



OFFICE OF THE STATE COMPTROLLER
AND OMBUDSMAN OF ISRAEL

INDICATORS FOR INTERNATIONAL COMPARISONS AND BENCHMARK COUNTRIES TO ISRAEL IN THE STATE COMPTROLLER'S AUDIT REPORTS ON **COST OF LIVING**

Yaron Fishman | Nir Lesser



ABSTRACT

Chamber of the State Comptroller and Ombudsman
Economic Advisor to the State Comptroller



OFFICE OF THE STATE COMPTROLLER
AND OMBUDSMAN OF ISRAEL

INDICATORS FOR INTERNATIONAL COMPARISONS AND BENCHMARK COUNTRIES TO ISRAEL

IN THE STATE COMPTROLLER'S AUDIT REPORTS ON

COST OF LIVING

ABSTRACT

Yaron Fishman | Nir Lesser¹

¹ Yaron Fishman is the Deputy Director of Division 12 in the Department for the Audit of Government Ministries and State Institutions, and serves as the Economic Advisor to the State Comptroller. Nir Lesser is the Assistant to the Economic Advisor to the State Comptroller. The opinions expressed in this document are those of the authors alone.

Table of Contents

Abstract	5
1. OECD Indicators for Calculating the Price Levels for Goods and Services	5
2. Indicators for Assessing the Cost of Living	11
3. Benchmark Countries for Comparing the Cost of Living and Controlling for the Variation in the Material Standard of Living	15
4. Integrating International Benchmark Indicators into the State Comptroller's Reports and Key Recommendations for Audit Teams	19
A. Key Recommendations for Audit Teams	19
(1) Recommended Indicators for International Comparisons to Include the State Comptroller's Reports	19
(2) Recommended Methodologies for Selecting Benchmark Countries and Controlling the Variation in the Material Standard of Living	20
B. Integrating International Benchmark Indicators into the State Comptroller's Reports	24
The Three Pillars of Performance Auditing with Financial and Economic Aspects	24

Legend of Icons Used in This Document:



Findings from Figures or Tables



General Finding



Excerpt from an External Source



Recommendation

ABSTRACT

International comparisons in the field of cost of living enable the identification of disparities between the cost of living in Israel and that of other countries, and support audits of the performance of government bodies responsible for addressing this issue. It is therefore important to integrate such comparisons into audit work in this area. In recent years, the State Comptroller's Office has conducted several international comparisons in the field of cost of living: at the macroeconomic level, at the sectoral level through the comparison of price gaps across major and secondary industries, and at the product level, primarily in the food sector.

Conducting international comparisons – particularly in the field of cost of living – involves a range of methodological challenges. These include differences in the characteristics of goods and services across countries; converting the prices of goods and services in different countries, expressed in various currencies, into a single comparable currency, while accounting for the effects of exchange rate fluctuations on the results; differences across countries in wage levels, disposable income, and material standard of living; and the appropriate selection of benchmark countries for Israel. In this paper, we offer solutions to these methodological challenges, aimed at enabling audit teams to conduct international comparisons in the field of cost of living in a professional and meaningful manner that strengthens the audit process.

1. OECD Indicators for Calculating the Price Levels for Goods and Services

The OECD publishes, once every three years, two key indices: the Purchasing Power Parities (PPP)² for goods and services and the Price Level Indices (PLI)³ for baskets of goods and services. As of the time of writing, the data for these indices refer to 2022⁴.

The Purchasing Power Parity (PPP) is a widely used indicator that serves as an alternative to nominal exchange rates. It compares the purchasing power of different currencies while neutralizing differences in price levels across countries⁵. In simple terms, it indicates how many shekels one needs to spend in Israel to buy what one U.S. dollar purchases in the United States. The Price Level Indices (PLI) for goods and services are calculated as the ratio between the Purchasing Power Parity (PPP) and the market exchange rate (ex), multiplied by 100.

2 Purchasing Power Parity (PPP) is an alternative indicator to the exchange rate index, designed to neutralize the impact of exchange rate fluctuations.

3 The price level is measured as the ratio between the PPP and the market exchange rate, multiplied by 100.

4 Data have been produced continuously between 2005 and 2017, over five triennial cycles. In April 2024, the OECD published updated data covering the years 2020 to 2022. The 2022 figures are based on the results of a survey conducted in 2020, adjusted to 2022 using Consumer Price Indices (CPI).

5 OECD, Purchasing Power Parities – Frequently Asked Questions (FAQs)



The OECD Price Level Indices (PLI) have been criticized in the professional literature in Israel due to the influence of the exchange rate on the index values. This influence is reflected both as a structural issue in the index formula and in empirical findings reported in the literature, as well as in additional analyses we conducted, which indicate that changes in the OECD's PLI contradict the trends observed in Israel's Consumer Price Index (CPI)⁶.

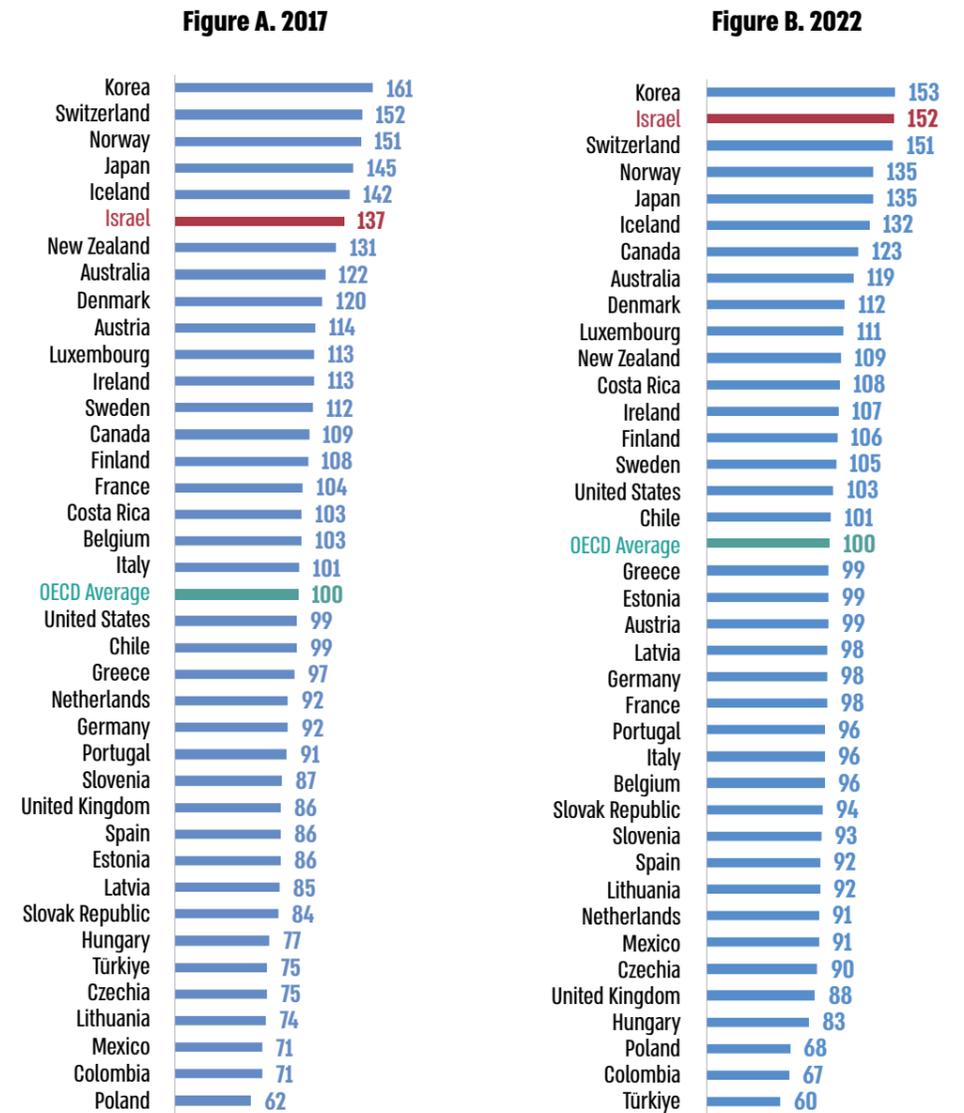
From a structural standpoint, an appreciation of the shekel's exchange rate against other currencies would normally be expected to partly translate into a decline in consumer price indices. However, due to the formula used to calculate the OECD Price Level Indices (PLI), this index shows an increase instead of a decrease in Israel's price level.



