MSC IN DATA SCIENCE AND BUSINESS STATISTICS

2019-20

STAT 6108 :
Official Statistics and Structural Equation Modelling
Second Term, 2019-2020

PART 1- OFFICIAL STATISTICS

PowerPoint - 3

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January/February 2020

Gross Domestic Product (GDP)

Technical standard to follow - -
United Nations :
A System of National Accounts

Read the C&SD publication for methods and data: "2018 Gross Domestic Product"

Gross Domestic Product (GDP)

A. GDP

- ***A measure of the total value of production of all resident producing units of an economy in a specific period***
- ***GDP at current prices***
- ***Per capita GDP***
- ***GDP at constant prices***
  (latest refinement: "GDP in chained(YYYY) dollars")

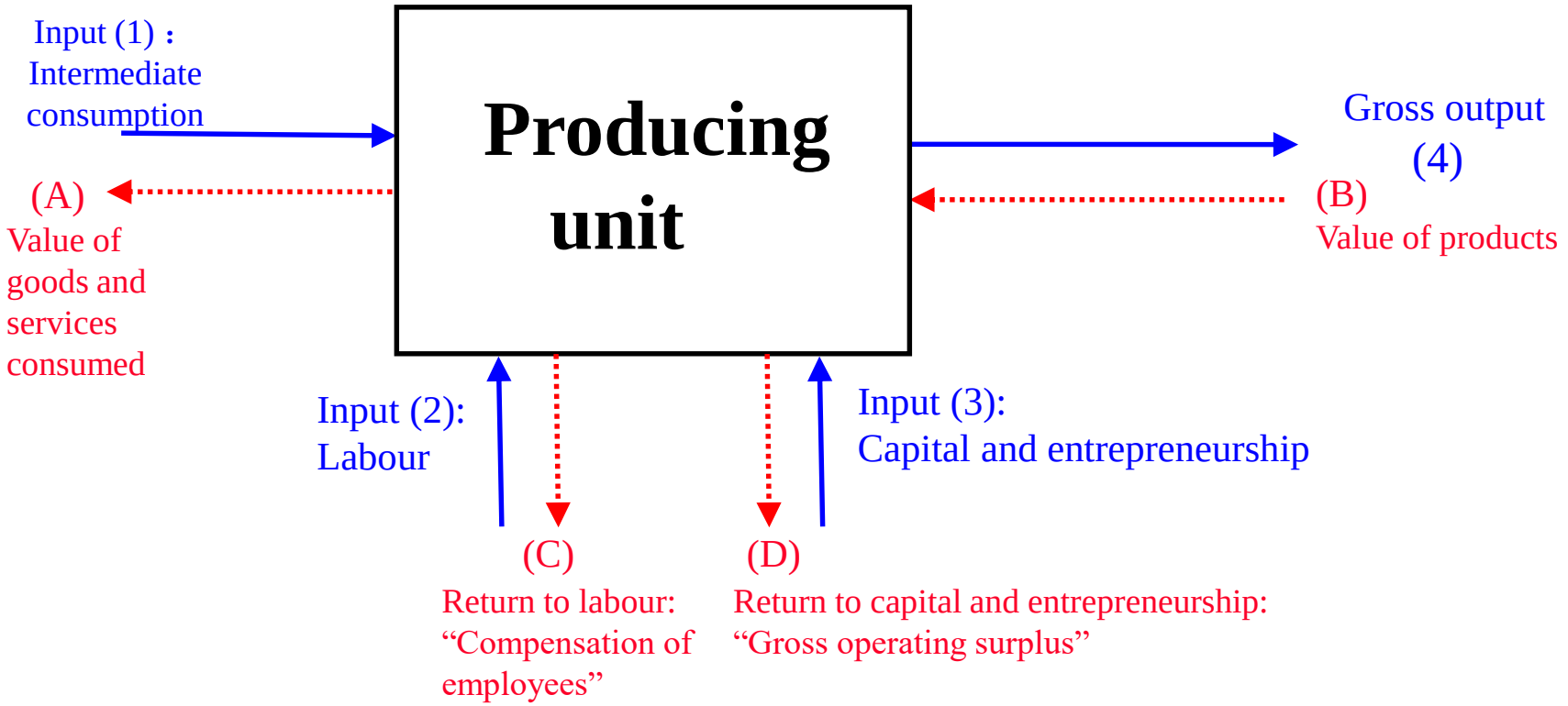
B. Uses

- ***Macro-economic analysis***
- ***Structural studies of an economy***
- ***Economic forecasting***

C. Approaches used in Hong Kong

- ***Expenditure approach***
- ***Production approach***

GDP by Production Approach and Income Approach



(1)+(2)+(3)=(4); (B)=(A)+(C)+(D)

Value added = (B) – (A) [**production approach**]

= (C) + (D) [**income approach**]

Physical flow

Value flow (i.e. money or equivalent)

Value added of an industry = Sum of value added of all producing units in the industry

GDP = Sum of value added of all industries

Special notes regarding the calculation of “Gross Output”

- Gross output (vs Sales)

  In practice, Value of sales of products produced may not be the same as the value of “Gross output”. Sales may be smaller than production, and there is increase in stocks (“inventories”). Or, sales may be bigger, and there is decrease in stocks (i.e. “the stocks have been drawn down”).

  [[Note : a similar situation with intermediate consumption vs purchases. Stocks of raw materials and supplies may be accumulated or drawn down]]

Special notes regarding the calculation of “Gross Output”

1. Retailers:

- The service is counted on the basis of the “distributive service” rendered. And is valued as the “Gross Trade Margin”

Note : “trade margin” is different from “mark- up”, as there is wastage (especially the easily perishable goods) in the process of buying and subsequent selling

Special notes regarding the calculation of “Gross Output”

2. Real estate development companies

Gross Output is calculated on the basis

“Real Estate Developer’s Margin (REDM)”.

>Professional Services, Construction Services (etc.) are all separately calculated under the respective sectors. They are not taken as “Intermediate Consumption“ in the production and sales of the flats

>REDM is thus calculatedfrom the value of the sale of the flats LESS those, and – A VERY IMPORTANT POINT- the “land appreciation” element has to be removed therough some means. “Intermediate consumpstion” of real estate development company includes offices expences, advertising,…

Special notes regarding the calculation of "Gross Output"

3. Interest payment

- In the Production Account,

  for an individual Producing Unit :

  Gross output = intermediate consumption

  plus compensation of employee

  plus gross operating surplus

Interest payment is NOT included in "intermediate consumption". (Note – HOWEVER, "interest payment" is normally counted as expenses in commercial accounting)

It is considered as secondary distribution of income (the entrepreneur SHARES his profit with the lender, through paying the interest which is *due* to the latter).

