

International Workshop on Measuring GDP by Final Demand Approach

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~ Statement of Macao, China ~

Government of Macao Special Administrative Region
Statistics and Census Service

Overview

1. In Macao, the Statistics and Census Service (DSEC) is responsible for the compilation of national accounts data that is conform ity to the guidelines stipulated in the 1993 and 2008 SNA. Over the years, DSEC takes a step-by-step approach for the implementation of the SNA, for instance, in the latest major revision of GDP carried out in 2010, the principal changes introduced to the expenditure-based GDP include, among others, estimation and allocation of financial intermediation services indirectly measured (FISIM) by user-sectors, as well as the adoption of chain volume measures of GDP in place of the constant price estimates.
2. GDP estimates of Macao are compiled under the expenditure and production approaches, with the expenditure-based GDP, available at current prices and chain volume measures, being the principal approach used in GDP compilation. Under the expenditure approach, GDP estimate at current prices is the aggregate of the major expenditure components, and the chain volume measures of GDP is a better method to calculate the volume estimate and volume measure of GDP.
3. Figures on the expenditure-based GDP are disseminated on quarterly and annual basis; in addition, methods and sources of data used are similar for both the quarterly and annual estimates, unless otherwise specified. The following highlights the methods and sources of data for the compilation of the expenditure-based GDP at current prices.

Methods and Sources of Data

➤ *Private Consumption Expenditure*

4. Private consumption expenditure includes the final consumption expenditure of households and the NPISHs. Household final consumption expenditure comprises consumption expenditure of households in the domestic market and abroad.
5. In accordance with COICOP, household final consumption expenditure on goods and services in the domestic market is classified in 12 groups, as follows:

Commodity Group	Expenditure Coverage
1. Food and non-alcoholic beverages	Bread and cereals; meat and fish; dairy products and eggs; edible oils and fats; fruit and vegetables; sugar and confectionery; non-alcoholic beverages and food products n.e.c.
2. Alcoholic beverages and tobacco	Beer and liquor; tobacco
3. Clothing and footwear	Clothing materials; garments; other articles of clothing and clothing accessories; shoes and other footwear; repair and hire of clothing and footwear; cleaning of clothing
4. Housing, water, electricity, gas and other fuels	Actual and imputed rentals for housing; maintenance and repair of the dwelling; water charges; electricity; gas and other fuels
5. Furnishings, household equipment and routine maintenance of the house	Furniture; carpets; household appliances; tools and equipment for house and garden; and the repairs of these items
6. Health	Medical products, appliances and equipment; and health services
7. Transport	Spending on purchase, maintenance, repair and operation of vehicles or other personal transport equipment; and other transport services
8. Communication	Postal services; telephone and telefax services and equipment
9. Recreation and culture	Audio-visual, photographic and data processing equipment; other major durables and equipment for recreation and culture; other recreational items; gardening and pets; recreational and cultural services; newspaper, books and stationery; and package holidays
10. Education	Tuition fees and related expenses
11. Restaurants and hotels	Catering services ; accommodation services
12. Miscellaneous goods and services	Personal care; personal effects n.e.c.; social services; insurance; financial services n.e.c. and other services n.e.c.

6. Estimates of household final consumption expenditure in the domestic market of the above-mentioned groups and sub-groups are derived from the results of the Household Budget

Survey (HBS), other business surveys and administrative records, with the exception of gaming expenses. Data are then collated into different sub-groups, e.g. food, beverages and tobacco; consumer goods (durable goods, semi-durable and non durable goods); and services. Gaming expenses of households are estimated according to the data on gross gaming receipts provided by the Gaming Inspection and Coordination Bureau.

7. The HBS is carried out every five years; therefore, quarterly and annual estimates of household final consumption expenditure are based on the data and indicators of the administrative records and surveys, as follows:

- ⇒ Food and non-alcoholic beverages: data on imports of food and non-alcoholic beverages derived from External Merchandise Trade Statistics;
- ⇒ Alcoholic beverages and tobacco: estimate according to changes in population size and income;
- ⇒ Clothing and footwear : estimate according to changes in population;
- ⇒ Housing rental: estimate according to changes in number of households;
- ⇒ Electricity, gas, fuels and lubricants: data on Balance of Energy adjusted with Government subsidy on electricity charges;
- ⇒ Domestic services and household services : data on number of imported domestic helpers and their average salary;
- ⇒ Health services: additional data collected from major health service providers;
- ⇒ Purchases of vehicles ; parts and accessories ; maintenance, repair and other services in respect of transport equipment: data on number of licensed vehicles ; new registration of motor vehicles; driving tests, etc. Data on imports of motor vehicles from External Merchandise Trade Statistics and supplementary information on new vehicles provided by the Transport Bureau;
- ⇒ Transport services by land, by sea and by air: Data on outbound travel of local residents under own arrangement using services of travel agencies; administrative data on departure of local residents; and Government subsidy on busfare;
- ⇒ Postal services, telephone and telefax equipment and services of communication: data derived from Transport and Communications Statistics;