An appreciation of the shekel's exchange rate (ex) against the U.S. dollar⁷ in Israel, ceteris paribus (all other factors remaining constant), is expected to lead to an increase in the price levels of goods and services baskets in Israel according to the OECD index, even if no change has occurred in the level of competitiveness or in the production function of the various industries and services in Israel.⁸ Conversely, a depreciation in the exchange rates of OECD member countries' currencies relative to the U.S. dollar, while other factors remain constant, is expected to reduce the OECD's average price level, and consequently, the price levels of goods and services baskets in Israel according to the OECD index would appear higher relative to the OECD average, even if no changes occurred in Israel's underlying data.

From an empirical standpoint, analyses published in the professional literature in Israel, as well as additional analyses we conducted, have likewise indicated biases in the OECD Price Level Indices (PLI) resulting from the influence of exchange rates. Below is an example of an analysis we performed concerning the OECD Price Level Index (PLI) for food and non-alcoholic beverages in OECD countries in 2017 and 2022 (Figure 1), as well as the changes in the Price Level Index (PLI), the Consumer Price Index (CPI), and the Purchasing Power Parity (PPP) for the food and non-alcoholic beverages basket in OECD countries in the years 2017–2022 (Figure 2).

Figure 1: OECD Price Levels for Food and Non-Alcoholic Beverages, 2017 (A) and 2022 (B).



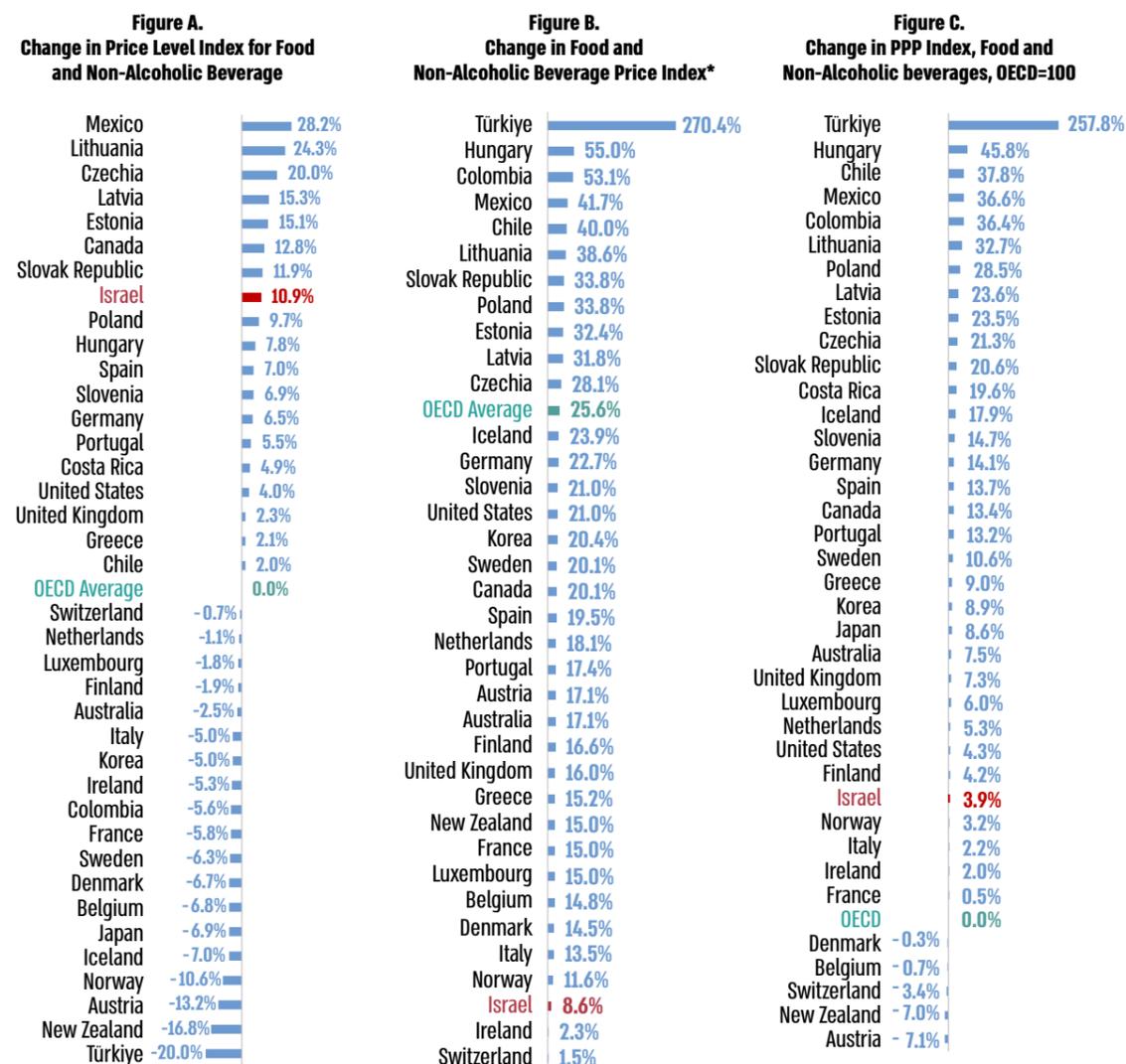
Source: OECD data, processed by the State Comptroller's Office.

6 The Consumer Price Index (CPI) measures the percentage change over time in the expenditure required to purchase a fixed basket of goods and services whose prices can be regularly measured. This basket represents the consumption pattern of the household sector.

7 Throughout this document, the term "dollar" refers to the U.S. dollar, unless otherwise indicated.

8 A quantitative expression of the relationship between factors of production and the resulting output is represented by mathematical equations that describe the relationship between output and the inputs of labor and capital. These equations define the maximum output attainable given specific quantities of inputs. Source: Eitan Avnion, **Lexicon of Economics**, Yedioth Ahronot and Etiav (2004), p. 377 (In Hebrew).

