (Johansson and others, 2008; Norregaard, 2013).[9] They may also create an incentive for both buyers and sellers to agree on an artificially low invoice to reduce the tax burden.[10]

[8] The base for recurrent property tax varies from country to country, which can include land only, land and immovable improvements, just the improvements, or different combinations of land and improvements for different types of land use (UN, 2011). One element worthwhile mentioned would be the use of a pure site (land) tax. If better or more productive use of land is the driving motive, a pure land tax on land value would offer the best tax design since—being independent from actual land use—this would maximize the incentive to apply the land to its optimal use (OECD, 2008; Norregaard, 2013). For the case of Israel, where over 90 percent of land is state owned, the use of a land tax would not be effective in the short run. However, a good use of a land tax could be explored as the privatization of land proceeds in the future.

[9] For this reason, some countries replacing transfer taxes—totally or partially—with recurrent immovable property taxes (e.g., Ireland, Portugal).

[10] For the case of capital gains taxes, buyers do not have an incentive to agree on a low invoice as their capital gain tax burden would go up when selling.

C. How does the Israeli system compare with best practices?

11. The current framework of housing taxation in Israel appears to be broadly in line with the best practices, but generous exemptions do not allow the framework to work as expected. This section compares the system of housing taxation in Israel with the best practices.

Table. Taxes on Housing, Best Practices and Practices in Israel

Type of tax	Best practice 1/	Israel	Country examples
Tax on consumption of housing services	**Option 1:** VAT on imputed rents **Option 2:** VAT on a new house	**Option 2**	**Option 1:** N.A. **Option 2:** Most advanced economies
Tax on income from housing	**Option 1:** tax imputed net return; deduct mortgage interest; and tax capital gains **Option 2:** levy recurrent property tax (to proxy imputed net return, inclusive of mortgage interest cost); do not deduct mortgage interest; and tax capital gains	**Option 2:** recurrent tax as a charge for local service (Arnona); betterment levy for value increases from changes in zoning; generous exemptions for capital gains	**Option 1:** LUX, NLD **Option 2:** AUT; DEU; HUN; etc * Many countries allow for mortgage interest deduction, but some have decided to phase out (e.g., IRL, ESP)
Tax on housing transactions	Do not levy transaction tax or stamp duty	Levy transaction tax	**No:** EST; SLV; BGR; LTU **Yes:** most advanced economies
Charge on local service	Recurrent tax as a charge for local service	**Yes:** recurrent tax levied by municipal government (Arnona)	**Yes:** All EU members, excl. Malta; USA; JPN **No:** Malta

1/ Option 1 is the best practice according to the tax theory while Option 2 is operationally more feasible and could offer broadly similar results as Option 1. A country takes either option, but not both.

Housing Taxes that treat Housing as a Consumption or Investment Good

12. As taxation on housing services, a standard VAT is levied on new construction, which is in line with the best practice. During 2014, an idea of introducing a zero-VAT rate for the supply of new constructions for a targeted population came up. The idea has subsequently been discarded.

- Positive sides of introducing zero VAT for new housing would include reducing post-tax prices of the eligible properties, which could serve as social policy through making housing more affordable. Boosted demand from the tax incentive could increase pre-tax prices, which benefits developers and may enhance housing supply.[11]

[11] Given the low elasticity of housing supply to price changes, it is unclear if the increased profits for developers stimulate housing supply.

- There are also significant side effects. Demand for the eligible houses likely increases, which could raise pre-tax housing prices given Israel's low elasticity of housing supply to demand.[12] This would adversely affect non-eligible buyers. In addition, the measure could trigger capital reallocations, from non-housing to housing markets. Moreover, higher income groups tend to have higher homeownership rates, suggesting higher income groups would enjoy the benefit from the zero VAT more than lower income groups.[13] Finally, the revenue foregone from the introduction of the zero VAT is not negligible (estimated to be 0.2 percent of GDP or more). In general, social objectives embedded in the proposed VAT could be better attained by other policy measures. Effects similar to those of lower VAT can be achieved also through other policy instruments, for example targeted subsidy schemes or targeted changes in income tax (EC, 2007).[14]

13. As taxation on capital income, capital gains tax ("Mas Shevach") is applied at 25 percent whenever there is a value difference between the original purchase price and current sale price (adjusted for CPI inflation). The capital gain tax exemption that allows an Israeli resident to sell a residential property once every four years was canceled on January 1, 2014. The only remaining exemption is for an individual who owns a single home that is his only property in Israel, and the selling price does not exceed NIS 4.5 million. The NIS 4.5 million threshold, however, is still quite generous, and about 70 percent of the total transactions in 2014 were below the threshold.[15] Under the new rule, a foreigner can receive the capital gain tax exemptions only if it is proven that the foreign individual does not own a home in her country of residence.[16] A seller may also have to pay a betterment levy ("Hetel Hashbacha") to the local authority when the property value increased owning to a change of zoning. The levy is 50 percent of the added value to the property, but can be deducted from capital gains tax.