- ⇒ Recreation and culture: data on changes in sales volume of electrical appliances of the quarterly Retail Sales Survey, population size and income; data on education and outbound travel of local residents in package tours;
 - ⇒ Education services : estimate according to results of Education Survey; administrative data provided by the Education and Youth Affairs Bureau; and data from government accounts;
 - ⇒ Catering services: estimate according to data on sales receipts of Food and Beverages Survey; Restaurant and Similar Establishment Survey; food and beverages receipts of Hotels and Similar Establishment Survey; and Gaming Sector Survey, which is adjusted with respective expenses incurred by visitors;
 - ⇒ Accommodation services: data collected from travel agencies regarding accommodation services abroad by destination; number of hotel guests; average room rate of local hotels;
 - ⇒ Miscellaneous goods and services : combination of data on population size and households; changes in income and number of residential units; data from Demographic Statistics; changes in sales volume of watches, clocks and jewellery of quarterly Retail Sales Survey; data on insurance sector and other financial statistics provided by the Monetary Authority of Macao; information on the accounts of life insurance companies and government accounts.
8. Estimate of household final consumption expenditure abroad is based on the results of HBS, expenses of government offices overseas, residents' expenses in Guangdong Province/Hong Kong; data on overseas resident students, departure and arrival of local residents, outbound travel of local residents under own arrangements or in package tours; respective indicators from other surveys; data obtained from Survey on Interest Income/Expense of Financial Sector conducted by the Monetary Authority of Macao.
9. Estimate of final consumption expenditure of NPISHs is compiled according to the total amount of Government transfers to these institutions. However, Government payments to the services of education and medical institutions serving households are considered as government expenditure instead of transfers and excluded from final consumption expenditure of NPISHs, including student grants, miscellaneous allowance, medical allowance, etc.
- *Government Final Consumption Expenditure*
10. The Government of Macao SAR comprises general agencies and the financially autonomous agencies; besides, government expenditure also includes the non-profit quasi departments but excludes those engaging in operation of commercial activities. Coverage of government

expenditure includes activities such as public administration, public order, health, education, recreational and cultural activities, as well as other social services.

11. Government final consumption expenditure can be classified by types of expenditure and beneficiary.

i) Type of expenditure:

- a) Compensation of employees: includes wages and salaries, premiums for seniority, overtime pay, holiday and Christmas subsidies, special leave subsidies, employer's contribution to Social Security Fund, other direct social contributions, housing subsidies and discounted housing rental. Discounted housing rental is government-owned housing units leased to civil servants with symbolic rent payment (usually a percentage of salary).
- b) Net purchases of goods and services: purchases *less* sales of goods and services. Purchases of goods and service comprise other personnel expenses excluded from compensation of employees (allowances, compensation related to duty, etc.); acquisition of goods (learning cultural and recreational materials, office equipment, fuels, lubricants, stationery, etc.) and services (office rentals, rentals for leasing of fixed assets, expenses on transport and communications, advertising and marketing, etc.); goods and services purchased from market producers and supplied directly to households (education, medical, electricity and busfare subsidies, etc.) and FISIM. Sales of goods and services comprise sales and rentals of goods, rate receipts from radio communications, rent receipts from buildings, box-office receipts from shows, school fees, receipts of publication sales and charge receipts of some government departments.

ii) Type of beneficiary :

- a) Individual consumption expenditure: includes personal goods and services acquired by households to satisfy the needs of household members, for instance, education, health, social security, recreation, cultural services, etc.
- b) Collective consumption expenditure: consists of collective services provided to the community as a whole, namely public order and security; maintenance of law, legislation and regulations; maintenance of public health environmental protection; services of public facilities; research and development, etc.

12. Quarterly and annual data on government final consumption expenditure by type of expenditure are compiled at current prices and chain volume measures. However, government

final consumption expenditure by types of beneficiary is compiled only at current prices annually.

13. Estimates of quarterly and annual government final consumption expenditure are based on the information on government accounts provided by the Financial Services Bureau and the autonomous agencies, for which the estimates are revised in accordance with data on *Public Sector Accounts*.