SEE POINT 4 BELOW

Special notes regarding the calculation of "Gross Output"- - 4. Banks and deposit-taking institutions.

>> (a) They earn service charges for the services rendered (e.g. commissions, service charges.)

However, banks' main activity is "borrowing and lending". As mentioned in [3] above: at the individual "Producing Unit " level, "interest payment" is ***not*** counted as payment for "intermediate consumption

(b) At the "macro-" level, *Banking service (for deposits and loans, etc.) is* ***"imputed"*** *as "interest earned less interest paid".* Then, such services(in total) produced by the institutions mentioned above are to be distributed among various sectors using the services ***with some special methods***

Special notes regarding the calculation of "Gross Output"- - 5. Ownership of premises (OOP)

Different treatments for different situations:

1.Owner is a company (the business of which is property leasing) and it rents out the property -- the rental service forms the gross output of the "real estate" sector

2.Owner is a company the business of which is not property leasing:

If it rents the property out, it produces a rental service and this service is part of the gross output of the sector which the company belongs

If it uses the property for its own business, it does not pay rent. The position of the property is similar to the machinery and equipment it uses.

3. Owner is an individual person/household:

a. A property is rented out –the rental service is the gross output of the OOP sector

b. The ind./hh. resides in the property : rental service is rendered to itself— "imputed" rental service is to be included in the OOP Sector. (the basis of imputation is making reference to similar premises rented out in the market

Contribution of Economic Sectors to GDP (at basic prices)

[[NOTE the difference between "at market prices" (used in GDP from the expenditure approach) and "at basic prices" is that indirect taxes are to be added to "basic prices" to arrive at "at market prices"]]

	1980	1995	2015	(2017)
Manufacturing	22.8%	7.7%	1.2%	1.1%
Construction	6.5%	5.1%	4.7%	5.1%
Services	68.3%	84.7%	92.5%	92.4%

GDP by economic sectors

GDP by economic activity at current prices	2013	2016	2017@
Percentage contribution of economic activities to GDP at basic prices			
Agriculture, fishing, mining and quarrying	0.1	0.1	0.1
Manufacturing	1.4	1.1	1.1
Electricity, gas and water supply, and waste management	1.7	1.4	1.4
Construction	4.0	5.2	5.1
Services	92.9	92.2	92.4
Import/export, wholesale and retail trades	25.0	21.7	21.5
Accommodation(1) and food services	3.6	3.3	3.3
Transportation, storage, postal and courier services	6.0	6.2	6.0
Information and communications	3.6	3.5	3.4
Financing and insurance	16.5	17.7	18.9
Real estate, professional and business services	10.8	11.0	10.8
Public administration, social and personal services	17.0	18.1	18.2
Ownership of premises	10.4	10.7	10.3
Total	**100.0**	**100.0**	**100.0**
GDP at basic prices (HK$ billion)	**2,098.1**	**2,417.9**	**2,556.2**

Shares of Compensation of Employees and Gross Operating Surplus in GDP

(HK $ billion)

	2000	2015	[[2017]]
GDP at basic prices (Total Value added)	1283	2326	2556
Compensation of employees *(as % of GDP)*	51.7%	50.7%	50.5%
Gross operating surplus *(as % of GDP)*	48.3%	49.3%	49.5%

GDP by Expenditure Approach

Consider the Gross Output produced by producers : -

- Some are exported
- Some are consumed by households

  (e.g. food; a computer purchased by an household)
- Some are put in place as capital goods (e.g. a machine; a computer bought by a firm)
- Some are purchased by other producers as

  "raw materials, supplies…" ***(intermediate consumption***)

GDP by Expenditure Approach

- Under this approach, we work *backwards* from the **use** of the goods (and services) produced to arrive at the GDP.

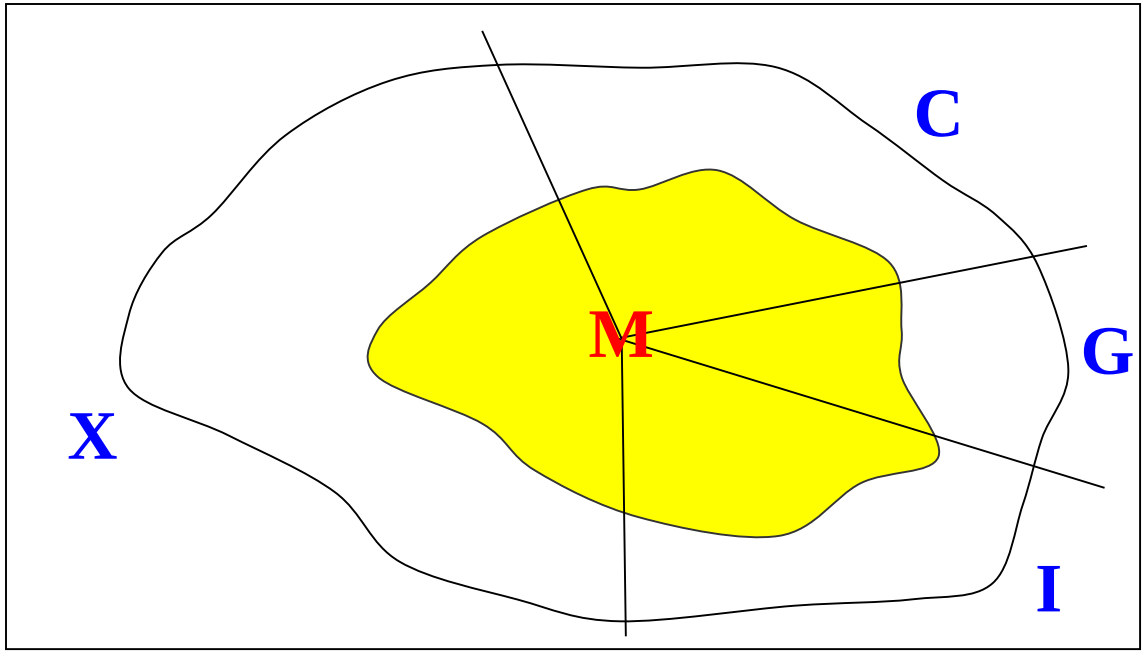
- We add up the values of all the final goods and services USED and then remove the imported contents.