[12] The total impact on the overall housing prices is difficult to project because the prices of houses below NIS1.6 million percent would go up closer to the upper limit, while houses that would have been priced slightly above NIS1.6 million may be adjusted downward below the threshold to become eligible for the tax benefit.

[13] Sarel (2014) estimates that 21 percent of the benefits would go to the top 10 percent income group. In addition, increases in pre-tax housing prices may benefit developers rather than the targeted population.

[14] The EC study argues for applying a reduced VAT rate to certain cases, for example the sectors whose services are easily substituted for do-it-yourself or underground work. In addition, in theory, reducing VAT rates for the sectors employing many low-skilled workers would boost demand for low-skilled workers. However, the EC study finds that the overall impact on demand for low-skilled works is unimpressive because differences in low-skilled employment between industries are limited: indeed making standard VAT rate apply for all sectors currently benefiting from reduced rates is likely to create a similar sized demand boost for low-skilled workers.

[15] Well above 90 percent of the transactions if limiting the sample to buyers with a single home.

[16] The new regime is introduced in two stages: a transition period from January 1, 2014 to December 31, 2017 followed by the permanent regime from January 1, 2018. During the transition period, a reduced tax rate calculated based on the number of days passed since January 1, 2014 will be applied to an ineligible foreigner.

Other Housing Taxes

14. Recurrent tax on residential property is levied at the municipal levels ("Arnona").

- The tax is considered as a charge for local public services, and the rates have historically been raised in reference to CPI inflation and wage increases. The tax rates differ between municipalities, and also by the size and use of the property. Full or partial exemptions are given to new immigrants (only for the first year), senior citizens, and low-income families.

- In general, Arnona is set to be higher for nonresidential properties than residential properties. For the case of Jerusalem, Arnona for a services and commercial office is three times higher than Arnona for a luxurious apartment (Table).[17] There is a view that the current Arnona for residential properties are not high enough to cover the cost of public services (e.g., utilities, schools), creating disincentives for supplying residential properties.

- Arnona is levied on the size of a property, not on the value of a property, constituting an ostensible departure from the best practices. A main logic behind this regime is to avoid the cost of maintaining and updating a cadastre. However, using the size and type of a property and the zoning roughly proxies property prices.

Arnona for Jerusalem by Selected Property Usages, 2015

(In shekel per square meter)

	Zone A	Zone B	Zone C	Zone D
Residential properties				
Apartment (above 120 sqm)	104.50	94.96	73.26	59.88
Apartment (up to 120 sqm)	86.58	69.45	51.69	37.31
Apartment with external/joint lavatories	60.90	45.29	37.31	37.31
Apartment in building made of wood or tin	37.31	37.31	37.31	37.31
Non residential properties				
Government offices	312.36	312.36	312.36	...
Services and commercial offices (above 150 sqm)	336.26	312.36	312.36	...
Services and commercial offices (up to 150 sqm)	325.82	312.36	312.36	...
Workshops and garages	149.88	111.34	90.34	...
Industrial plants	131.49	97.96	79.2	...
Schools, kindergartens, yeshivas, and universities	101.61	101.61	101.61	...
Hotels and boarding houses (with area above 2000 sqm)	138.29	128.77	103.82	...
Hotels and boarding houses (with area up to 2000 sqm)	112.26	90.93	66.11	...

[17] This could be partly explained by the fact that per-square meter/foot price tends to be higher for a commercial property than a residential property—meaning the gap could be smaller when comparing the effective tax rate per property value.

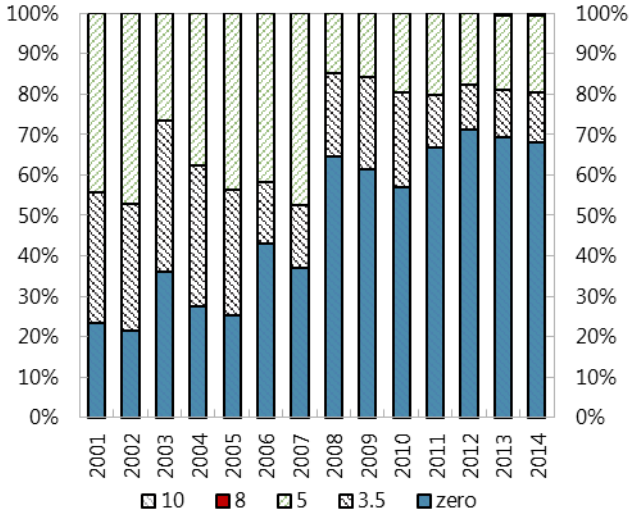
15. An acquisition tax ("Mas Rechisha") is levied on a purchaser of property. The tax rate is progressive with respect to the value of the property. In light of the increasing housing prices, the tax rates have also been raised in multiple steps. For investors—defined as individuals who own more than one house—the lowest tax rate was raised from 3.5 percent to 5 percent, and then further to 6 percent in February 2011, while a 7 percent tax bracket was added in 2011 followed by further addition of 8 and 10 percent brackets in August 2013. For individuals who own only one house, the highest tax rate was 5 percent until 2012, but 8 and 10 percent tax brackets were added in January 2013. Foreigners—whose presence is rather small, around 3–5 percent of total transactions—used to be exempted from the acquisition tax, but the exemptions were abolished also in 2014. There remain, however, certain exemptions for social-policy considerations. The current top rate at 10 percent is on a high end compared to other countries (Table), although most—about 99 percent of total—transactions are within the tax brackets of 5 percent or below for buyers with only one house.