Figure 2: Changes in the Price Level Index (PLI) (Figure A), the Consumer Price Index (CPI) (Figure B), and the Purchasing Power Parity (PPP) (Figure C) for the Food and Non-Alcoholic Beverages Basket in OECD Countries, 2017–2022.



Source: OECD data, processed by the State Comptroller's Office.

The change in food and non-alcoholic beverages price index, does not include Japan and Costa Rica due to lack of data.



in the years 2017–2022, no such correlation was found. In other words, based on the change in the Price Level Index (PLI) for food and non-alcoholic beverages during 2017–2022, Israel ranked high among OECD countries, whereas based on the changes in the CPI and PPP for food and non-alcoholic beverages, Israel ranked low in the corresponding OECD rankings (Figure 2).

The lack of correlation between the changes in the OECD Price Level Index (PLI) and the changes in the Consumer Price Index (CPI) and the Purchasing Power Parity (PPP) for the food and non-alcoholic beverages basket can be explained by exchange rate fluctuations in Israel and in OECD countries. The appreciation of the shekel against the U.S. dollar in Israel, along with the depreciation of local currencies against the dollar in most OECD countries in the years 2017–2022, had a significant impact on the changes in the price levels of food and non-alcoholic beverages in Israel during that period, as well as on the price level of these product groups in Israel and their relative position among OECD countries in 2022 (Figure 1).

Furthermore, the changes in the price levels of food and non-alcoholic beverages in Israel were influenced by the significant depreciations of local currencies against the U.S. dollar in many OECD countries. In the years 2017–2022, a depreciation of local currencies relative to the U.S. dollar was recorded in 34 out of 37 OECD countries (excluding the United States), with an average depreciation rate of 22.3%. In those same years, an appreciation of local currencies relative to the U.S. dollar was recorded in three out of 37 OECD countries (with an average rate of 3.3%), while Israel recorded the highest appreciation (6.7%). In other words, from 2017 to 2022, Israel ranked at the bottom of the OECD ranking in terms of the change in the local currency's exchange rate against the U.S. dollar, with an appreciation of 6.7%. These factors contributed to the increase in the price level of food and non-alcoholic beverages in Israel, according to the OECD Price Level Index, from 137 in 2017 to 152 in 2022 (Figure 1). As noted earlier, this contradicts the trends observed in both the Food and Non-Alcoholic Beverages Price Index (CPI) and in the Purchasing Power Parity (PPP) for food and non-alcoholic beverages (Figure 2).

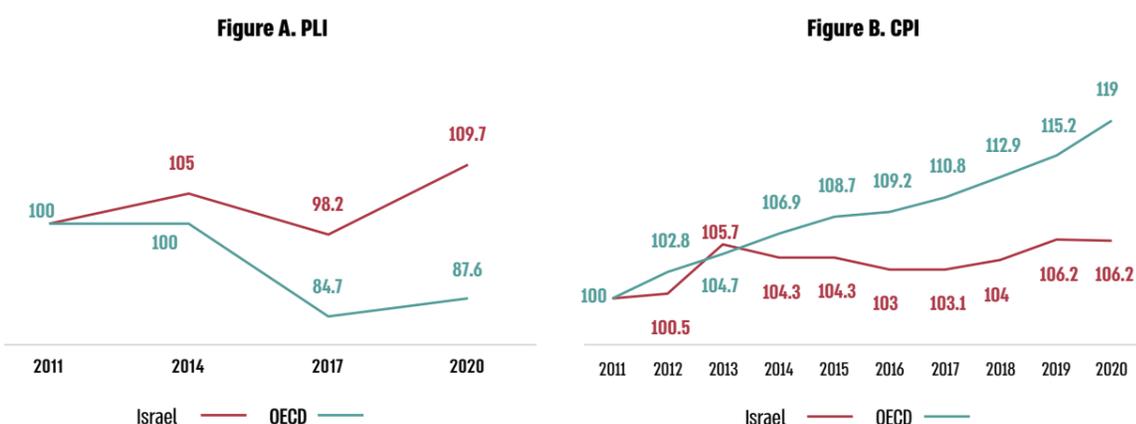
In 2023, the shekel's exchange rate depreciated against the U.S. dollar by a relatively high rate of 9.2%, compared with exchange rate movements in OECD countries during that year. This depreciation made a significant contribution to the decline in Israel's GDP Price Level Index, from 131 in 2022 to 122 in 2023.



As shown in Figure 1, Israel ranks relatively high in the OECD Price Level Index (PLI), with an upward trend in price levels from 137 in 2017 to 152 in 2022, representing the second-highest price level among OECD countries in that year. However, Figure 2 shows that, although one might expect to observe a positive correlation between the increase in food and non-alcoholic beverage price index (CPI) and the increase in Israel's Price Level Index (PLI) and Purchasing Power Parity (PPP)

Additional analyses we conducted and present in this report also contradict the assumption that Israel's moderate inflation rates, compared with those of OECD countries, narrow the gap between Israel's relatively high price levels and the average price levels in OECD countries. This is the case both because the price level of food in Israel has risen over time relative to the OECD average – from 119 in 2011, to 125 in 2014, 137 in 2020, and 152 in 2022 – and because our analyses show that food-related Consumer Price Index (CPI) in Israel increased less than the average growth in food CPIs across OECD countries, as shown in Figure 3. This figure also illustrates the opposite trends observed between the Consumer Price Index (CPI) and the Price Level Index (PLI) for the food and non-alcoholic beverages basket in Israel and in the OECD average.

Figure 3. Price Level Index (PLI) (Figure A) and Consumer Price Index (CPI) (Figure B) for the Food and Non-Alcoholic Beverages Basket in Israel and in the OECD, in the years 2011–2020 (2011 = 100*)



Source: OECD data, processed by the State Comptroller's Office.

* We independently calculated the PLI for Israel and for the OECD average, based on the calculation formula presented in the paper by Dan Ben-David and Eyal Kimchi (2021)⁹. We normalized both Israel's PLI and the raw OECD average PLI (prior to its normalization to 100) so that their value equaled 100 in 2011, and then examined the changes in the index from 2011 to 2020.

Based on the literature sources cited in the full Hebrew version of this document; on the additional analyses conducted and presented in the full Hebrew version in regarding the impact of exchange-rate changes on changes in the Price Level Indices (PLI) for GDP, individual consumption, and food and non-alcoholic beverages; and on analyses indicating the absence of a correlation between changes in the Price Level Indices (PLI) and changes in the Consumer Price Indices (CPI) for these product groups in Israel – all of these suggest that exchange-rate fluctuations have a material effect on the price level indices of these product groups. This, in turn, introduces a significant bias into analyses of the cost of living in Israel when relying on the OECD's Price Level Indices data, and may similarly bias results for other OECD countries.

⁹ Dan Ben David & Eyal kimhi, **Does prices in Israel high? Beware of international comparison**, Shores institute (2021), pp. 12–13 (In Hebrew).



These findings necessitate considering alternative indicators for assessing the cost of living in Israel as part of conducting international comparisons in the State Comptroller's reports.