- We do the REMOVAL of IMPORTED CONTENTS *at one go* in the end as we can ONLY do so.

In the Expenditure GDP: We *only* look at the products and services for *final use*; otherwise there will be a lot of double counting

- From cotton to yarn ; and yarn to cloth; and cloth to shirt ----
- the yarn, if used by the cloth factory, is "intermediate goods"; and the cloth, if used by a local shirt factory, is "intermediate goods" too. IN NOT counting the intermediate goods, we will not incur double counting
- If the sales of spinning factory, weaving factory and garment factory were added together, the value of cotton ***would have been counted several times.***

GDP by Expenditure Approach



C = Private consumption expenditure

G = Government consumption expenditure

I = Investment (Gross domestic fixed capital formation *plus* Changes in inventories)

X = Exports of goods and services

M = Imports of goods and services

GDP = C + G + I + X – M

2845 = 1945 + 281 + 617 + 5350 – 5348

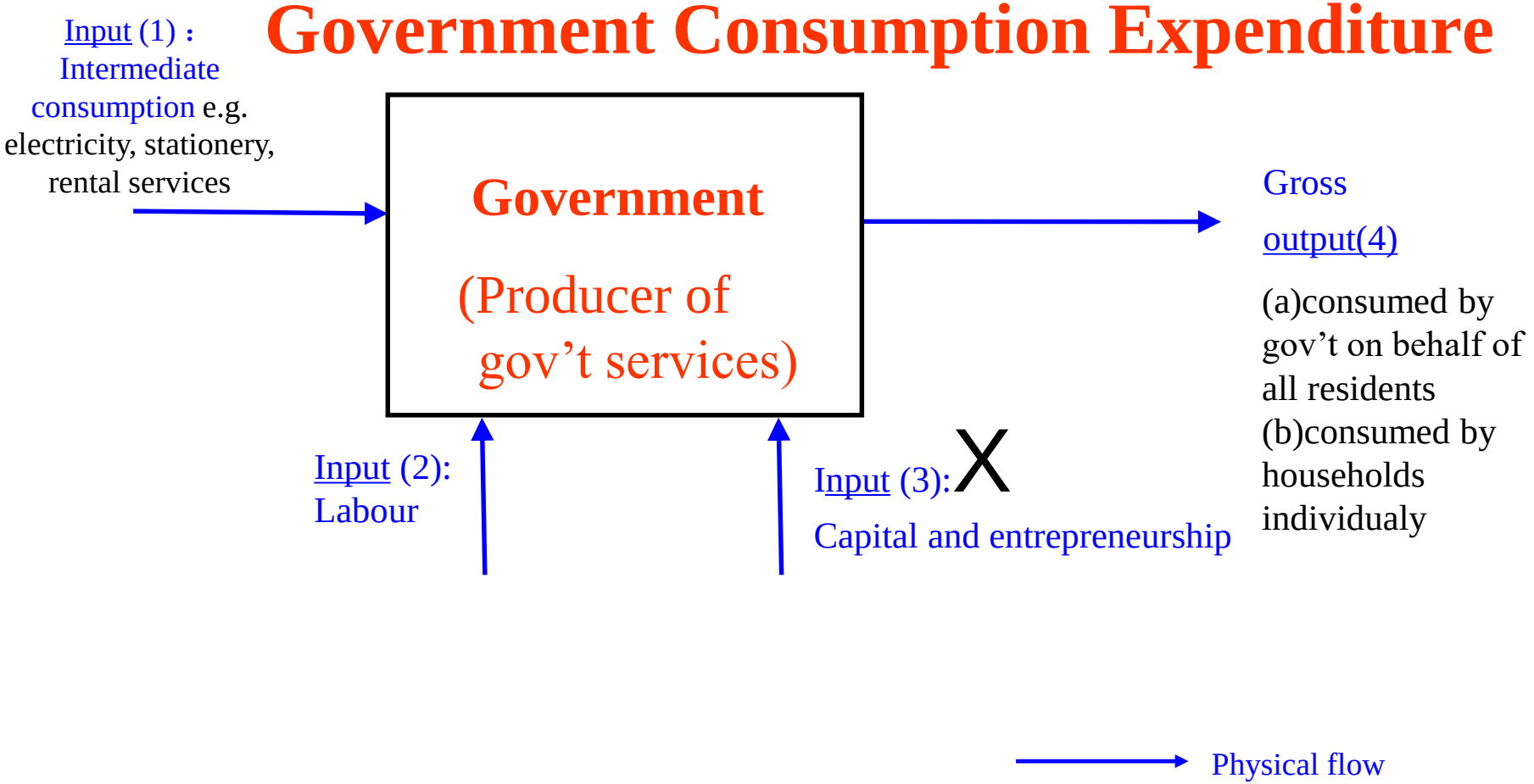
>> For C, G, I, X only "FINAL goods and services" are counted

>> The above are 2018 figures in HK$ billion.(Figures may not add up due to rounding)

>>For C and G, see further explanation later.