Transfer Tax Rates in Selected Countries, 2010

Country	Rate
Argentina	~2.5%
Australia	5.5%
Belgium	10-12.5%
Brazil	2%
Canada	~2.5%
Denmark	0.6-1.5%
France	0.7-5.1%
Germany	4.5%
Ireland	0-9%
Israel (2014)	0, 3.5, 5, 8, 10%
Italy	~10%
Japan	2.5-6%
Luxembourg	~10%
Mexico	2-5%
Netherlands	6%
Russia	18%
Spain	0-7%
Sweden	3%
Switzerland	0-3.3%
United Kingdom	0-4%
United States	0-2%

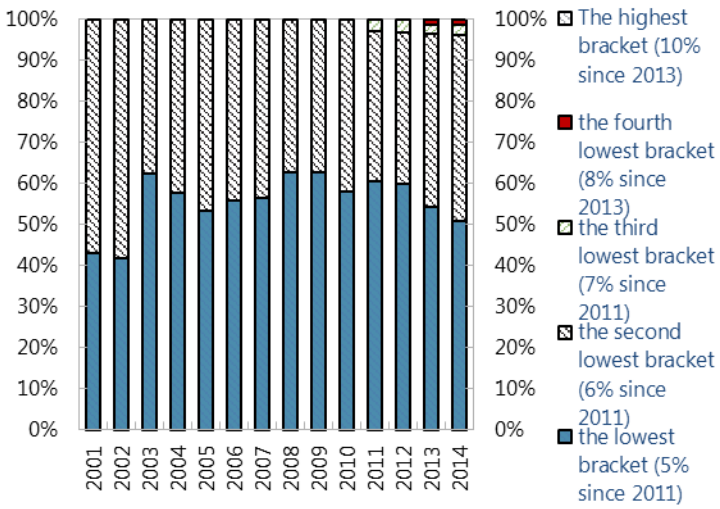
Source: UN (2011)

Israel: Composition of Buyers with One Apartment by Acquisition Tax Brackets



Sources: Israeli authorities; and IMF staff calculations.
1/ Data up to October 2014.

Israel: Composition of Buyers with More than One Apartment by Acquisition Tax Brackets



Sources: Israeli authorities; and IMF staff calculations
1/ Data up to October 2014.

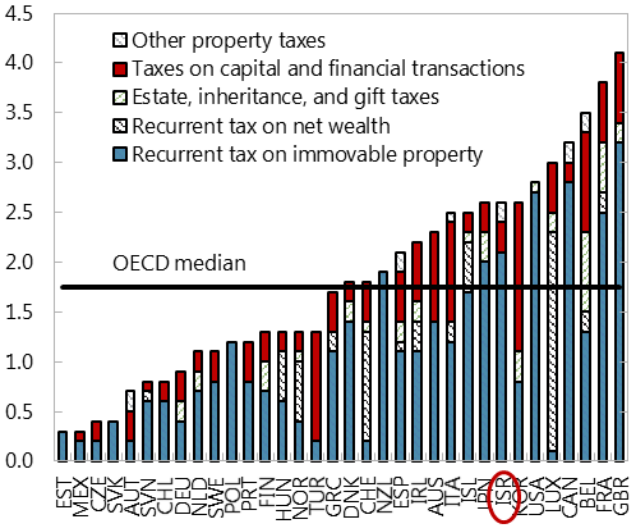
16. Generous exemptions for gift tax and inexistence of inheritance tax appear to be supporting cash-based housing transactions. The gift tax is exempted for any gift (i.e., an asset, including land, property, or rights) transferred by an individual to one of his family members as long as the donee is an Israeli resident.[18] Since the beginning of 2014, however, the government has tightened the eligibility of gift tax exemption, by excluding transfer between siblings from the exemption. The inheritance of assets and rights, as well as other than real estate is generally not taxed.

