

information paper
on
economic statistics

**REBASING OF
SINGAPORE'S NATIONAL ACCOUNTS
TO REFERENCE YEAR 2005**

Singapore Department of Statistics
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Please direct enquiries on this information paper to :

National Income Section
Singapore Department of Statistics

Tel : 63327704 or 63327775

Email : info@singstat.gov.sg

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REBASING OF SINGAPORE'S NATIONAL ACCOUNTS TO REFERENCE YEAR 2005

I INTRODUCTION

1 The Singapore Department of Statistics (DOS) has completed the rebasing of Singapore's national accounts from base year 2000 to 2005. The estimates of constant price gross domestic product (GDP) will now be expressed in terms of prices prevailing in the new base year. The rebasing exercise also reconciles the three estimates of GDP, and provides the opportunity for conceptual and methodological reviews and improvements. The estimates of economic growth will be reported on the basis of the rebased series with effect from the Economic Survey of Singapore for 1st Quarter 2010.

2 This paper is structured as follows: Section II provides the rationale for reconciling and rebasing GDP. Section III explains the major enhancements in concepts, methodologies and data sources undertaken in this rebasing exercise. In particular, one of the more significant improvements in this rebasing exercise is the estimation and allocation of implicit charges for financial services, as recommended in the 1993/2008 United Nations System of National Accounts (SNA). Section IV analyses the impact of the rebasing exercise and improvements on the major national accounts aggregates. Section V concludes the paper with a summary of the main changes and outcomes.

II RECONCILIATION AND REBASING

GDP Identities

3 In an economy, the total supply of goods and services must be equal to the total uses of those goods and services :

$$\text{Total Supply of Goods and Services} = \text{Total Uses of Goods and Services} \quad (1)$$

4 Goods and services are supplied by domestic production and imports. These are either consumed as intermediate consumption by industries or as final consumption by households and the government, used in gross fixed capital formation, held as inventories, or exported to the rest of the world. Therefore,

$$O + M = \text{PCE} + \text{GCE} + \text{GFCF} + \text{Changes in Inventories} + X + \text{IC} \quad (2)$$

where O = Domestic Output
M = Imports
PCE = Private Consumption Expenditure
GCE = Government Consumption Expenditure
GFCF = Gross Fixed Capital Formation
X = Exports
IC = Intermediate Consumption

Re-arranging the identity gives us:

$$O - IC = PCE + GCE + GFCF + \text{Changes in Inventories} + (X - M) \quad (3)$$

5 In Singapore's national accounts, output is valued at basic prices, which is the preferred method of valuation especially when a system of value added tax or similar deductible tax is in operation (SNA93, paragraph 6.218)¹. Components of expenditure as well as intermediate consumption are valued at purchaser's prices, as they are measured from the perspective of the consumer or purchaser. As such, taxes (less subsidies) on products need to be added to output to equate GDP by the output approach to GDP by the expenditure approach :

$$O - IC + T = PCE + GCE + GFCF + \text{Changes in Inventories} + (X - M)$$

$$\Rightarrow GVA + T = PCE + GCE + GCF + (X - M) \quad (4)$$

$$\Rightarrow \text{GDP by Output Approach} = \text{GDP by Expenditure Approach}$$

where T = Taxes less Subsidies on Products

GVA = O - IC
= Gross Value-Added valued at Basic Price

6 In addition to the output and expenditure approaches, the income approach takes the view of how value-added from production is distributed to the principal actors in the economy, namely operating surplus to corporations, compensation of employees to households (ie labour), and taxes less subsidies on production and on imports to government. So,

$$\text{GDP} = \text{GOS} + \text{CoE} + \text{Taxes less Subsidies on Production and on Imports}^2 \quad (5)$$

where GOS = Gross Operating Surplus
CoE = Compensation of Employees

7 Conceptually, the three approaches should yield the same GDP estimate. However, as the three measures of GDP are derived separately from diverse and independent data sources, discrepancies among them often arise. The rebasing exercise reconciles the three estimates of GDP on the basis of the updated 2005 input-output (I-O) tables, in the process cross-validating the data sources and ensuring the coherence of the three separate measures of GDP. As such, no statistical discrepancy is recorded among the different approaches of GDP for 2005. The reconciliation, methodological and data improvements have also resulted generally in lower statistical discrepancies (Table 1).