2. Indicators for Assessing the Cost of Living

In this document, we propose five alternative indicators for measuring the cost of living, which are not affected by exchange-rate fluctuations. The first indicator is the Consumer Price Index (CPI), which includes both the general index and price indices for the various consumption baskets. The CPI serves as a simple measure for calculating price changes over time (inflation).



The second, third, and fourth indicators present different versions for measuring the purchasing power of wages (the average annual wage, the average hourly wage, and the median disposable income). These indicators enable comparisons between Israel's purchasing power and the average purchasing power in the OECD. Wage-based purchasing power indices essentially measure how many different consumption baskets can be purchased using the annual wage, hourly wage, or disposable income.

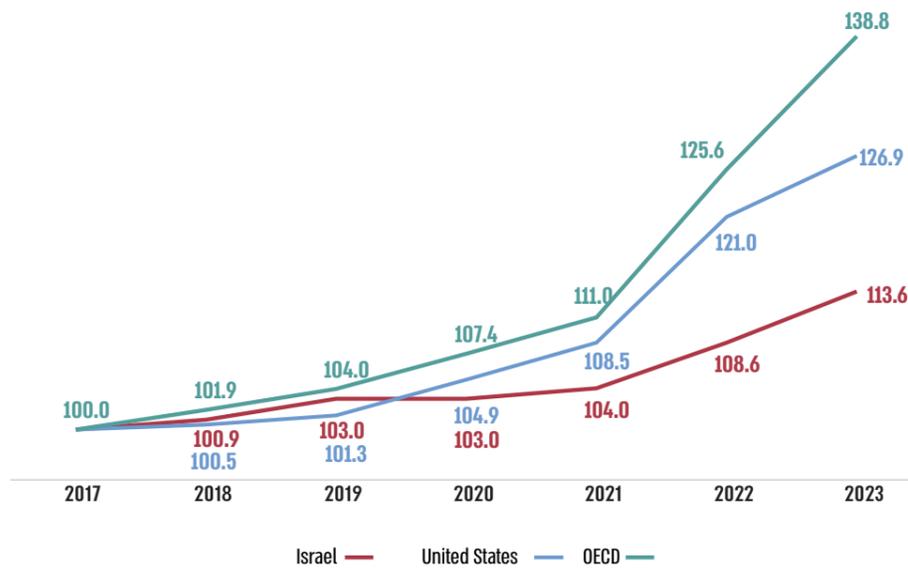


The fifth indicator is the most complex. It examines price differentials across product categories, comparing each category's price gap from the national average with the corresponding gaps in the OECD average. All of the indicators are based on professional literature, adjusted as necessary

to account for data availability, and supplemented by additional analyses conducted by us. For each indicator, this document presents the calculation method, the data sources, and the analyses performed for selected consumption baskets.

The following are examples of the main results obtained for the food and non-alcoholic beverages basket. An analysis of changes in the Consumer Price Index (CPI) in Israel, the United States, and the OECD average is shown in Figure 4.

Figure 4. Consumer Price Index (CPI) for Food and Non-Alcoholic Beverages in Israel, the United States, and the OECD Average, 2017–2023 (2017 = 100)



Source: OECD data, processed by the State Comptroller's Office.



As shown in Figure 4, in the years 2017–2023, the Consumer Price Index (CPI) for food and non-alcoholic beverages in OECD countries increased by approximately 38.8%, and in the United States by approximately 26.9% – both higher than in Israel, where the index rose by approximately 13.6%. Similar trends were observed for the overall CPI as well as for other main consumption baskets, including energy; the overall CPI excluding energy and food and non-alcoholic beverages; clothing and footwear; housing, water, electricity, gas, and other fuels; furnishings, household equipment and routine household maintenance; transport; communication; recreation and culture; restaurants and hotels; and alcoholic beverages, tobacco, and narcotics.

The purchasing power of wages reflects both income and expenditure, and thus offers a different perspective on a country's cost of living than one based solely on prices (the expenditure side). For example, if we compare only the price of a given basket of goods or services between Country A and the OECD average, and the price of that basket in Country A is higher than the OECD average, we might conclude that Country A is more expensive than the OECD average. However, if wages in Country A are higher than the average wages in OECD countries, then the purchasing power of wages with respect to that same basket of goods or services may actually be higher than the OECD average. This example illustrates how the purchasing power of wages provides different insights than a comparison based on prices alone. The number of food and non-alcoholic beverages baskets that can be purchased with the average annual wage, average hourly wage, and median disposable income in OECD countries in 2022 is shown in Figures 5a–5c.

Figure 5. Number of Food and Non-Alcoholic Beverages Baskets that Can Be Purchased with the Average Annual Wage (Figure A), the Average Hourly Wage (Figure B), and the Median Disposable Income (Figure C) in OECD Countries, 2022

Figure A: Purchasing Power of the Average Annual Wage (in thousands)