D. Revenue collection from Housing Taxes—A cross-country comparison

17. The collection from the "core" property taxes is about 2½–3 percent of GDP in Israel, which is above the OECD median (Figure). The composition of the "core" property taxes is characterized by a large share of recurrent taxes levied by municipal governments, followed by transaction taxes and other non-recurrent property taxes (e.g., betterment levy). The collection of the recurrent property tax has been stable, possibly suggesting tax base—property values—does not reflect the market values.

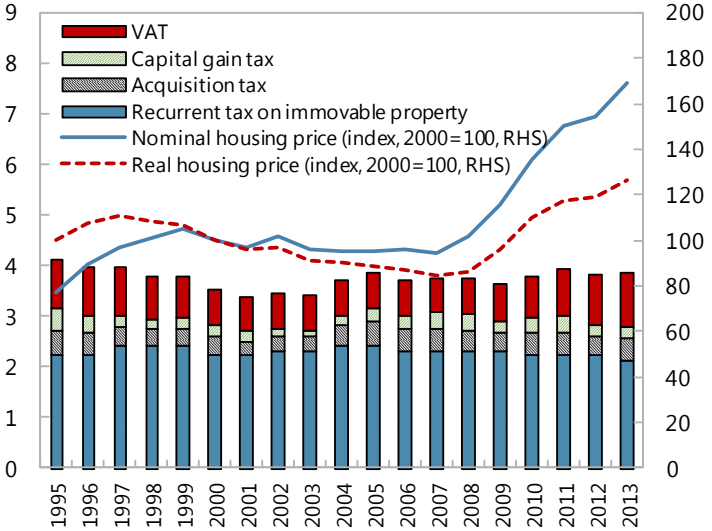
18. If we include other taxes (VAT for new residential constructions and capital gain tax) total revenues amounts to around 4 percent of GDP. Despite the large increase in housing prices since 2007, however, the collection of housing taxes has remained broadly unchanged.

OECD: Property Tax Collection, 2013 or the latest
(In percent of GDP)



Source: OECD.

Israel: Taxes on Housing
(In percent of GDP)

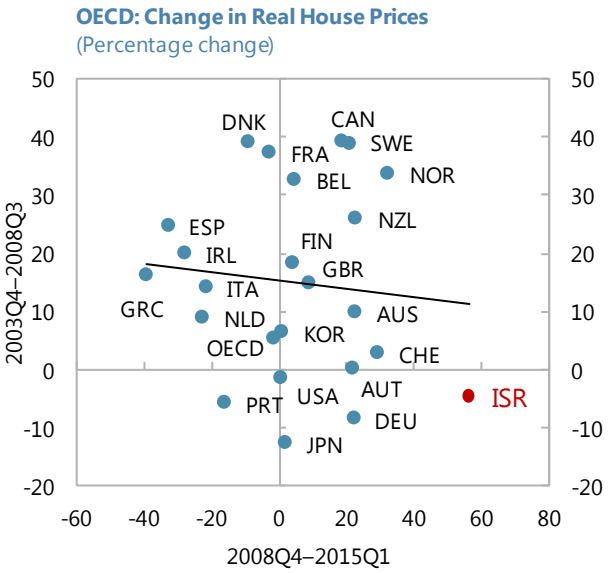


Sources: Israeli authorities, OECD, Haver, and IMF staff estimate.

[18] Any gift to a non-Israeli resident is taxable.

E. Tax policies and housing affordability/prices

19. Since 2008, housing prices in Israel have risen sharply. During the period, demand for houses was boosted by lower interest rates while housing supply could not catch up due to various constraints. This section will assess a) to what extent the tax system may have contributed to the price increases; and b) to what extent the tax system can (or should) help make housing more affordable.



Source: OECD

What are the factors behind the increase in housing prices?

20. Real house prices in Israel increased by 56¼ percent from 2008 Q4 to 2015 Q1.[19] During the same period, many countries that did not experience a housing price boom during the pre-crisis era also saw an increase in housing prices (e.g., Austria, Germany, Switzerland), but the degree of price increases observed in Israel somewhat stands out (Figure).

21. Both demand- and supply-side issues have driven the price development in Israel.

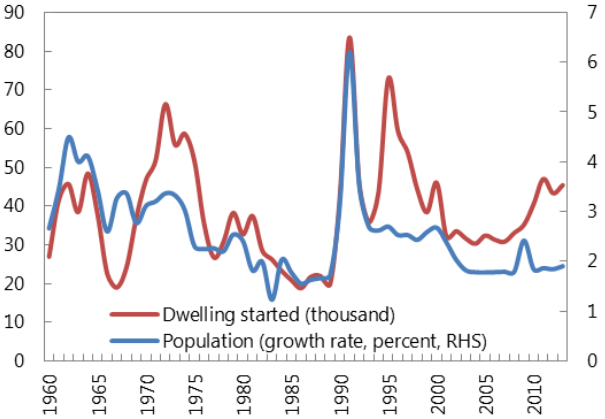
22. Demand-side issues. Homeownership can be explained by demography and macroeconomic conditions, such as households' disposable income and interest rates (e.g., Andrews, Caldera-Sánchez, and Johansson, 2011).

