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הלשכה המרכזית לסטטיסטיקה
Central Bureau of Statistics
دائرة الإحصاء المركزية

The Product of Industries in Israel: Sources, Methods and Transition to Constant Prices

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National Accounts in Israel

- The Israeli GDP and Gross Value Added are compiled using two different methods: the expenditure method which gives the official GDP and the production approach.

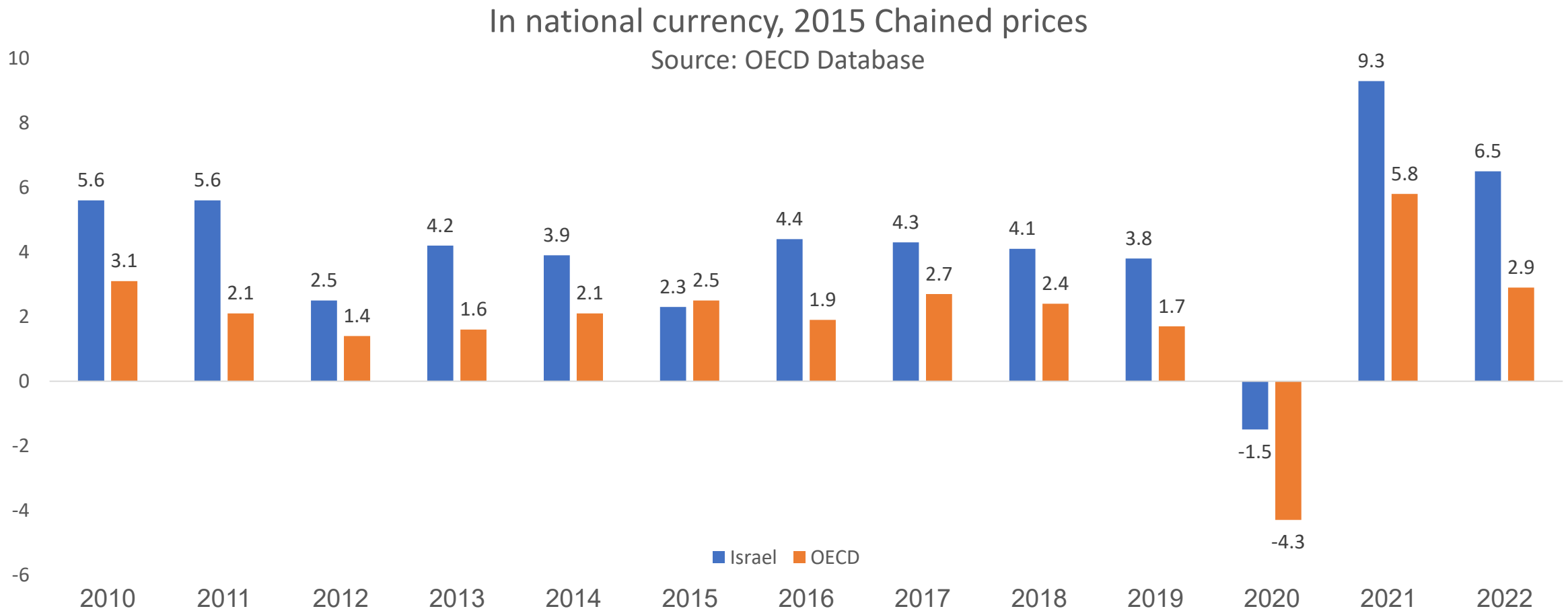
- National economic statistics were initially based on administrative sources, such as data obtained from the Central Bank and the Ministry of Finance, foreign trade from Customs, etc. This was prior to the conduct of business surveys in the CBS. Additionally, the official GDP from the expenditure method is based on more up-to-date sources than those of the business surveys.

National Accounts in Israel: Main Aggregates

Israel, USD, Constant Prices & PPPs, OECD Base Year, Annual Changes

	2018	2019	2020	2021	2022
Final consumption expenditure of households	3.5	4.1	-8.1	11.1	7.7
Final consumption expenditure of general government	4.0	3.0	2.8	4.2	0.7
Gross capital formation	6.9	4.9	1.2	12.6	12.4
Exports of goods and services	5.7	3.7	-2.7	14.6	8.3
Imports of goods and services	7.2	3.2	-8.1	20.6	11.7
Gross domestic product	4.1	4.2	-1.9	8.6	6.5
GDP per capita	$38,392	$39,230	$37,819	$40,405	$42,190