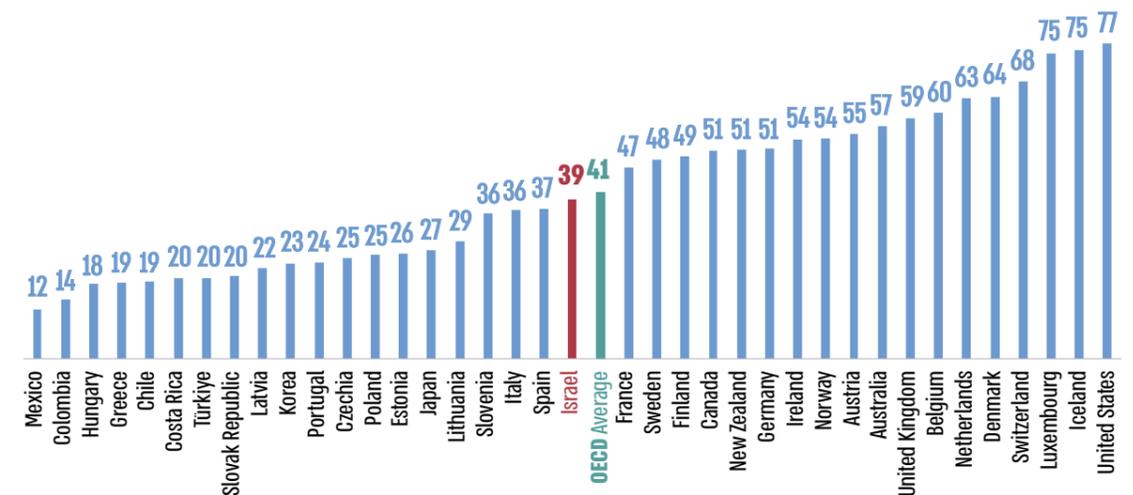


Figure B: Purchasing Power of the Average Hourly Wage*

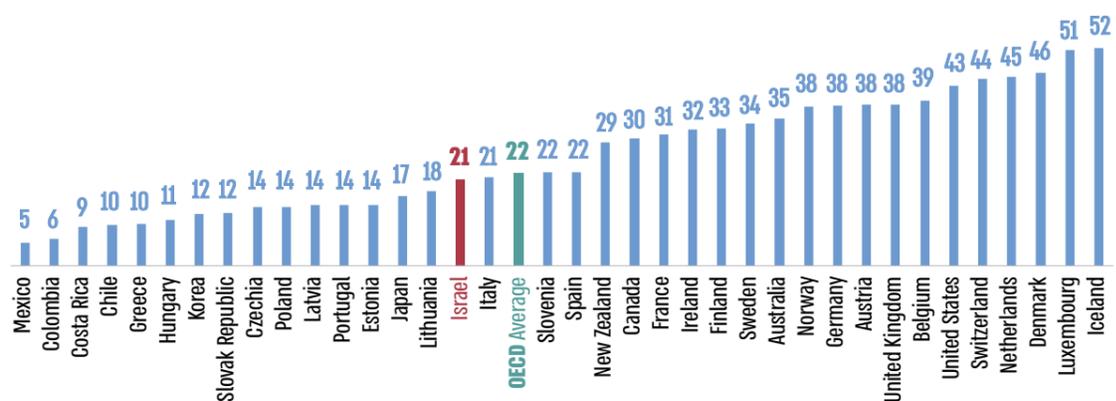
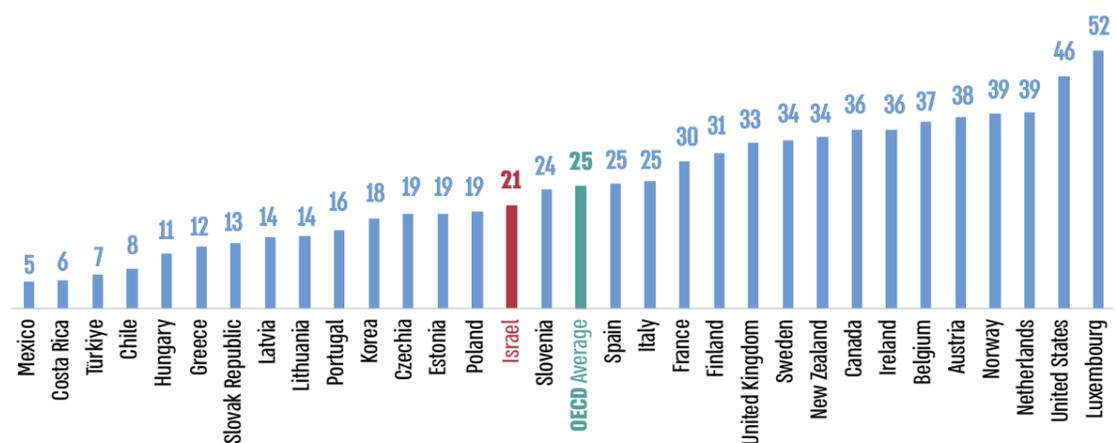


Figure C: Purchasing Power of the Median Disposable Income (in thousands)



Source: OECD data, processed by the State Comptroller's Office.

* Excluding Türkiye



As shown in Figure 5, the purchasing power of the average annual wage, the average hourly wage, and the median disposable income in Israel is lower than the OECD average, yet Israel's position is close to the OECD average and not at the lower end of the ranking, as was indicated by the analysis of the Price Level Index (PLI) (Figure 1). This finding is due, among other factors, to the fact that the purchasing power indicators for the various wage measures are not affected by exchange-rate fluctuations, which, as discussed, introduce a bias into the OECD Price Level Indices, as well as to the incorporation of wage levels into the indicator itself.

3. Benchmark Countries for Comparing the Cost of Living and Controlling for the Variation in the Material Standard of Living

When conducting comparative analyses, including international comparisons, it is important to control for variables; that is, to ensure that the characteristics of the comparison group are sufficiently similar to those of the subject of comparison. When performing comparisons involving Israel, it is necessary to select a comparison group whose member countries share a clear common denominator with Israel and for which reliable data are available¹⁰. The group of countries that are members of the OECD meets this criterion, as their common denominator is their membership in the Organisation for Economic Co-operation and Development (the OECD).

The cost of living is strongly influenced by a country's level of wealth; therefore, it is essential to control for income per capita when conducting international comparisons of price levels. The Gross Domestic Product (GDP) per capita (hereinafter: GDP per capita) is a commonly used indicator of a country's material standard of living, and it is positively correlated with income per capita. For these reasons, when comparing price levels or the purchasing power of wages, it is important to take into account differences in the material standard of living among countries, as measured by GDP per capita or income per capita. In this document, we propose two criteria for selecting a small group of benchmark countries in the field of cost of living, based on material standard of living, measured by GDP per capita: (1) countries with a similar material standard of living – those whose GDP per capita differs from Israel's by no more than 10%; (2) countries whose population size is similar to Israel's, but with higher GDP per capita and productivity, and therefore defined as a benchmark group reflecting the full realization of Israel's potential.

In addition, this document presents a statistical methodology for examining the difference between the purchasing power of wages adjusted for the material standard of living (measured by GDP per capita) and the actual purchasing power of wages. The standard way to illustrate the relationship between price levels or wage purchasing power and GDP or income per capita in the relevant countries is through a scatter diagram and the calculation of a regression equation showing the relationship between GDP per capita and wage purchasing power. In general, there are three possible outcomes: If Israel's wage purchasing power lies on or very close to the regression line, this indicates that the purchasing power of wages corresponds to Israel's material standard of living. If wage purchasing power is above the regression line, the purchasing power of wages is higher than that corresponding to the material standard of living; in other words, more consumption baskets can be purchased compared with the number corresponding to that standard of living. Conversely, if wage purchasing power lies below the regression line, the purchasing power of wages is lower than that corresponding to the material standard of living;

¹⁰ All the data used in this document are taken from the OECD website.

that is, fewer consumption baskets can be purchased compared with the number corresponding to that standard.

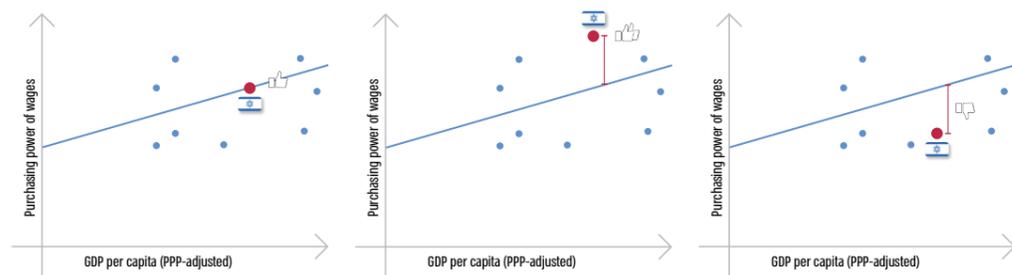


Figure 6 presents an analysis, based on this statistical methodology, of the purchasing power of the average annual wage and the average hourly wage for the food and non-alcoholic beverages basket in 2022.