- **Demography.** Israel's housing demand—and also supply—used to be largely driven by the waves of immigrations (Figure).[20] The increased housing supply in the mid-1990s eased demand pressures, as evident by the reduced population-to-dwelling and household-to-dwelling ratios. However, the demand pressures from demography—both from population and the number of households—appear to be mounting again during the 2000s.

[19] On a nominal term, housing prices almost doubled in between 2007 Q1 (the recent bottom) to 2015 Q1.

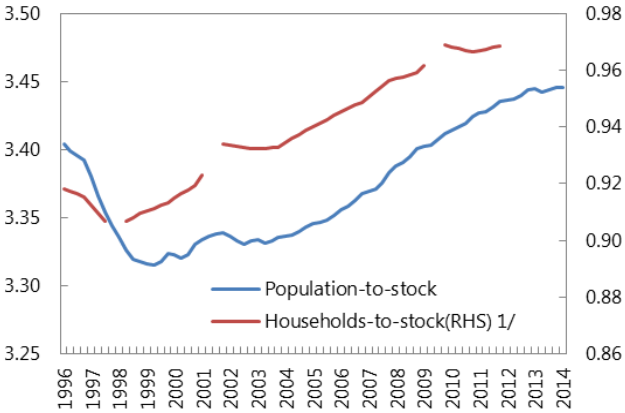
[20] Israel has a history of promoting homeownership. Benchetrit (2011) indicates that from the establishment of the stat through the early 2000s, the Israeli government gook various steps to encourage homeownership, based on the social, economic, and maintenance-related considerations. Socially, it was believed that homeownership fostered a sense of rootedness and personal connection to one's geographical locale, and objective of particular importance in so-called "development areas." Economically, homeownership was believed to encourage savings and lessens government investment, and also contributes to higher home maintenance standards.

Israel: Housing Starts and Population



Source: Haver Analytics.

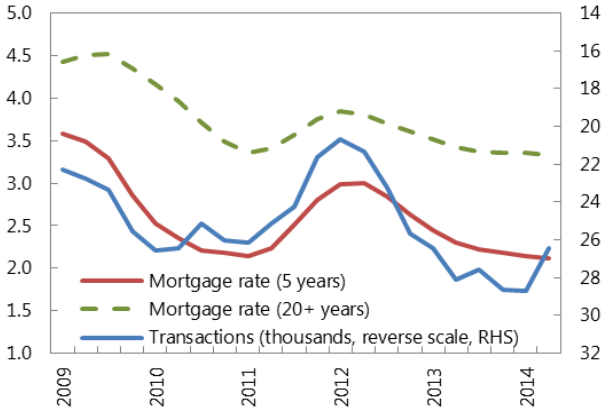
Israel: Real Housing Demand Pressures



Sources: Bank of Israel, Central Bureau of Statistics, Haver Analytics.
1/ Data break in 1998, 2001, and 2009.

- **Low interest rates.** More recently, starting in 2008–09, favorable financing conditions appear to have boosted demand for houses.[21] During the last 10 years, the correlation between housing transactions and mortgage rates was high (-0.7 for 5-year mortgage rate and -0.8 for 20 plus-year mortgage rate). In addition, several policies, including taxation, has been creating a bias toward homeownership, (or in some cases deliberately promoting homeownership).

Israel: Housing Market Transaction and Mortgage Rates, 2009-14



Sources: Israeli Tax Authority and Haver Analytics.

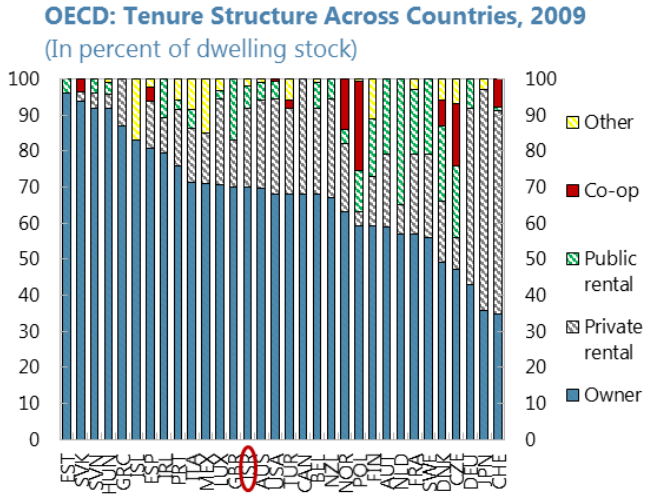
- **Tax system creates bias towards homeownership.** While the absence of a mortgage interest deduction has helped mitigate a debt bias, generous exemptions on the capital gain tax and acquisition tax likely have promoted homeownership and housing investments Israel.