¹ The technical details on the treatment of taxes on products and valuation of output are presented in the publication "Rebasing of the Singapore System of National Accounts to Reference Year 1995".

² Taxes less subsidies on production and on imports is the sum of taxes less subsidies on products and taxes less subsidies on production.

TABLE 1 STATISTICAL DISCREPANCY WITH OUTPUT-BASED GDP

Year	As a Percentage of Output-Based GDP			
	Expenditure-based GDP		Income-based GDP	
	Before Rebasing	After Rebasing	Before Rebasing	After Rebasing
2005	-0.3	0.0	0.2	0.0
2006	0.2	0.1	0.5	0.1
2007	0.7	0.4	0.3	-0.1
2008	-0.6	-0.4	0.1	0.3
2009	-0.8	-0.6	-0.5	0.2

Rebasing

8 Changes in current price or nominal GDP reflect the changes in the total value of goods and services produced in the economy. These changes result from two effects: (i) price effects or changes in prices; and (ii) quantity effects or changes in the volume of economic activity. The assessment of economic growth requires the removal of the price effect, or equivalently, the compilation of GDP at constant prices. Changes in constant price GDP are often referred to as real GDP growth.

9 Constant price GDP estimates are essentially volume indices, which measure changes in the volume of economic activity while maintaining relative prices constant. Over time, relative prices change. The changes in the prices of goods and services subsequent to the base year will result in the relative base-year price weights becoming less representative over time. For this reason, it is necessary to periodically rebase the national accounts, ie revalue constant price GDP estimates at the prices prevailing in a new base year.

10 In doing so, estimates of economic growth are improved, enhancing their relevance in reflecting the underlying changes in relative prices. While the rebasing effect generally results in revisions to real GDP growth rates subsequent to the base year, improvements and changes to underlying concepts, methodologies and data sources could have a larger impact and result in revisions to GDP prior to the new base year.

III CHANGES AND IMPROVEMENTS

11 Apart from the reconciliation and rebasing of GDP estimates, conceptual changes, methodological improvements, data revisions and improvements as well as revisions/updating of statistical classifications are often introduced during the rebasing exercise. The revisions in our national accounts estimates during the rebasing exercise serve to better reflect the underlying and changing economic conditions.

12 The improvements and changes carried out in this rebasing exercise can be grouped in the following categories :

- (a) Change in conceptual treatment
- (b) Change in methodology
- (c) Improvements in data sources
- (d) Updating of classification

(A) Change in Conceptual Treatment

Implicit Charges for Financial Services

13 Financial services may be paid for explicitly or implicitly. The SNA identifies several ways by which financial services are provided and charged for³ :

- (i) Financial services provided in return for explicit charges, eg brokerage fees paid to brokerage firms on transactions of equity securities and management fees paid to asset/portfolio managers.
- (ii) Financial services associated with loans and deposits, eg provision of housing loans and credit lines.
- (iii) Financial services associated with the acquisition and disposal of financial assets and liabilities, eg transactions of debt securities on the secondary market.

14 For (i), as the fees imposed for the services are explicit, compilation of output is relatively straightforward. Measuring the output for (ii) and (iii), however, has traditionally posed difficulties for national accountants due to the 'implicit' nature of the charges, which necessitates the use of indirect measures to estimate the market value of such services.

15 Financial services output types (ii) and (iii) arise from financial intermediation, which occurs when a financial intermediary channels funds from units with surplus funds to units with demand for funds⁴. Financial intermediation services may be provided via a broad range of financial instruments. For type (ii) which is associated with loans and deposits, financial intermediaries (FIs) charge for their services indirectly by offering lower rates of

3 Financial services are also associated with insurance and pension schemes. See SNA2008, paragraph 6.160.

4 Apart from channelling of funds, financial intermediaries also supply additional services to provide their customers with liquidity, security and convenience eg credit lines, automated teller machines and internet banking services.

interest to their depositors and levying higher rates of interest on their borrowers. This is known as financial intermediation services indirectly measured (FISIM)⁵.