➤ *Gross Fixed Capital Formation*

14. Gross fixed capital formation is disaggregated into construction investment and equipment investment, which is subdivided further by institutional sectors, i.e. private sector and public sector.

- i) Construction Investment

- a) Private Sector

Construction investment of private sector includes construction projects, costs of ownership transfer and real estate developers' margin.

Investment in construction projects encompasses value of construction of buildings and other types of construction. Valuation of building constructions is estimated according to the total floor area built and the construction costs by type of buildings; sources of data include administrative data derived from Construction Statistics and the results of Construction Survey. Other types of construction include major construction projects, renovations, refurbishment and maintenance. Data on major construction projects are collected directly from the enterprises; value of renovations, refurbishment and maintenance is estimated according to the results of Construction Survey.

Costs of ownership transfer involve charges and fees paid to the private sector and the Government for transfer of fixed assets and non-produced assets. Charges paid to private sector include commissions to real estate agents, charges to lawyer and real estate developers for transfer of property; consequently, the estimate is based on the administrative records regarding the number and value of property purchased and sold from the Construction Statistics when estimate of commissions paid to real estate agents is based on the results of Service Sector Survey. Fees paid to the Government consist of stamp duty on transfer of property and respective registration fees to the notary office, which are obtained from the Government Accounts and the Real Estate Registry respectively.

Real estate developers' margin is the difference made by real estate developers through acquisition of land, arrangement of construction of building financing of project

development and marketing of new property, which equals market value of property *less* cost of land and developing cost of the real estate project. According to 1993 SNA, the cost of land is measured at market price instead of historical cost, while profits or losses realized from resale of existing property are considered as holding gains or losses that should be excluded from real estate developers' margin.

Real estate developers' margin covers difference related to the construction of property within the reference period, irrespective of whether these buildings have been fully or partly sold, awaiting sale, or have been sold before the reference period. In other words, it bears no direct relationship to the timing of sales of the property. Therefore, percentage change in real estate developers' margin does not necessarily reflect the upturn or downturn of the property market but an indication on the value of services rendered by real estate developers in the current year.

b) Government

Quarterly and annual estimates of public construction investment are based on administrative data provided by the Financial Services Bureau and the autonomous agencies, which is subject to be revised according to data on Public Sector Accounts.

ii) Equipment Investment

a) Private Sector

Equipment investment of private sector covers the investment in machinery and equipment, transport equipment and other fixed assets.

Investment in machinery and equipment includes machinery, equipment, parts and accessories, as well as durable goods seen as fixed capital. The estimate is based on respective imports and exports from External Merchandise Trade Statistics *plus* distributors' margin, which is adjusted with the amounts related to visitors' spending, private consumption and public investment.

Estimate of the total investment in transport equipment is based on respective imports and exports from External Merchandise Trade Statistics, Retail Sales Survey, Wholesale and Retail Trade Survey, administrative records of new registration of motor vehicles from the Transport Bureau and the Taxes on Motor Vehicles from the Financial Services Bureau, which is adjusted with the estimate allocated to households and public investment.

Other Fixed Assets include cultivated assets (greyhounds and horses used for racing purposes) and intangible fixed assets (computer software, etc.) that are estimated according to information collected from private enterprises and External Merchandise Trade Statistics.

b) Government

Quarterly and annual estimates of equipment investment are based on administrative data provided by the Financial Services Bureau and the autonomous agencies, which is subject to be revised according to data on Public Sector Accounts.

➤ *Changes in Inventories*

15. Changes in inventories are part of gross capital formation. The annual estimate is derived from results of the annual economic activity surveys when the quarterly estimate is based on the respective results of previous year and adjusted with value of domestic exports and goods imports.

➤ *Merchandise Trade*

16. Estimate of merchandise exports is derived from External Merchandise Trade Statistics valued at f.o.b. Estimate on merchandise imports is also based on External Merchandise Trade Statistics but adjusted after an equilibrium analysis on Supply & Use for the goods imported for own-use and the under-declared merchandise, for example, food and beverages (foodstuffs, alcoholic and non-alcoholic beverages, tobacco), raw materials, semi-manufactures, construction materials, etc. In addition, foreign procurement such as fuels is also considered as merchandise imports. Since merchandise imports derived from External Merchandise Trade Statistics are valued at c.i.f.; therefore, adjustment is made by deducting insurance and freight charges in order to obtain merchandise imports valued at f.o.b.

➤ *Trade in Services*

17. Estimates of exports and imports of services are compiled as follows:

♦ Exports of services

Exports of services comprise six major categories: a) expenditure of non-residents in the domestic market; b) postal and telecommunications services; c) financial and insurance services; d) transportation services; e) industrial services; and f) other services.