GDP growth in Israel and the OECD Countries



Gross Value Added in Israel for the Year 2022

Section	A percentage of business GVA	Growth rate	Price change
Agriculture, forestry and fishing	1.7%	2.7%	4.1%-
Mining and quarrying, Manufacturing	17.1%	5.3%	11.8%
Electricity and Water	2.3%	1.2%-	3.8%
Construction	8.6%	9.3%	9.9%
Wholesale and retail trade	13.2%	5.2%	3.5%
Transportation and storage, postal and courier activities	4.9%	8.3%	5.1%
Accommodation and food service activities	2.9%	24.7%	4.2%
Information and communication	17.6%	8.8%	3.7%
Financial and insurance activities	7.4%	8.1%	9.0%
Real estate activities	2.9%	1.8%	9.4%
Professional, scientific and technical activities	9.3%	7.8%	1.7%
Administrative and support service activities	3.8%	3.6%	4.4%
Education	0.8%	12.0%	2.9%
Human health and social work activities	5.3%	7.4%	0.6%-
Arts, entertainment, other service activities, households as employers	2.1%	18.4%	0.1%

The Main Data Sources for Gross Value Added By Industries

- The Survey of Industries published most recently with data for the year 2020, is conducted for the purpose of estimating the outputs and distribution of inputs in the business sector.

- In 2020, 22,503 businesses that reported revenue to the tax authorities were sampled, which comprise 3.9% of the total survey population.

- The Survey's data constitute the output and the Gross Value Added of most of the business sector industries in Israel, except for Agriculture and Construction.

The Main Data Sources for Gross Value Added By Industries

- The value of production of the general government sector and the NPIs amounted to 258 billion NIS in 2022, about 15% of the total Israeli GDP in that year.

- The expenditures and revenues of the government ministries are estimated based on the analysis of the government budget execution reports, expenditures and revenues of the local authorities, and national institutions' financial reports.

- The consumption expenditure estimate of non-profit institutions is based on an annual non-profit institution (NPIs) expenditure survey.

Transition from Financial Accounting to National Accounts

- Coverage adjustments to the General Government Sector and NPIs.
- Adjustments of the unobserved economy.
- Adjustments made to be consistent with the Input-Output Table, Supply Tables and GDP compiled by the expenditure method.
- Using price indices and quantity change estimates to calculate the GVA at constant prices.

- And more…

Adjustments to the National Accounts

- In this part, I will briefly present two of the main adjustments made to the National Accounts in Israel.

- The scale of such adjustments amounts to about 10% of the total economy's GVA and this figure has a significant influence on the changes in prices and on the growth rate of the various industries, compared with the initial calculated GVA.

The Classification of R&D Expenditure as an Asset

- Prior to the implementation of SNA2008 guidelines for National Accounts in Israel, most R&D investment was recorded as current expenditures (inputs) of enterprises or other organizations engaged in R&D. R&D output includes the value of the economy's R&D production (including international development centers operating in Israel), as well as R&D production for own-use of other industries. The estimated aggregates are deflated according to the wage indices of the R&D industry (Division 72).

- The total addition to the output of the business sector industries was about NIS 33 billion in 2022, about 2.1% of the total economy’s GVA.

Imputation for Output and GVA of Startups

- Companies in their development stage, operating on investors' funds, are characterized by insignificant or even a complete lack of revenues from sales and by a relatively small number of employees. This may cause their under-representation in the economy's overall statistics and incomplete estimations.