16 Financial services output type (iii) refers to financial intermediation services associated with financial instruments other than loans and deposits, eg debt securities⁶. When an FI sells a debt security, it levies a service charge implicitly by offering it at a price higher than its estimated market value. The System of National Accounts, 2008 (SNA08) refers to output types (ii) and (iii) as implicit financial services and the “payments” for these services as implicit charges for financial services.

17 Implicit financial services are produced by FIs and consumed by other FIs and other actors in the economy. For the estimation of implicit service charges, DOS was previously using the methodology recommended in the System of National Accounts, 1968 (SNA68), which refers to them as imputed bank service charges (IBSC). FIs’ output of IBSC is estimated as net interest received from loans and other investments less interest paid on deposits. IBSC is then treated as the intermediate consumption of a nominal industry.

18 In reality, implicit financial services are provided to households and government (final consumption), and non-residents (exports) as well as to businesses. The full attribution of the implicit financial services to intermediate consumption under-estimates GDP by the amount of such services provided to and consumed by households, government and non-residents. At the industry level, the value-added is over-estimated since their consumption of implicit financial services is not identified as their intermediate consumption.

19 Recognising the deficiencies of the IBSC concept and methodology, SNA93 and SNA08 introduced significant changes to the estimation and allocation of implicit charges for financial services. Under the revised approach, implicit financial services are estimated and allocated to final consumption by households and the government, to exports and to the intermediate consumption of the respective industries. SNA93/SNA08 recommended the use of the “reference rate” approach to measure FISIM, while SNA08 identified the implicit service charges associated with the acquisition and disposal of debt securities as the difference between the buying (bid) and selling (ask or offer) prices for the securities and the mid-points of the buying and selling prices.

20 DOS has adopted SNA93/SNA08’s FISIM concept and reference rate approach in this rebasing exercise. The methodological details of the reference rate approach are provided in the Methodological Appendix. In addition, implicit service charges associated with the acquisition and disposal of debt

5 The “FISIM” terminology was introduced in the System of National Accounts, 1993 (SNA93).

6 SNA08 noted that it is convenient to continue to use the term “FISIM” for its traditional meaning of financial intermediation associated with loans and deposits ie implicit charges associated with debt securities are not deemed as “FISIM” (SNA08, paragraph 17.249).

securities are also estimated using trading spreads and turnover for these securities and allocated to those who consume them, consistent with the refinements introduced in SNA08. Table 2 shows a comparison of the previous and new methodologies for the measurement and allocation of implicit charges for financial services.

TABLE 2 A COMPARISON OF THE PRESENT AND NEW METHODOLOGIES FOR IMPLICIT CHARGES FOR FINANCIAL SERVICES

Methodology	Output of Financial Intermediation	Consumption of Financial Intermediation
Previous (IBSC)	<p><u>Financial services output types (ii) and (iii)</u></p> <p>Net interest received = Interest received on loans and other instruments - Interest paid on deposits</p>	Intermediate consumption of a nominal industry
New	<p><u>Financial services output type (ii)</u></p> <p>FISIM on loans (Interest margin earned on non-bank loans x Stock of non-bank loans)</p> <p style="text-align: center;">+</p> <p>FISIM on deposits (Interest margin earned on non-bank deposits x Stock of non-bank deposits)</p> <p style="text-align: center;">+</p> <p><u>Financial services output type (iii)</u></p> <p>Financial intermediation services associated with the acquisition and disposal of debt securities (based on trading spreads & turnover of debt securities)</p>	<p>Allocated to</p> <p>a) intermediate consumption</p> <p>b) final demand components (PCE, GCE and exports)</p>