>> The per capita GDP of HK was $380 thousand in 2018

Value added of Government ; Government Consumption Expenditure



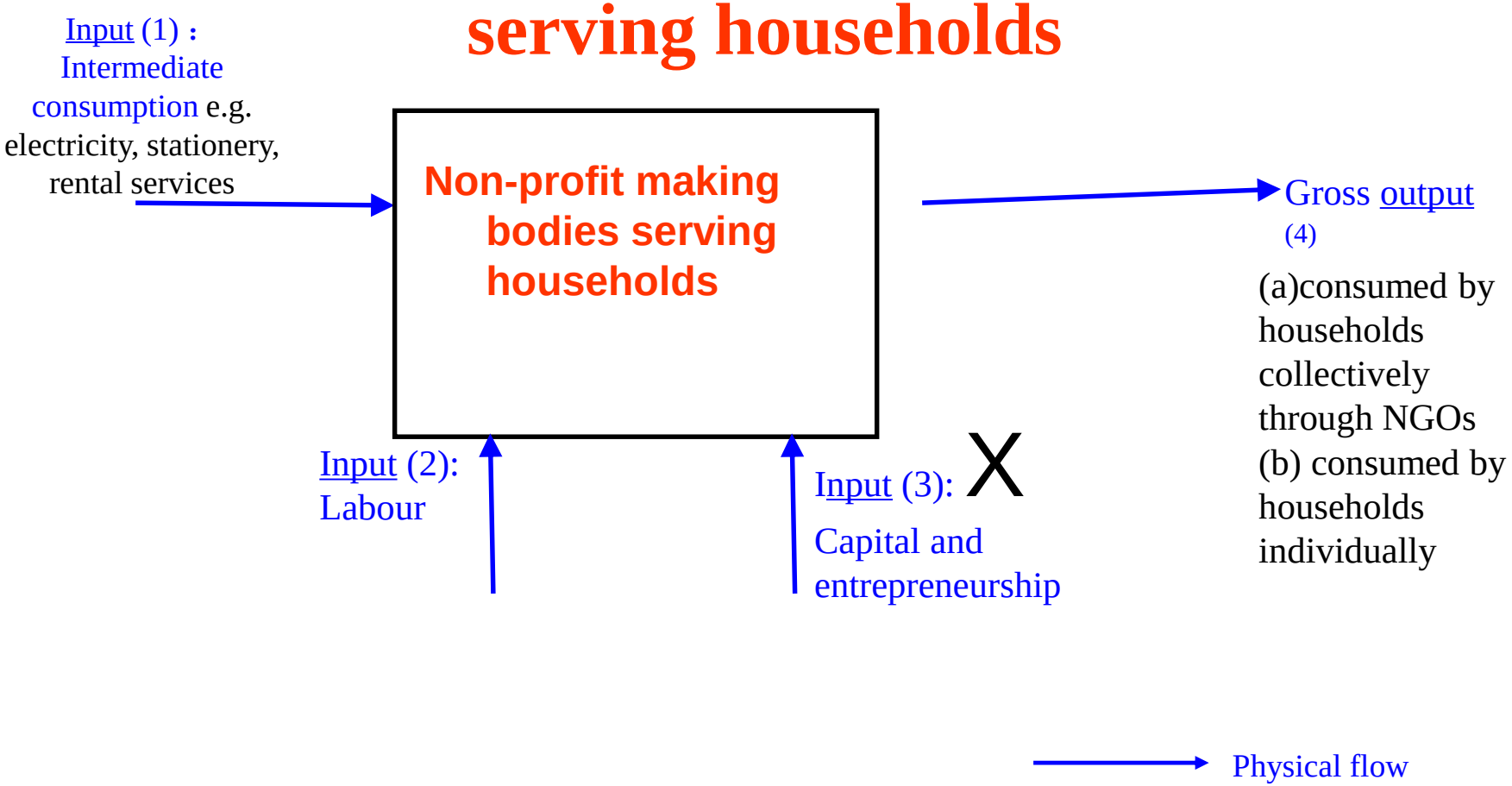
Value added = (4) - (1)

= (2) +(3) =(2) + 0 = (2) [[Gross Operating Surplus is taken as zero]]

A method of " Valuation of 'Output' by 'Sum of Inputs' is used, since the output is not a marketable commodity { (4) = (1)+(2)+(3) }

Note– 4(b) is usually rather small.

Non-profit making bodies serving households



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Gross Domestic Fixed Capital Formation

- Gross value of expenditure on building and construction, machinery, equipment and computer software

- [[Expenditure on acquisition of existing fixed assets is not included –this represents just transfer from one owner to another.]]

- But the cost of transfer (commission for the broker, say) is included. This represents the brokers' services.

Gross Domestic Fixed Capital Formation

- Real Estate Developer's Margin [REDM] is included—it represents the RED's contribution in terms of organizing the activity, bearing the investment risk etc….

[[[Note: Carefully contrast between **REDM** and **Cost of building and construction.**

>> The Developer acquires land at a certain cost, organizes the production of the flats and sells them,

The money he earns (REDM) is calculated as the revenue gained **less** the cost of professional fees and cost of construction works. But the amount has further to be adjusted (usually deduction) **for the appreciation in land price during the period** the Developer has held the land.]]]

Stocks and shares

- The stocks and shares relate to ownership and their transfer between two parties do not represent production.

- But, cost of transfer represents the **services** rendered by brokers and the Stock Exchange. Much of the services are used by households (managing their savings and wealth)

Gross Domestic Capital Formation (GDCF)
(denoted as "I" in the formula :
with the notion of INVESTMENT)

Sum of : -

Gross Domestic *Fixed* Capital Formation (GDCFC) –

Machinery and equipment, plants, buildings, infrastructures…

And

Change in inventories (magnitude is usually much much smaller than GDCFC)

Exports and Imports : (Goods and services)

- Goods : domestic exports and re-exports

- Services: transportation, insurance, professional services; services related to travel ; medical services; advertising services; educational services, cultural services and entertainment

Another way of looking at GDP by the Expenditure Approach

Total Supply (8193)	**=**	***Total Demand (8193)***
GDP + M	**=**	**C + G + I + X**
2845+ 5348 (4712[g]+636[s])	**=**	***1945 + 281 + 617 + 5350 (4458[g]+892[s])***

g=goods; s= services

The above are 2018 figures of GDP at Current Market Prices in HK$ billion

(Note- "Total Demand " - - also known as "Total Final Demand".

"Total Domestic Demand" (C+ G + I) - - also known as "Total Domestic Final Demand"

Ratio to GDP

- **An indication of the relative economic significance**
- **Ratio of X to GDP is 188%**
- **X has both domestic contents and import contents. It is *not exactly* a "component" of GDP (although sometimes it is called this way). Hence it is totally possible for the ratio to be bigger than 100%. And hence, we should not say that "the *share* of exports in GDP is xx %")**
  - **Similarly with (C+G)**

Gross National Income(GNI)

[[formerly known as Gross National Product (GNP)]]

GNI (2987)

= GDP (2845)

+ Primary income earned by Hong Kong residents outside Hong Kong (1628)

- Primary income earned by non-residents within Hong Kong (1486) primary income was previously called factor income

Net External primary income flow = 1628 – 1486 = 142

"primary income" was previously called "factor income"

The above are 2018 figures in HK$ billion.