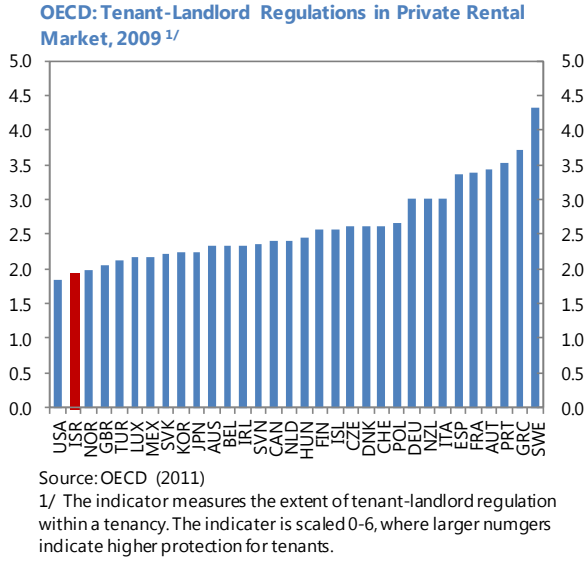
- **Under-regulation of rental market makes renting unattractive.** The rate of homeownership in Israel was 70 percent in 2009, slightly above the OECD median (Figure). Benchetrit (2014) indicates that the Israel's pro-homeownership policy, including housing subsidies and public housing program, enabled widespread homeownership.[22] The under-regulation of rental market may have been adding to a bias toward homeownership (Figure). While allowing for flexible rents is welcome, neither landlords nor tenants are protected by the type of specialized legislation on the rental of dwellings that can be found in other OECD countries—for example, a

[21] Mortgage rates have been on a downward trend since the early 2000s.

[22] Benchetrit (2014), however, argues that the homeownership rates have recently been declining because only a fraction of public housing program remains after a large portion of the public housing was sold.

tenant's rights and a landlord's obligations are not properly regulated, and a long-term leasing contract virtually does not exist (OECD, 2011). The government has initiated a process of introducing a new law for fair rental to limit annual rent increase and short-term contracts.

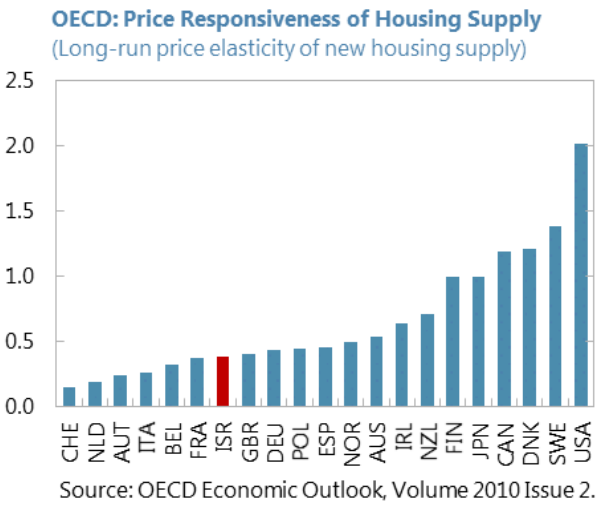




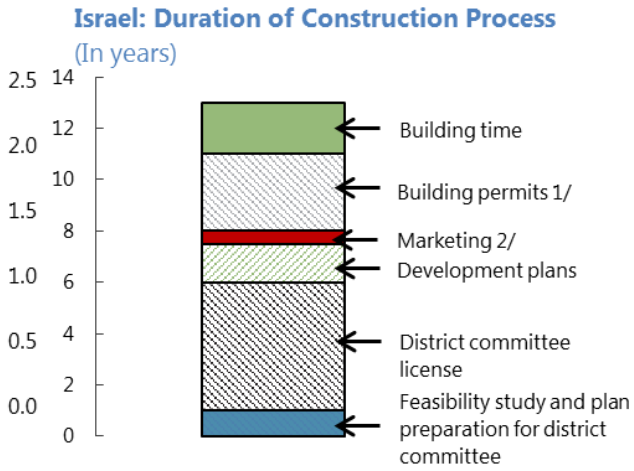
23. Supply-side issues. The elasticity of housing supply to price changes is among the lowest in OECD countries (Caldera-Sanchez and Johansson, 2011).