21 As a result of the conceptual and methodological changes, the level of GDP has been revised upwards. From the perspective of the production and income approaches, the upward revision is due to the allocation of implicit charges for financial services to final consumption, which reduces aggregate intermediate consumption and raises gross operating surplus for the overall economy. Seen from the expenditure approach, the inclusion of implicit charges for financial services consumed by households and the government when they make loan and deposit transactions with FIs raises PCE and GCE respectively. In addition, exports of goods and services have been revised upwards, with the inclusion of implicit charges for financial services provided by resident FIs to non-residents in the estimates for services exports. A numerical illustration of

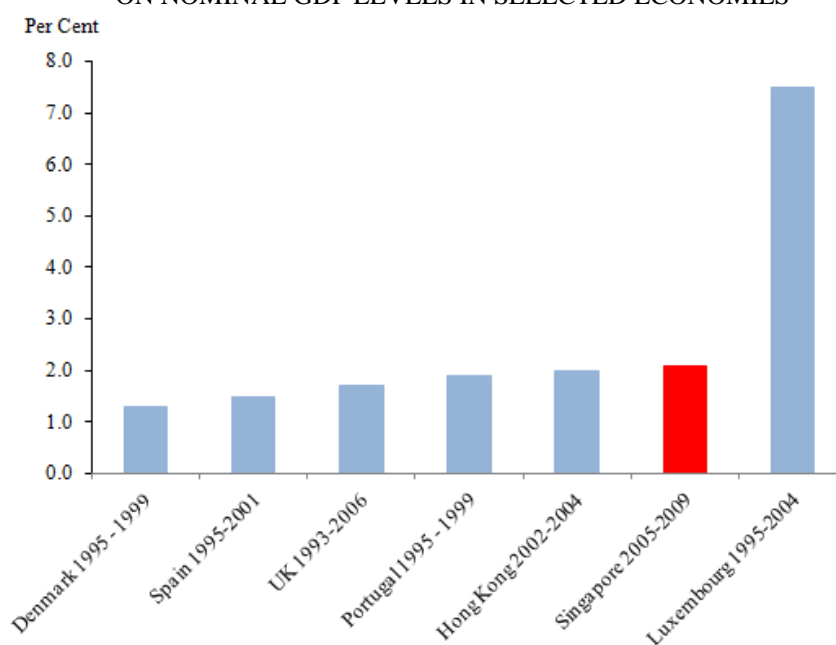
the impact of the change in allocation on GDP is provided in the Methodological Appendix.

22 The impact of the implementation of the revised estimation and allocation of implicit charges for financial services on Singapore's national accounts is presented below. The levels of annual nominal GDP are revised upwards, by 2.0 to 2.2 per cent from 2005 to 2009. The revisions are comparable to those experienced by other economies such as Hong Kong and countries in the European Union (EU) (Chart 1). The revisions in annual real GDP growth rates are moderate, from -0.4 to 0.2 percentage point from 2006 to 2009 (Table 3).

TABLE 3 REVISIONS TO REAL GDP GROWTH AND NOMINAL GDP LEVELS FROM IMPLEMENTATION OF REVISED METHODOLOGIES FOR IMPLICIT CHARGES FOR FINANCIAL SERVICES

Year	Revision to Nominal GDP Level (Per Cent)	Revision to Real GDP Growth (Percentage Point)
2005	2.1	0.0
2006	2.0	-0.4
2007	2.2	0.1
2008	2.0	0.1
2009	2.0	0.2

CHART 1 IMPACT OF IMPLEMENTATION OF REVISED METHODOLOGIES FOR IMPLICIT CHARGES FOR FINANCIAL SERVICES ON NOMINAL GDP LEVELS IN SELECTED ECONOMIES⁷



Source: Various Official Sources

7 The exception here is Luxembourg, whose GDP was revised upwards by as much as about 7.5 per cent when it implemented FISIM. Luxembourg is a major exporter of financial services, with the industry accounting for about 30 per cent of its GDP, compared to about 12 per cent for Singapore.

23 The allocation of implicit charges for financial services to final demand has resulted in changes to the relative shares of the expenditure components in GDP. The share of net exports, in particular, is revised upwards by 0.4 and 0.9 percentage point in 2005 and 2009 respectively (Table 4).