External primary income flow (inflows and outflows)

- **direct investment income;**
- **portfolio investment income;**
- **other investment income;**
- **income on reserve assets (Central Bank of the territory)**
- **compensation of employees**

GDP at Constant Prices
vs GDP at constant prices(of a selected base year)

GDP at constant prices (of 2010)

= GDP, with all current price value figures

RE-VALUED at the prices of the base year

= Sum of detailed components of GDP at constant prices

(A latest technical refinement is to adopt the concept of "GDP in Chained (YYYY) dollars") – a slide on this is available later on.

The methods of RE-VALUATION

- 1. Multiply current period quantity data with base year price data (if this can be done)

  (e.g. rice, gasolene..)

- 2. "Deflate" current value with an appropriate price index

  (e.g. current value = $100000. Price index = 115

  the deflated value is $100000 / 1.15)

Examples of Other price indices Used in Compiling Constant Price GDP

- Producer Price Index
- Unit Value Index based on external merchandise trade statistics
- Salary Rate Index of Government employees

Let's now get back to :

How to obtain GDP at constant prices (of a selected base year) from GDP at current prices

GDP at constant prices (of 2010)

= GDP, with all current price value figures

RE-VALUED at the prices of the base year

= Sum of detailed components of GDP at constant prices

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GDP Deflator

- Having got the GDP at constant prices,
  we do the division

GDP (current prices)/GDP(constant prices)

and get the “GDP deflator”—

It is **conceptually** “the price index of the GDP”.

"GDP deflator" is a measure of overall inflation in the economy (more strictly, changes in the price of the domestic contents of the "final goods and services")

- Changes : 2018 over 2017 (2015/14) *(2011/10)* *(2009/08)* *(2003/02)*

GDP deflator	+3.7 %	*(+3.6 %)*	*(+3.9%)*	*(-0.4%)*	*(-6.0%)*
CPI	+2.6 %	*(+3.0 %)*	*(+5.3%)*	*(+0.5%)*	*(-2.6%)*

>>

- "Constant price" estimates for GDP *from the production approach* can also be done (with more complicated methods). That for income approach is seldom done.

Prices of the components of GDP (ILLUSTRATION)

GDP = C + G + I + X - M .... (**)

Re-arranging (**) , we have :

GDP + M = C + G + I + X

+2.9% + 1.6% + 3.8% + 3.3% -4.3% + 2.1%

Total supply
(Price increased by 2.1% over the previous year)

Total demand
(Price increased by 2.1% over the previous year)

>>>The figures are fictitious; for illustration only

>>> 2.9%, +1.6%, etc. are price changes of year T over Year (t-1)

>>> (C + G + I) is **Total Domestic Demand**

- **The real growth rate for year (T+1):**

  [(GDP at constant price for year (T+1)/

  GDP at constant price for year T) x 100]% -100%

The real growth rate for Quarter q in year(T+1)

= [(GDP at constant price for qtr q in year (T+1)/

GDP at constant price for qtr q in year T) x 100]% -100%

The concept of "GDP in Chained (YYYY) dollars")

A ***moving*** base year is used.

- For example, for the Year 2006, use Year 2005 as Base Year; and obtain GDP(2006) at Constant (2005) prices.
- Then, for Year 2007, Use Year 2006 as Base Year, and obtain GDP(2007) at Constant (2006) prices. *And so on.*

- EXAMPLE: The real growth rate for 2009 (over 2006), say, will be {(I + r(2009 on 08)) x (1+r(2008 on 07) x(1+r(2007 on 06)] – 1} = R

  {USUALLY EXPRESSED : R x 100% }

- In Dollar terms, GDP of 2009 in Chained (2006) Dollars is GDP (2006) x (1+R).

Gross Domestic Product (GDP)

		2013	2017[@]	2018[@]
本地生產總值（十億港元）	**GDP** (HK$ billion)			
以當時市價計算	At current market prices	2,138.3	2,662.5	2,845.3
		(+5.0)	(+6.9)	(+6.9)
以 2016 年環比物量計算	In chained (2016) dollars	2,316.7	2,586.2	2,664.4
		(+3.1)	(+3.8)	(+3.0)
按人口平均計算的本地生產總值（港元）	**Per capita GDP** (HK$)			
以當時市價計算	At current market prices	297,860	360,206	381,870
		(+4.5)	(+6.1)	(+6.0)
以 2016 年環比物量計算	In chained (2016) dollars	322,713	349,881	357,584
		(+2.7)	(+3.1)	(+2.2)

Consumer Price Index (CPI)

Basic concept:
Create a conceptual “basket” of **consumer** goods and services. Find out the cost of the basket at a base period. Find out the cost at a current period. Compare them to find out the change in the “overall” price level of goods and services.

The CPI as a ratio between the costs of a basket of goods and services at time (1) and time (0) respectively

Laspeyres Index (Fixed period as base period)

$$I = \frac{\sum_i Q_{0i} P_{1i}}{\sum_i Q_{0i} P_{0i}} \times 100$$

$$= \frac{\sum_i Q_{0i} P_{0i} \frac{P_{1i}}{P_{0i}}}{\sum_i Q_{0i} P_{0i}} \times 100$$

$$= \sum_i \frac{Q_{0i} P_{0i}}{\left(\sum_i Q_{0i} P_{0i} \right)} \cdot \frac{P_{1i}}{P_{0i}} \times 100$$

$$= \sum_i W_i \frac{P_{1i}}{P_{0i}} \times 100$$

Paache's Index (Current period as base period)

