

## Experience in the 2021 International Comparison Program Implementation



### I. Administrative Set-Up

The Department of Statistics, Directorate General of Budget, Accounting and Statistics (DGBAS), Executive Yuan, handles the statistics related to the economy of Taipei,China, such as the compilation of the consumer price index (CPI), social indicators, national accounts, and the implementation of the 2021 ICP cycle. The senior executive officer from the Department of Statistics was assigned as the national coordinator, and the chief of the price statistics section as the deputy coordinator.

The staff members of the price statistics and national accounts sections did most of the core ICP surveys and activities. The DGBAS ICP team sought professional assistance and advice from external experts and members from other government agencies to fulfill other data requirements of the ICP. Business firms were consulted on items for construction and machinery and equipment to ensure data quality for the ICP price surveys.

### II. Use of Existing Infrastructure in Collecting International Comparison Program Data

The construction cost index (CCI) and rental surveys that satisfied the ICP specification requirements for price data were used for items in the ICP. Housing volume indicators were extrapolated from the 2020 Population and Housing Census, the 2021 Family Income and Expenditure Survey, DGBAS Social Indicators, and other information from the Water Resources Agency, Ministry of Economic Affairs. Machinery and equipment data were sourced by sampling manufacturers from the producer price index. Data for compensation of government employees for government compensation survey were obtained from the Directorate-General of Personnel Administration and the Ministry of Education.

Additional item surveys were conducted for ICP items not covered in the existing surveys.

### III. Survey Framework

The 2021 ICP cycle covered nine cities and eight counties in the CPI survey. Five quotations for each item were collected monthly for common commodities, such as food and beverages, while universal prices for public services, such as water and electricity, were priced with one quotation monthly. For out-of-season products, such as fresh mangoes with no transactions in winter, no price was collected in that specific period. Online shopping and outlets falling under the category “other kinds of trades and outlets” were classified in the north area for simplicity and efficiency of the operation.

No separate survey on actual rentals was conducted for the ICP. Housing rental data were sourced directly from existing CPI data, which covered the entire territory of Taipei,China. Regional weights for different areas were applied.

In the 2021 ICP, the CCI survey covered six cities and one county, the same as the previous ICP round. The same structure was used to obtain the ICP construction prices, whereas machinery and equipment data were provided by representative manufacturers from the producer price index. If such data were unavailable, the DGCAS ICP team sought quotations on a one-time basis.



### IV. Gross Domestic Product Expenditure Values

GDP expenditure values were readily available for most basic headings, except for narcotics, prostitution, other fuels in household consumption, pharmaceutical products, and other medical products in government consumption. The estimate for aggregate individual consumption expenditure by nonprofit institutions serving households was reported separately in the official national accounts, but further breakdown was not available. Since GDP is based on the expenditure approach, the statistical discrepancy that serves as a balancing item is shown separately on the production and income sides of GDP.

The expenditure values for the 143 out of 155 basic headings required by the ICP were primarily derived from the following sources: sales of trade and food services, a household survey on income and expenditure, and a survey on relevant indicators on domestic and foreign tourism. For government consumption, the final accounts of central and local government, categorized according to the Classification of the Functions of Government, were used to split available basic headings of the ICP. Capital formation components were primarily estimated using industrial production and trade statistics, while balance of payments statistics were directly used to estimate exports and imports.

Surveys and data collection for GDP compilation were not affected during the coronavirus disease (COVID-19) pandemic because the outbreak was controlled relatively well in the economy.

### V. Data Validation and Quality Control

Similar data validation procedures from the 2017 cycle were implemented in the 2021 ICP cycle. The DGBAS ICP team:

- (i) confirmed with field collectors, experts, and other related authorities the availability and representativeness of the priced items;
- (ii) ensured the structured product descriptions were within the parameters in the catalogues for items sourced from the CPI, CCI, and other existing surveys;
- (iii) used the coefficient of variation and minimum-to-maximum ratios for quotations of any given basic headings and item groups to identify outliers or anomalies;
- (iv) compared the price level and relativity of the basic headings with those of the same or similar basic headings from the 2017 ICP round, and compared them against the elementary aggregation levels of the CPI;
- (v) regularly revisited price and market information and rectified the data when errors were identified;
- (vi) sought advisory assistance from experts to verify the rationality of prices for machinery and equipment and construction items;
- (vii) compared observations from Asian Development Bank workshops on regional validations and intereconomy comparisons to examine the reasonableness of the submitted price data; and
- (viii) utilized the ICP Asia Pacific Software Suite to assist in validations and data organization.