- a) Expenditure of non-residents in the domestic market is categorized in 3 groups, i.e. gaming expenses, accommodation expenses and other expenses.

- Estimate of gaming expenses is based on the gross gaming receipts provided by the Gaming Inspection and Coordination Bureau, adjusted with gaming expenses of local residents that are part of private consumption expenditure.
 - Quarterly and annual estimates of accommodation expenses are based on the results of Hotel and Similar Establishment Survey, monthly occupancy rate and room rate, adjusted with respective expenses of local residents.
 - Estimate of other expenses, excluding gaming and accommodation, is based on the results of Visitor Expenditure Survey (VES).
- b) Postal and telecommunications services
- Estimate is based on the information collected directly from the Post Office and telecommunications enterprises regarding their receipts on services provided to the rest of the world.
- c) Financial and insurance services
- Include financial and insurance services provided to the rest of the world by resident banks and insurance companies, as well estimation of FISIM. Estimate is based on annual data and quarterly results from the Survey on imports and exports of services of the financial sector; and the Survey on interest income/expense of financial sector undertaken by the Monetary Authority of Macao.
- d) Transportation services
- Include transportation services by sea, by land and by air between Macao and its neighbouring regions provided by resident companies to non-residents. Estimate of exports of transportation services is based on the information provided by respective resident transportation companies.
- e) Industrial services
- Include processing repair, maintenance and installation services provided by the manufacturing; electricity, gas and water supply; and wholesale and retail trade sectors. Annual estimate is based on results derived from the Industrial Survey regarding receipts on industrial services provided by resident establishments to the rest of the world. Quarterly estimate is based on the relative importance of the value of quarterly domestic merchandise exports to the annual data of previous year.
- f) Other services
- Include provision of services to non-residents not covered in the above categories, namely leasing of non-residential buildings and equipment; computer & information; storage; marketing and publicity; and services provided in ports, airport and other terminals. Annual estimate is based on

the respective data collected from the annual economic activity surveys and the receipts of local banks, insurance companies, tertiary education institutions, other major establishments, etc. regarding services provided to the rest of the world. Quarterly estimate is based on the information collected directly from representative resident companies.

♦ Imports of services

Imports of services include seven main categories: a) household final consumption expenditure abroad; b) government expenditure abroad; c) postal and telecommunications services; d) financial and insurance services; e) transportation services; f) industrial services; and g) other services.

a) Household final consumption expenditure abroad

Please go to paragraph 8 for details on the method of estimation.

b) Government expenditure abroad

Apart from the expenses on services acquired abroad such as consultation, leasing of offices, etc., it also covers expenses on liaison offices overseas. Estimate of the expenses is in accordance with data provided by the government and the offices abroad.

c) Postal and telecommunications services

Annual estimate is based on expenditure on services acquired from the rest of the world by the Post Office, telecommunications enterprises and other establishments. Quarterly estimate is based on the data collected directly from the Post Office and telecommunications enterprises.

d) Financial and insurance services

Includes financial and insurance services acquired from the rest of the world by resident banks and insurance companies, as well as estimation of FISIM and insurance paid for merchandise imports. Estimate is made according to the results from the Survey on imports and exports services of financial sector; and the Survey on interest income/expense of financial sector undertaken by the Monetary Authority of Macao, as well as respective information from the annual economic activity surveys of DSEC.

e) Transportation services

Include transportation services by sea, by land and by air between Macao and its neighbouring regions provided by non-resident companies to Macao residents. Estimate is based on the expenditure paid by resident establishments to service providers from the rest

of the world, and administrative data on number of resident passengers. Freight charges paid for merchandise imports are also included.

f) Industrial services

Estimate is made according to the expenses paid by resident establishments to service providers from the rest of the world. Quarterly estimate is based on the relative importance of the value of quarterly imports of raw materials and semi-manufactures to the annual data of previous year.

g) Other services

Apart from the services not covered in the above categories, it also includes commissions paid to gaming junkets for the sales rolling chips abroad. Starting 2007, fierce competition among casinos has caused the gaming operators to raise the percentage of commission paid that led to an upsurge on payment for services of gaming junkets abroad; consequently, such services constitute a major component of total imports of services. Annual estimate is based on the results from the annual economic activity surveys; data provided by resident banks, insurance companies, institutes of tertiary education, the Gaming Inspection and Coordination Bureau, gaming associates and junkets, as well as other major enterprises. Quarterly estimate is compiled according to the information collected directly from representative enterprises and turnover of rolling chips.