- This is partly attributable to Israel's high population density.
- However, governance issues, including lengthy approval and permit processes, are also causing the bottleneck in housing supply. In Israel, the central government plays an important role in property development, stemming largely from the fact that the majority of the land is state owned. The lengthy processes are mainly due to (i) excessive regulations: every building plan (even a small renovation) constitutes a law, therefore any changes require a cumbersome lengthy process; and (ii) excessive centralization: the process is overly centralized, which is causing substantive inefficiency. Regarding the privatization of lands, the Israel Land Authority (ILA) approves the release of land for development, and therefore has a potentially profound influence on where and when new housing is built. In the past, development permits issued by the ILA appear to have given more priority to regional policies than market developments. For instance, according to Bank of Israel (2011) new permits in 2009 and 2010 were concentrated in the Jerusalem region and the south, with rather less focus on the north, and notably the center, where prices have been rising fastest.[23]

[23] This may be due to the advice made by the Ministry of Construction and Housing in late 2006 to restrict housing construction in the center of the country in light of the persistent decline in housing prices started in the late 1990s, possibly owing to the excess supply of dwellings after the surge in immigrations in the early 1990s. The government accepted this recommendation on August 24, 2008 (Government resolution No. 3973). This resolution was overturn on July 15, 2010 (Government resolution No. 1980).



Source: OECD Economic Outlook, Volume 2010 Issue 2.



1/ Permit from the local committee.
2/ Tender publication and decision regarding the winner.
Source: Taub Center, State of the Nation Report 2014.

Can fiscal policy contribute to mitigating further housing price increases?

24. Counteracting real estate booms may help prevent boom-bust cycles that can have dire macroeconomic and fiscal consequences. There are many examples of housing prices booms that have ended badly, particularly if they were accompanied by a credit boom.[24] Fortunately, in Israel the housing price boom has not been accompanied by a credit boom. However, a housing price correction could still have a large impact on the economy through the wealth effect.[25]

25. International experience suggests that tax treatment of housing is typically not the main driver of housing price boom ("the problem")—but it does contribute. Real estate price bubbles can be driven by various demand factors, including steady income growth, population growth, an extended period of accommodative monetary policy, and innovation in financial products (e.g., subprime lending for the case of the United States). In many cases, special tax treatment for housing also increased household leverage and housing prices, although taxation does not appear to have been the main driver of house price developments (IMF, 2009).

[24] In Ireland the unwinding of a credit and housing boom (housing prices declined by 50 percent) triggered a banking crisis and also resulted in a large decline in revenue from the housing sector (by about 3 percentage points of GDP from 2006 to 2011).

[25] Recent studies (e.g., Kahn and Ribon, 2014) indicate a positive correlation between housing prices and private consumption in Israel. This may suggest a sharp correction in housing markets could have a second-round effect on the economy through lowering consumption.

26. However, governments frequently consider taxes on housing as potentially effective instruments ("the solution") in countering speculative housing price booms and housing price volatility.[26] So what can governments do?

- **Removing distortions in the tax system**. Any existing taxation setting that is causing a bias toward homeownership should be revisited.

- **Introducing temporary new distortions to break a bubble that is feeding on itself**. In theory, if a government can clearly identify a bubble situation in a timely manner, one could argue for a temporary, but distortionary, demand-side measures (i.e., transaction taxes). In practice, however, identifying a bubble situation in a real time is difficult, and therefore distortionary measures are not widely used to counter act housing prices.

27. As discussed in Section C, the Israeli government implemented a number of tax measures in over the last few years in view of counter-acting the recent housing price boom.[27] Regarding the acquisition tax, the government raised tax rates for the lower two brackets for investors and added high brackets for both investors and non-investors. The criteria for exemptions have been also tightened for the acquisition tax, capital gain tax, and gift tax, although the thresholds for the exemptions remain very generous.

28. What else could Israel do on the tax front?

- **Removing distortions.** The current capital gain tax exemption—about 70 percent of total transactions are exempted—appear to be too generous for individuals with a single house and are creating a homeownership bias. The threshold for the exemption could be lowered. Forming a regime of capital gain tax on housing, however, requires careful design to limit the impact on labor mobility. So-called "lock-in" effects can arise if, following a house price increase, the associated capital gain is taxed more lightly if the owner remains in the house compared to moving (OECD, 2007). This suggests that taxing capital gains when realized (i.e., when sold) could create lock-in effects, but taxing on an accrual basis (i.e., when capital gains are generated,

[26] Norregaard (2013) indicates that property taxes have been considered as potentially effective in countering speculative housing price booms and house price volatility. Examples include using property taxation in this respect include China and Singapore although the impact of taxes for this purpose is far from clear. Crowe and others (2011) conclude that the relationship between the level of transaction taxes and housing prices is ambiguous. However, transaction taxes that change with real estate conditions may be, in theory, more promising. On the boom side, China and Hong Kong SAR introduced higher stamp duties to dampen real estate prices and discourage speculation. Their experience, however, indicates that transaction volume responds more than prices do (suggesting that the associated collateral costs are high) and the impact of the introduction of the tax may be transit.