Figure 6. Purchasing Power of the Average Annual Wage (Figure A) and the Average Hourly Wage (Figure B) for Food and Non-Alcoholic Beverages Baskets versus GDP per Capita (PPP-adjusted)* in OECD Countries, 2022

Figure A: Average Annual Wage, 2022

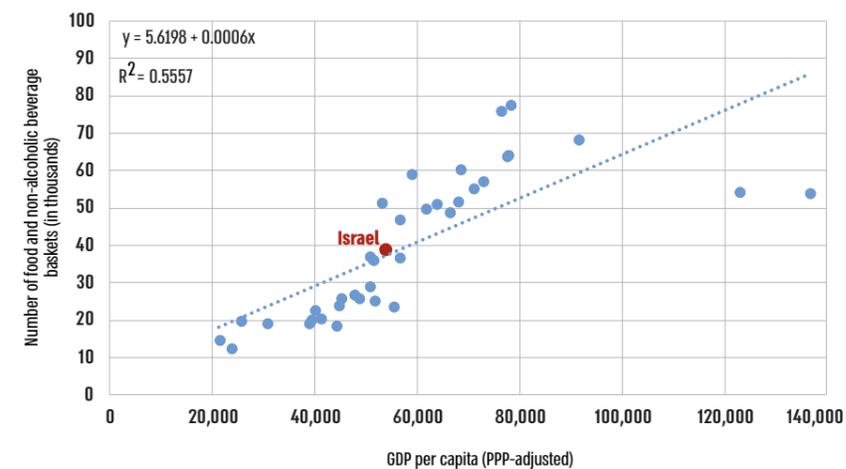
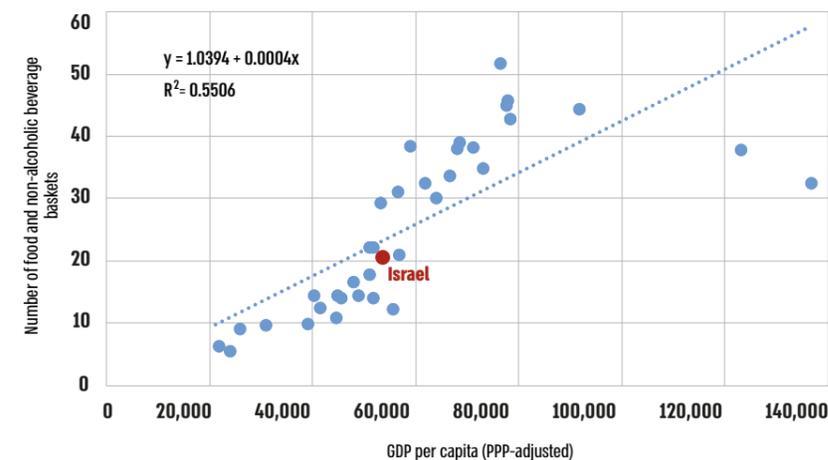


Figure B: Average Hourly Wage, 2022



Source: OECD data, processed by the State Comptroller's Office.

* GDP per capita expressed in local currency, divided by the GDP Purchasing Power Parity (PPP) index.

** Excluding Luxembourg due to outlier GDP per capita data, and excluding Türkiye from the hourly wage analysis due to a lack of data.



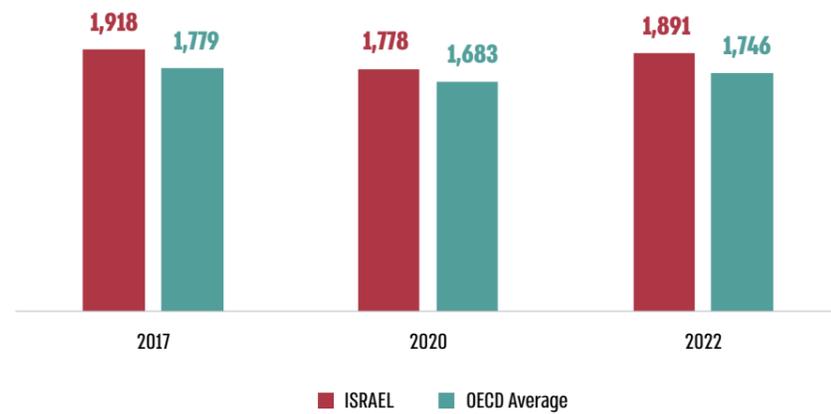
As shown in Figure 6, in 2022, the purchasing power of the average annual wage for purchasing food and non-alcoholic beverages baskets in Israel lay on or very close to the regression line (slightly above it). This means that the purchasing power of the average annual wage for this basket corresponds to – and is even

slightly higher than – the purchasing power level consistent with Israel's material standard of living. As for the purchasing power of the average hourly wage in Israel in 2022, it lies below the regression line and is 11.6% lower than the purchasing power level consistent with Israel's material standard of living in that year. Similar results were obtained for this basket in 2020 and 2017.



These findings suggest that, in order to purchase the number of food and non-alcoholic beverages baskets corresponding to Israel's material standard of living, workers in Israel must work more hours. Indeed, in 2017, 2020, and 2022, the average number of working hours in Israel was higher than the OECD average (see Figure 7 below).

Figure 7. Average Annual Working Hours in Israel and in OECD Countries, 2017, 2020, and 2022



Source: OECD data, processed by the State Comptroller's Office.

Similar results were also obtained in the analysis of the purchasing power of the average annual wage and the average hourly wage for purchasing GDP baskets, as well as in the analysis of the purchasing power of the median disposable income for purchasing food and non-alcoholic beverages baskets and GDP baskets.



In 2022, the purchasing power of the average hourly wage in Israel was lower than the purchasing power corresponding to Israel's material standard of living for several additional consumption baskets: furnishings, household equipment and routine household maintenance (-7.0%); recreation and culture (-11.1%); housing, water, electricity, gas, and other fuels (-24.3%); restaurants and hotels (-20.8%); and fruits and vegetables (excluding VAT) (-2.2%). By contrast, it was higher than the purchasing power corresponding to the material standard of living for the following baskets: communication (+54.1%); transport (+2.5%); clothing and footwear (+1.1%); and fruits and vegetables (including VAT) (+6.5%).

4. Integrating International Benchmark Indicators into the State Comptroller's Reports and Key Recommendations for Audit Teams

A. Key Recommendations for Audit Teams

The main recommendations for audit teams presented in this document are summarized in this chapter.

(1) Recommended Indicators for International Comparisons to Include in the State Comptroller's Reports



It is recommended that audit teams calculate the purchasing power of the hourly wage for purchasing various product baskets, which measures the number of units of each basket that can be purchased with the hourly wage in all OECD countries. The hourly wage is considered a "cleaner" indicator compared with annual wage or disposable income, as it measures how many hours an individual must work to purchase a given quantity of goods¹¹ (Ido Len, 2023)¹².



It is recommended to calculate the median hourly wage where reliable data for OECD countries are available. Compared with the average wage, the median wage is less affected by extreme values (very high or very low), i.e., by greater inequality in the income distribution.

¹¹ By contrast, a "full-time" position is defined according to the average number of hours actually worked by citizens; therefore, it is itself influenced by the cost of living. When the cost of living is high, people tend to work more hours in order to support their families. In other words, wage per full-time position tends to blur cross-country differences, since in countries with lower wages, the average number of working hours is typically higher; as a result, the gap in terms of wage per position appears smaller.

¹² Ido Lan, **Cost of Living in Israel: Low Wages or High Prices?**, Arlozorov Forum (August 2023), p. 127.

If reliable median hourly wage data are not available and the average hourly wage is used instead, audit teams are advised to compute the OECD average using a geometric mean. Compared with a simple arithmetic mean, the geometric mean is less sensitive to outliers.