### VI. International Comparison Program Price Collection Tools

The ICP Asia Pacific Software Suite assisted the 2021 ICP in several ways. When validating quotations, the display showed information that allowed quick reference, such as the unit of measurement and a picture of the item. The identification of outliers was also made easier by the colored and tagged items. The overall view of the dashboard allowed a quick check for items priced and to see whether quotations were overlooked. The price collection tool for government compensation only allowed single-item data input. Perhaps starting the next ICP cycle, bulk upload will be available, similar to household consumption and machinery and equipment.

### VII. Challenges in the International Comparison Program Implementation

The COVID-19 impact on the economy was limited during the 2021 ICP round. While there were minor setbacks, such as prices for packaged holidays not being quoted because of international travel restrictions, the overall effect was manageable. In addition, from mid-May to June 2021, during a pandemic alert, most indoor activities such as gyms, movie theaters, and restaurant dine-ins were suspended. Therefore, some prices were carried forward from May to June, and restaurant prices were quoted based on take-out services instead. Other items were collected normally, following appropriate safety measures.

For machinery and equipment, pricing unspecified items often led to deviations and incomparable results when specified items were unavailable. The DGBAS ICP team suggests that unspecified items be omitted once specified items are identified and priced, to maintain professional aspects and representativeness of the machinery and equipment items. Another challenge is that some respondents were reluctant to provide price information. Various methods were employed to enhance the response rate, such as explaining the administrative purposes and providing tailored survey questionnaires to the respondents.

### VIII. Lessons Learned and Future Directions

Since the 2011 ICP, the integration of the CPI and ICP has been the DGBAS ICP team's direction for improvements because of limited staffing and resources. Drawing on experiences from the 2011 and 2017 ICP cycles, a relatively high CPI-ICP harmonization rate of 71% was achieved in Asia and the Pacific. High integration means that for most items, prices for the ICP can be reported without devoting additional effort and time from the routine CPI program. With the help of technological assistance and without overloading the price collectors, high integration was achieved by incorporating ICP baskets into the existing system. The team will continue to explore other ways to maintain or improve the harmonization rate, such as taking experiences from Singapore's methodology and sampling design, which were shared during a regional workshop.

Online scraping or online prices were used extensively during the 2021 ICP because of COVID-19. These online prices were continuously incorporated into the CPI and were gathered from different sources, including experiences shared by other economies during workshops. During the height of the pandemic, on-site price collections were impacted by safety regulations. Fortunately, online pricing allowed the DGBAS ICP team to gather sufficient data. Because of the volatility of online prices, several methods were implemented—such as increased scraping frequencies (from once a month to six times a month), conducting in-group comparisons to ensure like-with-like data, and validating replaced items—to maintain data quality and price representability. There are plans to explore ways to improve or streamline the scraping process.

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The economy is highly homogenous because of geographical limitations and a well-developed transport system, such as highways, metros, railways, and high-speed rail, allowing greater expansion of citizens' life circles. As a result, little to no price differences were observed for commodities and services across different regions in the economy. Therefore, the estimation of subnational PPP may be somewhat insignificant.

*Prepared by the Department of Statistics, Directorate General of Budget, Accounting and Statistics (Kuan-Hung Lin and Shin-Yun Tsai); edited by the Asian Development Bank ICP team and Melanie Kelleher.*

### Annex 2: List of Members of Core International Comparison Program Team (Department of Statistics, Directorate General of Budget, Accounting and Statistics)

Name	Title	Responsibility
Chih-Hung Tsao	Senior Executive Officer	National Coordinator
Ya-Wen Lin	Section Chief of Price Statistics	Deputy National Coordinator
Yen-Ting Chen	Executive Officer, Price Statistics	Household Consumption
Yu-Chia Lin	Executive Officer, Price Statistics	Machinery and Equipment
Shih-Shan Hsu	Executive Officer, Price Statistics	Construction
Yi-Hsiu Liu	Executive Officer, Price Statistics	Government Compensation
Jui-Bin Lee	Officer, Price Statistics	Housing Rental
Kuan-Hung Lin	Researcher, Price Statistics	General
Dze-Hwei Lyan	Researcher, Input-Output Accounts	Housing Volume
Chia-Hui Lin	Officer, National Accounts	Gross Domestic Product (National Accounts)