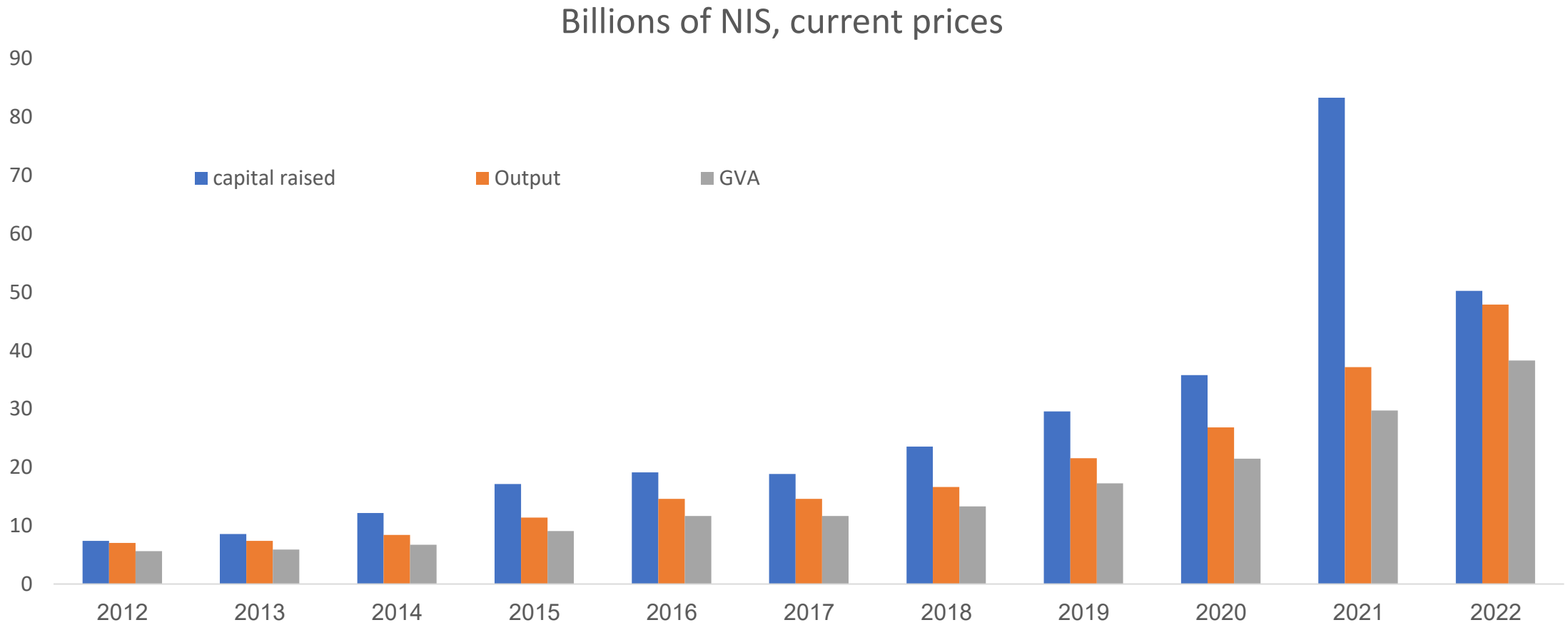
- According to the principles of the SNA, if it is not possible to estimate the output at the price it is sold in the market, the value of the output must be estimated as a sum of the production costs, depreciation expenses, tax on net production and the estimate of the operating surplus.

Imputation for Output and GVA of Startups

- Our measurement model imputes the output of the "immature" companies based on the scope of capital raising and an estimate of the operating profit. During the companies' product development period, their output is defined as an in-process inventory accumulated throughout the production period. The inventory of startup companies is also recorded as part of the economy's gross fixed capital formation.

- The data is translated into constant prices using the wages data of Division 62 (Computer programming).

Growing influence of startup companies on Israel's National Accounts



Methods for Compiling Estimates in Constant Prices for the Main Industries of the Business Sector

- The preferred method for the transition to constant prices is by aggregate deflation of the current prices by the appropriate price indices, although it is sometimes necessary to use quantitative extrapolation when the appropriate indices are not available. As a first choice, the National Accounts Sector will use the appropriate Producer Price Index for that industry.

- Whenever an industry has no corresponding PPI and the majority of its output is intended for household use, a corresponding CPI will be sufficient, or the wage data of the same industry will be used.

- Choosing the proper index for the industry price deflation and for presenting the GDP at constant prices requires a comparison between the different options of indicators, and, in certain cases, a consultation with professionals with expertise in the specific industry, or experts who are in continuous contact with the National Accounts Sector.

Section B - Mining and Quarrying and Section C - Manufacturing

- The GVA data at the level of industry groups, at constant prices, is obtained as the difference between the output and the value of the inputs at constant prices (using the double deflation method).
- The output prices for Manufacturing, mining and quarrying are calculated using a weighted index of the domestic sales price (Index of Wholesale Prices of Manufacturing Output for the Domestic Market) and the Index of Manufacturing Output for Exports.
- Since there are no indices of input prices for the mining and manufacturing sectors, the indices were calculated as a weighted index of inputs from imports and inputs from local production, according to the weights of the inputs in the 2014 Input-Output Table.

Section F - Construction

- The output of the construction industry is defined as the value of the fixed capital formation in a given period. It is calculated as the product of the average cost per square meter and the area built during that period.
- The area built in square meters is based on data of construction starts and completions received by the CBS from contractors, local authorities and the Ministry of Construction and Housing.
- The estimates at constant prices are calculated by deflating the current values by the corresponding price indices for each type of construction, such as the Price Index of Input in Residential Buildings, the Price Index of Input in Road Construction and Bridging, and the Price Index of Input in Construction of Commercial Buildings and Offices.

Section G - Wholesale and Retail Trade

- The output of this industry is defined as the difference between the value of the revenues of goods owned by the business and the value of the purchases of goods intended for sale (marketing margin), plus commissions charged for goods sold that were not owned by the business. The production account at current prices only is obtained from the annual Survey of Industries, and in the National Accounts the aggregates are deflated by appropriate indices for calculating the GVA at constant prices.