The Consumer Price Index (CPI) measures the rate of change over time in the expenditure required to purchase a fixed basket of goods and services whose prices can be regularly measured. Audit teams are advised to compute changes in the CPIs of the product baskets examined in the international comparison. The Consumer Price Index (CPI) is a standard and widely used measure in assessing the cost of living. Incorporating the overall CPI and the CPIs of the product and service baskets examined in the international comparison into the audit report will enable verification of the results obtained from other indicators used to calculate the cost of living and changes in the cost of living for the baskets of goods and services examined. If a discrepancy arises between CPI changes and the changes in other indicators employed in the audit report, a thorough examination should be conducted to determine the reasons for it.

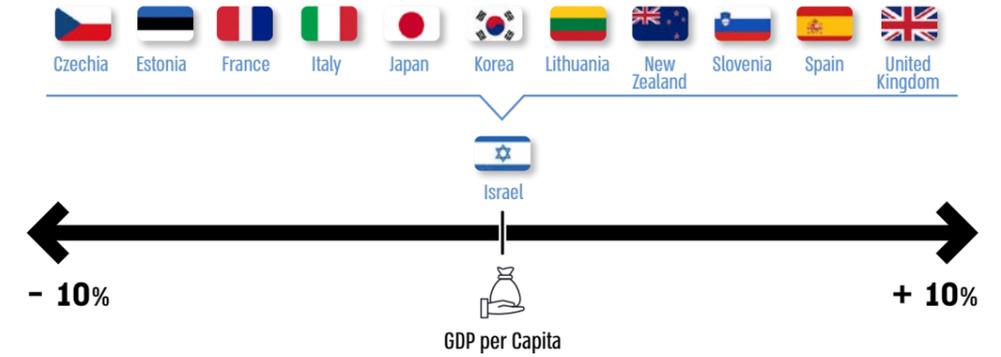


(2) Recommended Methodologies for Selecting Benchmark Countries and Controlling the Variation in the Material Standard of Living



It is recommended to select, from among the OECD member countries, comparison countries whose GDP per capita is no more than 10% higher or lower than that of Israel: (a) in three out of the last four years, or (b) in the two most recent years for which reliable and available data exist. The purpose of examining data for several years is to avoid the arbitrary selection of comparison countries based on the data of a single year.

At the time of writing this document, the relevant years for the first criterion are 2020–2023, and for the second criterion, 2022–2023. According to these criteria, the comparison countries are the Czechia, Estonia, France, Italy, Japan, Korea, Lithuania, New Zealand, Slovenia, Spain, and the United Kingdom.



At the time the international comparison is conducted for the audit report, it is important to validate the list of comparison countries using the criteria specified above.

The GDP per capita should be adjusted for the Purchasing Power Parity (PPP) of GDP. In other words, it is calculated by dividing the GDP per capita, expressed in different currencies, by the PPP of GDP in U.S. dollar terms, to obtain comparable GDP per capita values for OECD countries in a uniform and comparable currency (USD). The PPP-adjusted GDP per capita data can be retrieved directly from the OECD website.

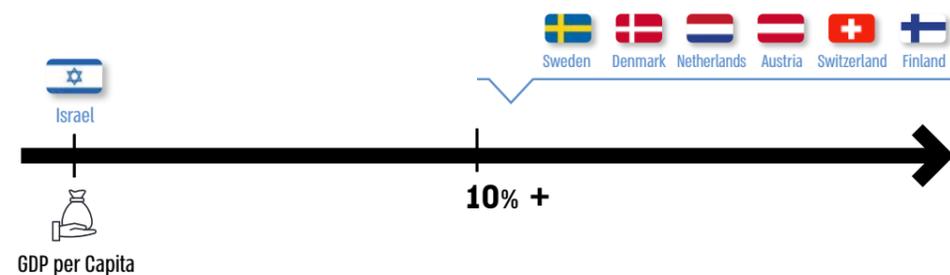
$$\text{GDP per capita (PPP - adjusted)} = \frac{\text{GDP per capita in local currency}}{\text{PPP of GDP}}$$



When Israel's performance in the international comparison of cost-of-living indicators is relatively strong compared with that of the benchmark countries selected based on the first criteria (countries with GDP per capita differs from Israel's by no more than 10%), then it is recommended to examine whether similar results are obtained for the benchmark countries selected based on the second criteria¹³. Comparing Israel's performance with these second criteria countries makes it possible to evaluate the extent to which Israel has realized its potential.

¹³ Second criteria countries have a population size similar to that of Israel, but their GDP per capita and productivity levels are higher. These countries may serve as a comparison group for assessing Israel's full potential.

The countries currently recommended for inclusion in the second criteria group are Sweden, Denmark, Netherlands, Austria, Switzerland and Finland. Their selection is based on recent professional literature. Audit teams are advised to validate the selection of the second criteria countries in subsequent years, in light of possible changes in the variables used for their selection – including population size, GDP per capita, and productivity. This validation may be conducted either through review of updated professional publications or through independent analysis of these variables by the audit teams.



Audit teams with an economic and statistical background are also encouraged to examine the gaps between the purchasing power of different wage measures – particularly the purchasing power of the hourly wage for purchasing baskets of goods and services – and the purchasing power of wages corresponding to Israel's material standard of living, as measured by GDP per capita. The gap in purchasing power is derived from the regression equation estimating the relationship between PPP-adjusted GDP per capita and the purchasing power of wages for purchasing product baskets across OECD countries¹⁴.



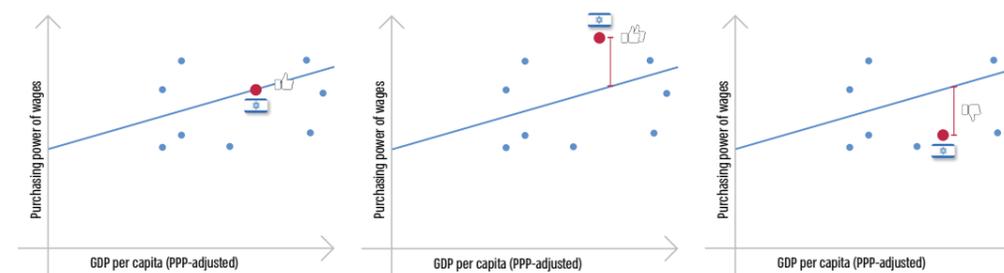
The advantage of this method over comparison with the designated comparison countries is that it allows for the calculation of the percentage gap between the purchasing power of wages in Israel and the purchasing power corresponding to Israel's material standard of living, as measured by GDP per capita.



In general, there are three possible outcomes: (a) If the purchasing power of wages in Israel lies on or very close to the regression line, this indicates that wage purchasing power corresponds to Israel's material standard of living, as measured by GDP per capita; (b) If the purchasing power of wages lies above the regression line, this indicates that wage purchasing power exceeds the level consistent with Israel's material standard of living; in other words,

¹⁴ Even teams without an economic or financial background can carry out these analyses with the guidance and assistance of the Office's economic advisor.

more consumption baskets can be purchased compared with the number corresponding to that standard of living; (c) If the purchasing power of wages lies below the regression line, this indicates that wage purchasing power is lower than the level consistent with Israel's material standard of living; that is, fewer consumption baskets can be purchased compared with the number corresponding to that standard of living.