$$\frac{\sum Q_{1i} P_{1i}}{\sum Q_{1i} P_{0i}} \times 100$$

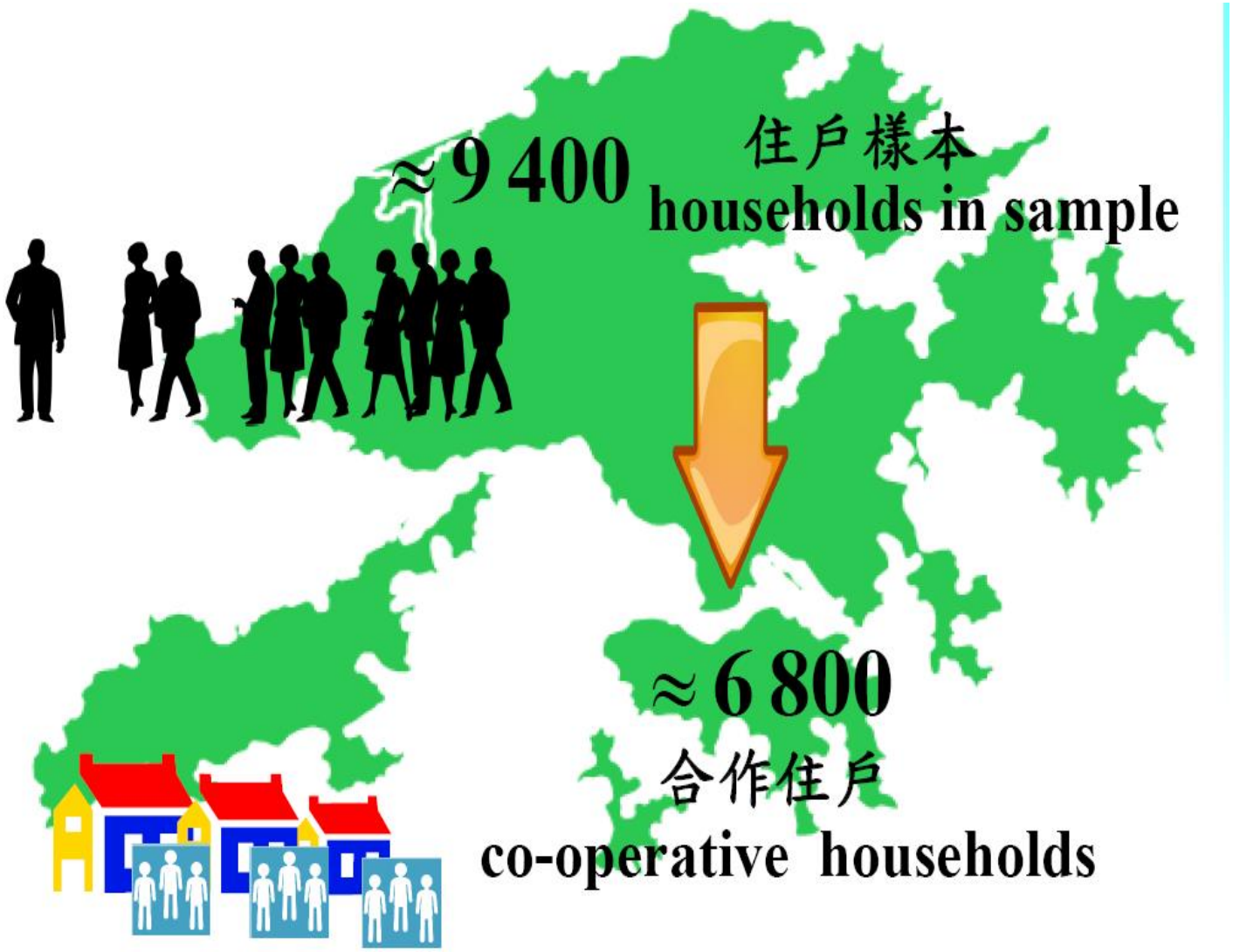
Consumer Price Index (CPI)

- The derived formula is used.
- The weights, being the proportion of expenditure of the particular group of expenditure in total expenditure, add up to 1.00
- They are applied to the PRICE RELATIVES of the respective groups.

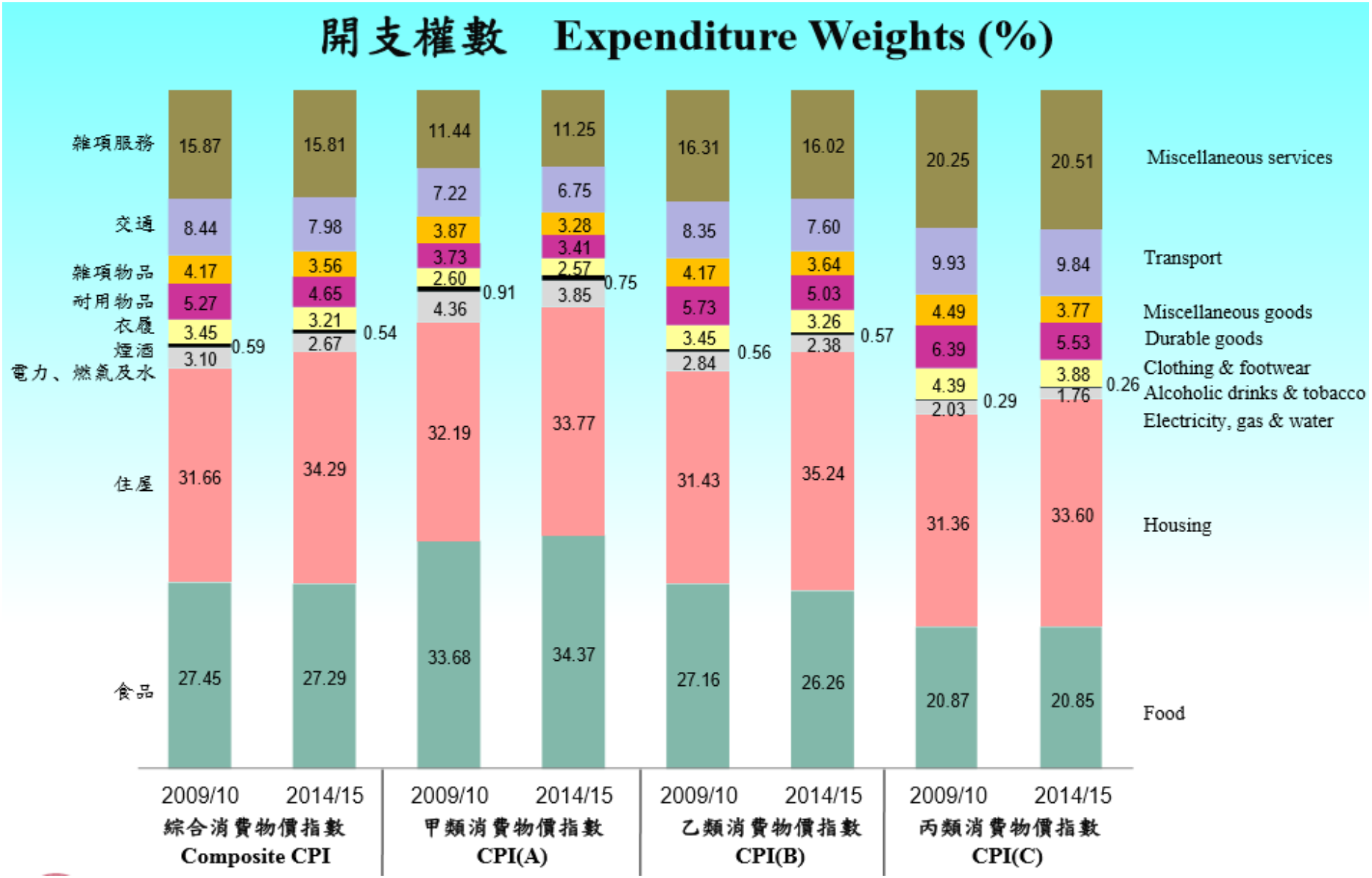
Two types of data regarding the consumer goods and services commonly purchased by consumers are required for compiling the CPI：