- In the years in which there was no survey (the last one was conducted in 2020), and for the quarterly GDP system that presents the formation of GDP during the year, an extrapolation was made according to the revenue data from value-added tax.

Section G - Wholesale and Retail Trade

- Israel's national statistics do not have producer price indices for wholesale and retail trade.
- Substitute price indices were developed for deflating the revenue and output series of the trade industries. for the purpose of constructing the indices in Divisions 45-46 - Wholesale trade, the composition of the inputs of the industries was examined according to the 2014 Input-Output Table, and thus a different weight was given in the construction of the index to inputs originating from imports and inputs from the domestic market.
- Division 47 - Retail trade, is deflated at the level of the Divisions with a combination of consumer price indices.

Section I - Accommodation and Food Service Activities

- The source of the data on Accommodation (Division 55) is from the annual Hotel Survey - Income and Expenses 2020. The GVA of the industry at constant prices is calculated through quantitative extrapolation based on the quantitative change in the number of person-night stays in the hotels.

- The output in Food and beverage services (Division 56) includes expenditures on food and beverages. In the years when the survey was not conducted, the estimate was based on the extrapolation of VAT revenue data. Here, the price index used to deflate prices in the transition to constant prices is the Consumer Price Index which measures the expenditure of households on meals outside the home.

Section J - Information and Communication

- The estimate of the GVA of Telecommunications is based on an analysis of current quarterly reports of the telecommunications companies active in Division 61. The product at constant prices is calculated using consumer price indices in the telecommunications industry (wired and cellular communications, television and Internet services).

- The GVA of Division 62 - Computer programming, consultancy and related activities, is calculated at constant prices using wage indices.

Section K - Financial and Insurance Activities

- The output of banks consists of two components: Direct fees for services and indirect fees (originating from interest rate differentials). The output from fees at constant prices is obtained by deflating income from fees by the Price Index of Banking Services. Revenue from imputed financial services is the difference between interest on loans at constant prices and interest on deposits at constant prices.

- For Insurance Services (Division 65), the calculation of the GVA was based on a review of the financial reports of the insurance companies prepared by the Capital Market Authority, Insurance and Savings. The output of the insurance industry is the sum of the net premiums paid by customers, the profits from investments, and changes in actuarial reserves.

Section M - Professional, Scientific and Technical Activities

- The main source of the production accounts in this section is the Survey of Industries. An exception is Division 72 - Scientific Research and Development, whose production account is adjusted with the 2014 Input-Output Table, and the base year data are extrapolated according to the revenue from the annual Survey on R&D Expenditures of the Business Sector.

- Division 69 - Legal and accounting activities, is deflated by the producer price index developed in the CBS for this industry. Division 70 – Office services and management consulting, is deflated by the producer price index that corresponds to the industry. Division 73 - Advertising and market research, is also deflated by the producer price index that corresponds to the industry. Division 74 – Other professional, scientific and technical activities, is deflated using the wage data of the industry. Division 75 - Veterinary activities, is deflated through the agricultural, veterinary services and medicines input index.

Section P - Education Section Q - Human Health and Social Work Activities

- In 2020, the government produced about 91% of the output of Section P services. The education services of businesses were taken from the base year of the 2014 Input-Output Table and extrapolation up to the current period was done using data on household expenditures on education services – private teachers, adult education, private kindergartens, etc.

- In 2020, the government produced about 60% of the output of Section Q services. The annual Survey of Industries is the source of the rest of the production accounts of the industries. Division 86 - Human health services, is deflated by the consumer price index that measures the expenditure of households on health services. Division 87 - Residential care activities, and Division 88 - Social work activities without accommodation, is deflated from the industry wage data.

Importance of developing a producer index (GVA 2020)

Division	Description	% From GVA	method for calculating constant prices	Method rating	Importance of developing ppi
41-43	Construction	5.7%	Use of construction input indices	B	High
45	Wholesale and retail trade and repair of motor vehicles and motorcycles	1.1%	Weighted indices: local production index and import prices	B	High
46	Wholesale trade, except motor vehicles and motorcycles	4.5%	Weighted indices: local production index and import prices	B	High
47	Retail trade, except motor vehicles and motorcycles	4.1%	Weighted indices: local production index and import prices	B	High
49	Land transport and transport via pipelines	1.8%	Transport input index, consumer price index on travel	B	High
62	Computer programming, consultancy and related activities	10.3%	Use of the salary index of division 62 for output deflation	B	High
72	Scientific research and development	2.0%	Use of the salary index of division 72 for output deflation	B	High
77	Rental and leasing activities	1.0%	Expenditures for private consumption/use of the consumer price index	B	High
88	Social work activities without accommodation	1.1%	Use of the salary index of division 88 for output deflation	B	High

A Preferred method
B Accepted method

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Thank you!