TABLE 4 REVISIONS TO SHARE OF NOMINAL GDP BY EXPENDITURE FROM IMPLEMENTATION OF REVISED METHODOLOGIES FOR IMPLICIT CHARGES FOR FINANCIAL SERVICES

	Per Cent			
	2005		2009	
	Before	After	Before	After
Private Consumption Expenditure	40.5	40.7	41.4	41.3
Government Consumption Expenditure	10.6	10.4	11.4	11.2
Gross Fixed Capital Formation	21.3	20.8	28.9	28.3
Changes in Inventories	-1.4	-1.4	-1.3	-1.3
Net Exports of Goods and Services	29.3	29.7	20.4	21.3
Statistical Discrepancy	-0.3	-0.3	-0.8	-0.7

24 With the allocation of intermediate consumption of implicit charges for financial services to the industries, the presentation of the estimates of output-based GDP will be amended accordingly; FISIM (IBSC) will no longer be shown as a separate item (Table 5).

TABLE 5 COMPARISON OF THE PREVIOUS AND NEW FORMATS FOR PRESENTING OUTPUT-BASED GDP

Previous Format	New Format
Goods Producing Industries	Goods Producing Industries
Manufacturing	Manufacturing
Construction	Construction
Utilities	Utilities
Other Goods Industries	Other Goods Industries
Services Producing Industries	Services Producing Industries
Wholesale & Retail Trade	Wholesale & Retail Trade
Transport & Storage	Transport & Storage
Hotels & Restaurants	Hotels & Restaurants
Information & Communications	Information & Communications
Financial Services	Financial Services
Business Services	Business Services
Other Services Industries	Other Services Industries
Ownership of Dwellings	Ownership of Dwellings
Less : FISIM (IBSC)	
GVA at Basic Prices	GVA at Basic Prices
Add : Taxes on Products	Add : Taxes on Products
GDP at Market Prices	GDP at Market Prices

Review of Classification of Government Fees and Charges

25 SNA93 acknowledges that the classification of government fees and charges as either taxes or payments for services is often not clear-cut in practice. In general, government fees and charges are to be classified as taxes if minimal or no work is done on the part of government, even though some kind of certificate or licence could be issued. Some payments, however, require the government to provide services (eg competence, qualification or accreditation checks) in exercising its regulatory functions. In such instances, these payments should be classified as purchases of services from the government rather than payments of taxes, unless the payments are markedly out of proportion to the costs of providing the services.

26 A review of the classification of government fees and charges was conducted as part of this rebasing exercise. Several government fees and charges (eg driving instructors' licences, massage establishment licences, petrol storage licences and medical audit and accreditation licences) have been re-classified from taxes on production to purchases of services from the government. For instance, the issue of massage establishment licences requires checks on the licensee (including that the licensee be at least 21 years of age and free from criminal and vice-related records, that at least 80 per cent of its employees have professional massage/therapy qualifications and that employees have had mandatory medical screenings). As such, payment for these licences should be classified as payments for services and not as taxes on production.

27 The re-classification of some government fees and charges from taxes on production to service payments has a minimal impact on taxes on production. On average, taxes on production will be revised downwards by about 1 per cent for recent years.

28 GCE, which is measured as the sum of costs of running the various government ministries, departments and non-market statutory boards (comprising mainly compensation of government employees and outlays on goods and services for current operations) less government receipts from sales of goods and services, is consequently revised downwards by the amount of government fees and charges re-classified as payments for government services (recorded in GCE as government receipts from sales of services). The overall impact on GCE is about 0.5 per cent for years 2005 to 2009.

(B) Change in Methodology

Rental Income

29 Since the 1985 rebasing of the national accounts, rental income on properties for the whole economy has been recorded as part of the value-added

of the business services industry in output-based GDP, regardless of the industry classification of the lessor. Rental income was singled out then as it was relatively more prominent and distinct as a secondary activity.