As part of the regression analysis, audit teams are advised to examine whether a statistically significant relationship exists between the purchasing power of wages for purchasing various product baskets and PPP-adjusted GDP per capita.

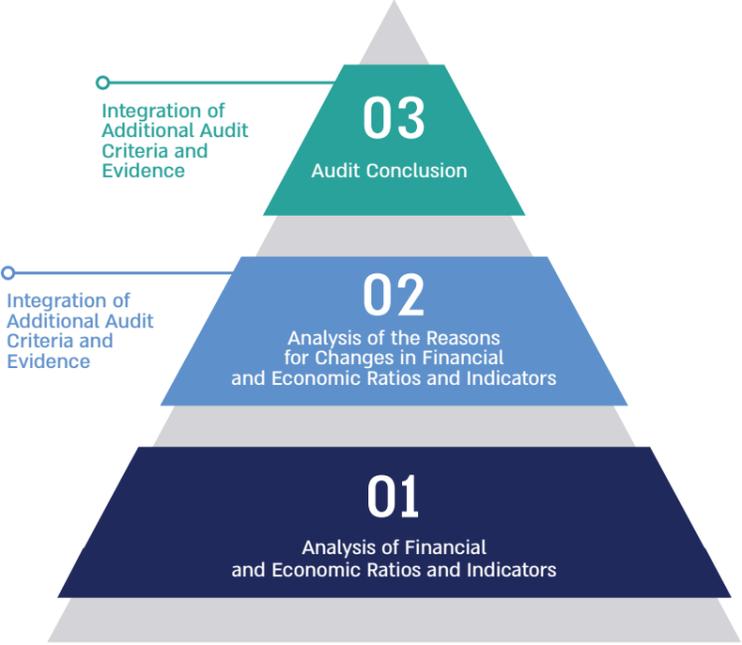
The differences between the purchasing power of the average hourly wage and the purchasing power corresponding to Israel's material standard of living in purchasing fruit and vegetable baskets (with and without VAT) highlight the importance of government policy's impact on the cost of living. Wherever possible, audit teams are encouraged to conduct analyses of cost-of-living indicators both with and without the effect of taxation, particularly in consumption baskets where there are substantial differences in tax policy between Israel and the comparison countries. Isolating the impact of taxation makes it possible to identify cost-of-living gaps arising from market characteristics alone, independent of government intervention, and to estimate the effect of government tax policy on the cost of living.

B. Integrating International Benchmark Indicators into the State Comptroller's Reports

The Three Pillars of Performance Auditing with Financial and Economic Aspects

The connection between international comparisons and the methodology for drafting audit reports is based on the three pillars of performance auditing with financial and economic aspects, as presented in the first economic advisory document (Yaron Fishman, July 2024)¹⁵. The three pillars are illustrated in Figure 8 below:

Figure 8: The Three Core Components of Performance Auditing with Financial and Economic Aspects



Explanations for the implementation of each of the three pillars are as follows.

(1) The First Pillar – Analysis of Financial and Economic Ratios and Variables



¹⁵ Yaron Fishman, Performance Auditing with Financial and Economic Aspects: A Focus on Government Companies, Office of the State Comptroller, Economic Advisory Document 2024.01 (July 2024), pp. 39–45.



The first pillar involves analyzing the results of the international comparison as they directly emerge from the indicators used in the comparison; in this document, the cost-of-living indicators. Naturally, the first pillar of the analysis focuses on a comparative assessment at a given point in time. It is important, however, that the comparative analysis include data from several years, in order to incorporate a longitudinal examination. A multi-year analysis enables the identification of trends and changes in Israel's relative position compared with the entities of reference, and it allows for validation of the analytical results by examining the degree of consistency between changes in the selected index and changes in the corresponding consumer price index (CPI) for the product or service under review.



In other words, in order to implement the first pillar, the following steps should be taken: (a) Define the cost-of-living indicator; (b) Define the comparison reference – whether it is the OECD average, Israel's position relative to the first or second criteria countries, or the percentage gap between the purchasing power of the different wage measures and the purchasing power corresponding to Israel's material standard of living; (c) Conduct a multi-year analysis of the selected indicator; (d) Present the comparison results in a figure; (e) Summarize the main findings below the figure, emphasizing Israel's position relative to the comparison reference.

(2) The Second Pillar – Analysis of the Reasons for Changes in Financial and Economic Ratios and Variables



The second pillar focuses on analyzing the reasons for Israel's position, or changes in its position, relative to the comparison reference. Israel's relative position, and any changes in it, are also affected by developments in the comparison reference itself, which in turn may result from changes in some or all OECD countries. Audit teams are not expected to conduct an economic analysis of the reasons for these changes in the benchmark countries. However, at a minimum, audit teams should analyze changes in wages and changes in the PPP indices in Israel and in the comparison reference (for example, the OECD average). This

analysis helps determine whether changes in Israel's relative position in wage purchasing power indices stem from factors directly related to the cost of living (i.e., changes in the PPP indices) or from changes in wages. If analyses by other institutions addressing the reasons for changes in Israel's relative position are available, it is recommended to incorporate them in this section. Audit teams are also advised to examine whether there is consistency between changes in PPP indices (as part of the calculation of wage purchasing power) – or any other cost-of-living indicators used in the audit report – and the Consumer Price Indices (CPI) for the same groups of goods and services, both in Israel and in the comparison reference (for example, OECD countries).

(3) The Third Pillar – The Audit Statement



The international comparison (the first pillar) enables the identification of gaps (audit findings) between the actual values of the cost-of-living indicators (the audit evidence) and their corresponding values within the comparison group (the audit criterion). The integration of additional audit criteria and evidence, as is customary in audit practice within the third pillar, provides the international comparison conducted as part of the State audit with added value. This compared to standard international comparison analyses carried out by the audited entities or by other bodies.

Additional audit criteria may include government decisions and policy recommendations relating to the cost of living made by various bodies (such as OECD recommendations), while additional evidence may include the extent to which these decisions and recommendations have been implemented.

As is customary when assessing the effectiveness of actions taken by audited entities to address the cost of living – through the examination of changes in price indices following the implementation of policy measures – the findings of international comparisons in this field can, in certain cases, provide an indication of the effectiveness of these actions relative to the performance of other countries during the same periods. It is important to formulate the audit

statement with caution, noting that the effectiveness of the actions taken by the audited entities, as reflected in the international comparison, is influenced by the performance of other countries, which lies beyond the control of the audited entities¹⁶.

To summarize, the analyses and findings presented in this paper highlight the importance of eliminating the effects of exchange rate fluctuations when using indicators to assess the cost of living in international comparisons; analyzing changes in price indices for different consumption baskets; examining the purchasing power of various wage measures in relation to these baskets; and controlling for the level of material standards of living (GDP per capita) when selecting comparison countries for Israel; or, alternatively, when analyzing the purchasing power of different wage measures in relation to consumption baskets, in order to determine whether it corresponds to, exceeds, or falls below Israel's level of material standards of living (GDP per capita).

¹⁶ For example, an improvement in cost-of-living indicators for a specific product or service may occur following the implementation of a government reform in that area. However, in an international comparison, Israel's relative position may nevertheless decline if the improvement in cost-of-living indicators in the benchmark countries is greater.