- Expenditure weights
- Price movements

Household Expenditure Survey (HES)



Data from the HES



更新消費物價指數「籃子」
Updating of CPI Basket

例子 Example

➢智能穿戴式裝置（如智能手錶）	Smart wearable devices (e.g. smart watch)
➢聚會餐飲服務(到會)	Event catering service
➢陪月服務	Post-natal care service

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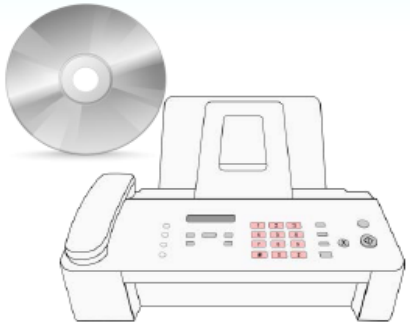

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例子 Example

➢圖文傳真機	Fax machine
➢租影碟	Video rental
➢空白影音載體（如空白光碟）	Blank recording media (e.g. blank disc)

Various CPI series

Various CPIs reflect the impact of price changes (usually increases) on households in different expenditure ranges :

CPI series	Household expenditure range
CPI(A)	Relatively low
CPI(B)	Medium
CPI(C)	Relatively high
Composite CPI	All the above households (overall)

Various CPI series

Various CPIs reflect the impact of price inflation on households in different expenditure ranges :

消費物價指數
Consumer Price Index

指數數列	Index series	涵蓋住戶的百分比 % of households covered
綜合	Composite CPI	90
甲類	CPI(A)	50
乙類	CPI(B)	30
丙類	CPI(C)	10

消費物價指數的開支範圍
Expenditure Ranges of CPIs

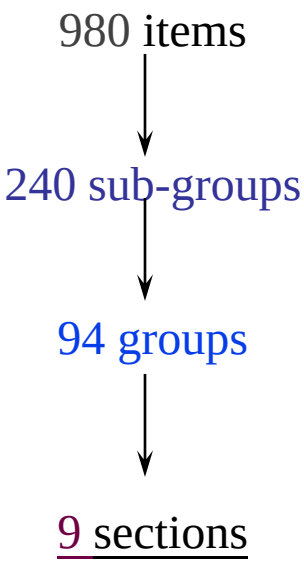
指數數列 Index series	住戶每月開支 Monthly household expenditure 2009/10	2014/15
綜合 Composite CPI	$4,500 - $65,999	$5,500 - $89,999
甲類 CPI(A)	$4,500 - $18,499	$5,500 - $24,499
乙類 CPI(B)	$18,500 - $32,499	$24,500 - $44,499
丙類 CPI(C)	$32,500 - $65,999	$44,500 - $89,999

Various CPI series

Why are different series of CPI compiled?

- Households in different expenditure ranges have varying expenditure patterns:
  - households in the lower expenditure range spend relatively more on food, and electricity, gas and water
  - households in the higher expenditure range spend relatively more on clothing and footwear, durable goods, transport and services

Classification of consumer goods and services



Food	Housing	Electricity, gas and water
Alcoholic drinks and tobacco	Clothing and footwear	Durable goods
Miscellaneous goods	Transport	Miscellaneous services

Data on price movements

Retail Price Survey: On average, about 47 000 price quotations are collected from some 4 000 retail outlets and service providers each month

retail outlets (e.g. supermarkets, market stalls, department stores, fashion shops, etc.)

service providers (e.g. cinemas, hospitals, tour companies, beauty salons, etc.)

Also, standing arrangements are made for information on certain prices to be submitted to C&SD from time to time, e.g. charges of public utilities, school fees,…

Methods of price data collection

- field visit
- telephone interview
- postal questionnaire
- obtain directly from relevant organisations (e.g. public housing rent, transport fare, water charge, electricity charge)
- Private Housing Rent Survey – conducted via a General Household Survey in each month

Selection of outlet types for pricing

- The types of outlet for pricing the commodities and services are selected based on the results of the HES

- Take sportswear as an example, the major types of outlet are as follows :
  - Sports goods/outdoor gear company
  - Department store
  - Fashion shop/boutique

Selection of retail outlets for pricing

- The whole of Hong Kong is divided into 17 pricing districts according to the geographical location. Different retail outlets are selected based on the situation of the pricing district concerned.
- Because of the lack of complete sampling frame, quota/judgemental sampling method is used. The major consideration in the selection of retail outlets for pricing is whether that retail outlet has a high turnover of customers and wide varieties of goods/services.
- The results of other surveys, such as the Monthly Survey of Retail Sales, help determine the required number of different retail outlets and identify outlets with high sales value for pricing.
- When enumerating chain stores for regular pricing, it is better to seek the co-operation of the head office first. Information on suitable shops and popular goods/services can be obtained through consultation.
- Since the Monthly Price Survey is a voluntary statistical survey, a balance between the significance of the pricing items and burden to the respondents has to be struck

Selection of goods and services for pricing

- Adopt a "store-specific pricing method" to collect prices and related information
- Choose popular varieties/brands of commodities/services in each selected outlet
- Consult the respondents about the popularity of the items chosen regularly
- Detailed product specification facilitates field officers in finding and identifying the same commodity/service for regular pricing. It also forms the basis for adjustment of quantity and quality