30 However, in addition to being inconsistent with the recording of receipts from other secondary activities, this approach overstates the contribution of the business services industry. As such, it is more appropriate to record rental income in the respective industries in output-based GDP, resulting in a downward revision in business services' share of GVA and a corresponding increase in that of other industries. Table 6 shows the revisions in industries' shares of GVA arising from the change for reference year 2005.

TABLE 6 REVISIONS TO SHARE OF GVA FROM RE-CLASSIFICATION OF RENTAL INCOME, 2005

	Percentage Point Revision to Share of Nominal GVA
Total	–
Goods Producing Industries	0.1
Manufacturing	0.1
Construction	0.0
Utilities	0.0
Other Goods Industries	0.0
Services Producing Industries	–0.1
Wholesale & Retail Trade	0.2
Transport & Storage	0.4
Hotels & Restaurants	0.1
Information & Communications	0.0
Financial Services	0.2
Business Services	–1.2
Other Services Industries	0.1
Ownership of Dwellings	0.0

(C) Improvement in Data Sources

Census of Construction and Census of Agriculture and Fishing

31 The Building and Construction Authority (BCA) conducted a Census of the Construction Industry for reference year 2005 to provide the benchmark estimate of construction value-added for the updating of the I-O tables and rebasing of the national accounts. With the incorporation of the census results, the construction industry's value-added has been revised downwards by about \$950 million in 2005, and the share of construction in GVA has been correspondingly lowered to 3.1 per cent from 3.6 per cent before rebasing.

32 Censuses were also conducted for the Agriculture and Fishing Industry from 2002 to 2006. Census results for reference year 2005 were used to compile

the benchmark estimate of value-added for the agriculture and fishing industry, which resulted in a downward revision in the value-added of the industry by about \$60 million. The industry's share of GVA is maintained at 0.1 per cent in 2005. Incorporation of the census results for other years has resulted in downward revisions in nominal value-added of between \$60 million and \$80 million every year from 2005 to 2009.

*Ownership of Dwellings*⁸

33 The SNA treats households that own the dwellings they occupy as owners of unincorporated enterprises that produce housing services for their own consumption, and includes their value-added in GDP. The output of the housing services produced by owner-occupiers is measured as the rental the owner-occupier would have to pay if he was a tenant. On a quarterly basis, the output of owner-occupied residential buildings is estimated based on timely market rental data. The value-added is then derived by deducting intermediate consumption, eg the estimated cost of maintenance and minor repairs.

34 The estimated value-added are subsequently benchmarked to IRAS's annual assessed values (AVs) of the owner-occupied dwellings when IRAS updates the AVs to better reflect current market rentals. Using the most recent update in 2008, DOS has revised the estimates of the output of owner-occupied dwellings⁹. Together with the effect of the inclusion of FISIM consumption, this has resulted in a downward revision of the GVA of ownership of dwellings by \$790 million, to \$6.1 billion in 2005. Correspondingly, its share in GVA is lowered to 3.1 per cent from 3.5 per cent in the same year.

(D) Updating of Classification

Singapore Standard Classification of Individual Consumption by Purpose (S-COICOP)

35 The classification of PCE has been updated to bring it in line with the S-COICOP (Table 7). Based on the United Nations Classification of Individual Consumption by Purpose (UN COICOP), the S-COICOP is developed for use in the classification of PCE in the national accounts, as well as the classification of goods and services in the Consumer Price Index (CPI) and Household Expenditure Survey (HES).

8 Ownership of dwellings includes both the imputed rentals of owner-occupiers and residential buildings let out by individuals (eg those who own more than one dwelling).

9 The previous revision in the AVs was in 2004, which had been incorporated into the value-added estimates for owner-occupied dwellings during the previous rebasing exercise. The value-added estimates for the years in between 2004 and 2008 are based on monthly rental data from IRAS.

36 The common classification system will facilitate analysis of PCE, CPI and HES data, as well as enhance data sharing among producers of data, especially data on consumption, prices and expenditure. Table 7 compares the previous and new classifications of PCE.