[27] Since the beginning of 2014, housing transactions have been declining. While some may be attributable to the tightening of tax exemptions, but strong rebound in the late 2014 would suggest it was largely due to the "waiting" behavior caused by an anticipation of the introduction of a zero VAT on new apartments starting in 2015. The idea of the zero VAT was eliminated after the dismissal of the government in December 2014.

based on assessed values[28]) creates less of the effects. In addition, raising the recurrent property tax rates to the level comparable to the effective tax rates on income from other financial assets.

- **Introducing temporary new distortions to break a bubble that is feeding on itself.** Key question here is whether there is a bubble. IMF (2013) suggests that housing prices were 25 percent above the long-term equilibrium, and the latest update suggests the misalignment has further increased to 30 percent. Dovman and others (2012), in the meantime, estimate the actual price was between 3 to 10 percent above the fundamental price. It is indeed difficult to assess in a real time whether the housing market is in a bubble situation or not. Typically, housing bubbles start with an increase in real demands, in the face of limited supply. Speculators then enter the market, believing that profits can be made through short-term buying and selling, resulting in deviations of housing prices from real demands. In theory, using a distortionary measure may not be completely precluded in the face of a housing bubble. However, in practice, given Israel's already high acquisition tax rates, a further increase in the acquisition tax rates would not be ideal.

29. More important may be supply-side measures. Various fiscal and regulatory measures could help to promote housing supply.

- **Speeding up the privatization of land.** Doing so could create a win-win situation if it enhances housing supply while increasing government revenue. There are divided views in promoting land privatization in the Israeli context. Pro-privatization views, on one hand, include that monopolies are inherently inefficient compared with competitive markets and public administration and decision-making are inevitably less effective than private profit making organizations. Pro-public land ownership, on the other hand, argues that public ownership would promote the production of public goods (e.g., roads, national parks), preservation of land for large-scale developments, improved control for urban developments, and preventing the takeover of real estate by foreigners.[29] Well-strategized land privatization could address market failure and help mitigate price pressures in the housing market. In this connection, the Israeli government announced in 2011 two welcome plans for affordable housing: first, exempting a minimum tender offer for property developments that include a certain share of the apartments (20-40%) to be rented out on a long-term basis; and second, providing low-cost housing for homebuyers through using the existing reverse-auction process. It is, however, important for the government to follow up on the use of privatized lands so that privatized lands are used as intended.[30] To address the land issues, a committee to identify land for development and expedite the planning process

[28] Capital losses would entail a tax refund.

[29] The discussion largely draws on Werczberger and Borukhov (1999).

[30] Housing Committee indicated during the IMF visit in December 2014 that in number of cases developers do not build as agreed in the contract, or do not even build anything, but the government does not follow up on the situation properly.

has been established. In addition, power to approve building plans has been decentralized to local committees.

- **Addressing the governance issues to allow for more timely approval and permission of housing development.** In this context, the government has recently put several authorities involved in the process, such as the Israel Land Authority and the Planning Committee, under the command of the Ministry of Finance to improve coordination and shorten the planning process.

- **Adjusting Arnona for residential properties to reduce the disincentive for local governments to supply residential properties.**

- **Enhancing infrastructure—for example, roads, public transportation—to expand the commutable areas.**

F. Conclusion

30. The current framework of housing taxation in Israel is broadly in line with global standards, but with few elements that have likely increased underlying demand for housing. The absence of mortgage interest deduction is welcome. However, various tax exemptions, including capital gains and acquisition taxes especially for individuals with a single house, seem to have contributed to the underlying demand pressures during the recent hikes in housing prices. In addition, the absence of an inheritance tax and generous gift tax system for the Israeli appears to have contributed to cash-based housing transactions.

31. The Israeli government has appropriately taken steps to tighten the eligibility of exemptions for the capital gains, acquisition tax, and gift taxes. The government also raised the effective property acquisition tax rate. While there is a scope for further tightening exemptions for capital gain tax for individuals with a single house through lowering the eligibility threshold and increasing recurrent property tax rates, a further aggressive use of taxation to counter act the housing boom would not be productive.

32. Addressing the supply-side issues will be critical. Speeding up the privatization of land could create a win-win situation if it enhances housing supply while increasing government revenue. Arnona for residential properties could be adjusted to give municipalities incentive to supply residential properties. In addition, the governance issues constraining timely approval and permission of housing development need be addressed. Enhancing the investment in public transportation and roads could also expand the commutable areas (and the supply of developable land). In this context, the government's recent initiatives to shorten the planning process and boost housing supply are welcome.

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