Sample size and pricing frequency

- Sample size： the degree of representation of collected prices
- Pricing frequency ： stability and periodicity of the prices concerned
- Other factors ：
  - Efficiency of resources allocation
    - Resemblance between similar goods or services
    - Expenditure weight
  - Burden to the respondents

Pricing frequency (examples)

Twice weekly	-	Fresh fish, fresh vegetables, poultry, fresh sea products
Weekly	-	Selected supermarket items
Monthly	-	Rent for private housing, clothing and footwear, furniture, home appliances, charges for package tours
Bi-monthly	-	Cigarettes, motor vehicles
Quarterly	-	Car insurance, driving lesson fees
Semi-annually	-	School uniforms, school bus fares, school exercise books
Annually	-	School fees, subscription fees, mooncakes, Chinese confectionery

Price data

- The price data used in the compilation of the CPI is the actual transaction price paid by most customers, after discounting the concessions offered

- The list/normal price is also collected for reference and adjustment of price

Compilation of the CPI

$$I_t = \sum W_k \left(\frac{P_{tk}}{P_{0k}}\right)$$

where I_t is the price index for period t ;

W_k is the weight of commodity/service k ;

P_{0k} is the average price of commodity/service k in the base period;

P_{tk} is the average price of commodity/service k in period t ;

Σ means aggregating the product of weight (W_k) and price relative ($\frac{P_{tk}}{P_{0k}}$) of all commodities and services included in the CPI basket.

Compilation of the CPI

- The whole compilation process is in fact a **stepwise operation**

- involving several levels, namely, compilation of the item index at the lowest level, then the sub-group index, the group index, section index and finally the all-item index.

Compilation of the CPI

$$I_{CC} = W_A \times I_A + W_B \times I_B + W_C \times I_C$$

As I_{CC} is the Composite CPI ;

W_A represents the relative importance of the CPI(A) in calculating the Composite CPI ;

I_A is the CPI(A) ;

W_B represents the relative importance of the CPI(B) in calculating the Composite CPI ;

I_B is the CPI(B) ;

W_C represents the relative importance of the CPI(C) in calculating the Composite CPI ;

I_C is the CPI(C).

Inflation Rate

(for a month or other longer periods):

[[Rate of inflation related to consumer goods and services]]

- CPI at base period (2004/2005) = 100
- CPI at (say) September 2008 = x
- CPI at (say) September 2009 = y

- Inflation Rate = percentage change of y over x = (y/x - 1) x 100%
  This can be worked out for a year; or for some other periods (e.g. a month)

- Example -- CPI figures:
  2006: 102.4 2007 : 104.4 2008 : 108.9
  September 2008 : 107.7 September 2009 : 108.2

Inflation Rates:
2007 : + 2.0% 2008 : + 4.3%
September 2009 : + 0.5%

Seasonal Adjustment of CPI

- The prices of some consumer goods and services may be subject to seasonal variations, thus causing the CPI to rise or fall.

- Seasonal variations are basically originated from changes in weather conditions and impacts of holidays.

  – For instance, higher prices for certain food items are generally observed a few days before the Chinese New Year ;

  – Remarkable increases in the prices of fresh vegetables are recorded during the rainy or typhoon season due to the drop in supply.

Seasonally adjusted CPI

- The month-to-month rates of change in the original CPI series may be affected by seasonal variations. Hence, it is useful to make reference to the seasonally adjusted CPI. The latter is obtained by using statistical methods to estimate and remove the seasonal variations from the original index.

- The "X-12 ARIMA Seasonal Adjustment Method" developed by the Statistics Canada is used.

- The seasonally adjusted CPI reveals more clearly the underlying price trend. Moreover, month-to-month comparison of the seasonally adjusted indices facilitates early detection of turning points in price movements.

Dissemination of the CPI

→The monthly CPI is usually released 20 to 23 days after the survey month: Press releases

→*Monthly Report on the Consumer Price Index*

→*Annual Report on the Consumer Price Index* is usually published in March every year.

→Users can download publications and statistical tables of the C&SD free of charge (Website: www. censtatd.gov.hk)

……

In recent years, the Yearly change in GDP has been similar, at around 2-3%

Application of the CPI

- It is an important indicator of inflation, especially useful in assessing the impact of price increases on consumers. It serves as an objective tool for the government to formulate and monitor its policies.

- Some organisations refer to the CPI when adjusting salaries and wages.

- It is used in deflating other statistics, such as :
  - Real wages
  - Volume of the retail sales
  - Private consumption expenditure in the Gross Domestic Product

Splicing of an old price index (p.i.) series with Base Year X to a new series with Base Year Y

…example:

P.I. (base year 2000) -- index 2000 = 100

2001:103; …; 2003:108 ; 2004:111; 2005:114

P.I. (base year 2005) -- index 2005 = 100

2006:103; …

- On splicing to the new series, figures in the old series are "scaled down " →

  Index 2005=100 <114x(100/114) >

  Index 2004= 111x(100/114) =111x0.877= 97.3

  Index 2003= 108x(100/114)=108x0.877 = 94.7

** Similar action can be taken to splice a new series to an old series (in this case, "scaling up")

Purchasing Power Parity

- CPI measures the price change within an economy. It provides information on the purchasing power of money across time within that economy.

- Exchange rates show the relative purchasing power of currencies across countries/territories. The figure is affected, in the past, mainly by TRADE. But now, many factors.

- The **ICP (International Comparison Program), an international effort led by World Bank** is done to provide better measures of the relative purchasing power across different currencies.

Purchasing Power Parity

- It is a complicated procedure. In highly simplified terms, we compare the cost of a basket of goods and services purchased in Territory (A) with currency (A) and the cost of a similar basket of goods and services purchased with currency (B) in Territory (B)
- Thus, for example, you may need US$ 1000 to buy that basket in USA and HKD 5800 in Hong Kong.
- The market Exchange Rate is approximately US$1 = HK$ 7.8
- The "Exchange Rate " on PPP basis is, approximately,

  US$1 = HK$ 5.8

- Given the complicated nature of the methodology and the vast amount of effort to collect the required data, REGULAR and very update data series ACCEPTED AS OFFICIAL are not there yet. (Those two figures above are not fictitious figures, nevertheless)

(End of PowerPoint – 3)