TABLE 7 COMPARISON OF THE PREVIOUS AND NEW CLASSIFICATIONS OF PCE

Previous Classification		New Classification	
1	Food & Non-Alcoholic Beverages	1	Food & Non-Alcoholic Beverages
2	Alcoholic Beverages & Tobacco	2	Alcoholic Beverages & Tobacco
3	Clothing & Footwear	3	Clothing & Footwear
4	Housing & Utilities	4	Housing & Utilities
5	Furnishings, Household Equipment & Routine Household Maintenance	5	Furnishings, Household Equipment & Routine Household Maintenance
6	Health	6	Health
7	Transport	7	Transport
8	Communication	8	Communication
9	Recreation & Culture	9	Recreation & Culture
10	Education	10	Education
11	Restaurants & Hotels	11	Food Serving Services
		12	Accommodation Services
12	Miscellaneous Goods & Services	13	Miscellaneous Goods & Services

IV IMPACT ON MAJOR MACRO-ECONOMIC AGGREGATES

37 The revisions arising from the rebasing exercise are, as explained above, not entirely due to the reconciliation of the GDP estimates and the revaluation of the national accounts to the new base year. Revisions result also from the conceptual and methodological changes introduced as well as from improvements in data sources.

(A) Nominal GDP

38 The nominal GDP estimates have been revised upwards, by between 2.7 and 3.4 per cent, over the period 2005 to 2009 (Table 8). While the nominal value-added estimates for construction, utilities, agriculture and fishing, financial services, business services and ownership of dwellings have been revised downwards, this is more than offset by upward revisions in manufacturing, wholesale and retail trade, transport and storage, information and communications and other services. These revisions result from the I-O reconciliation exercise, conceptual and methodological changes (eg the adoption of the revised estimates and allocation for implicit charges for financial services) and incorporation of new data sources (eg the Census of Construction).

TABLE 8 GDP AT CURRENT MARKET PRICES

Year	Before Rebasing	After Rebasing	Percentage Change
	(a)	(b)	$[(b) - (a)] / (a)$
	\$ Million		Per Cent
2005	201,805.1	208,763.7	3.4
2006	223,315.0	230,509.2	3.2
2007	258,563.7	266,405.1	3.0
2008	266,363.1	273,537.2	2.7
2009	257,640.4	265,057.9	2.9

(B) Nominal GNI and Per Capita GNI

39 Net factor income from abroad has been revised with the allocation of cross-border implicit charges for financial services. Actual interest paid and received by FIs contain both implicit charges and pure interest, therefore primary income will have to be adjusted to reflect pure interest flows. The revisions have generally resulted in higher income payments to non-residents relative to factor income received from abroad, hence lowering net factor income from abroad over the years.

40 The changes in nominal GDP and net factor income from abroad have resulted in corresponding changes in the Gross National Income (GNI) and per capita GNI. As shown in Table 9, per capita GNI has been revised upwards between 0.8 and 2.5 per cent from 2005 to 2009.

TABLE 9 PER CAPITA GNI AT CURRENT MARKET PRICES

Year	Before Rebasing	After Rebasing	Percentage Change
	(a)	(b)	$[(b) - (a)] / (a)$
	\$		Per Cent
2005	44,422	45,537	2.5
2006	48,842	49,844	2.1
2007	55,009	55,816	1.5
2008	55,455	56,115	1.2
2009	51,860	52,251	0.8

(C) Composition of GDP Components

Component Share by Industry

41 Table 10 shows the industries' relative shares of GVA before and after rebasing for the years 2005 and 2009.

TABLE 10 SHARE OF NOMINAL GVA BY INDUSTRY

	Per Cent			
	2005		2009	
	Before Rebasing	After Rebasing	Before Rebasing	After Rebasing
Total	100.0	100.0	100.0	100.0
Goods Producing Industries	30.9	31.7	25.9	26.3
Manufacturing	25.6	26.8	18.2	19.5
Construction	3.6	3.1	6.2	5.4
Utilities	1.6	1.6	1.4	1.4
Other Goods Industries	0.1	0.1	0.1	0.0
Services Producing Industries	65.6	65.3	68.9	69.1
Wholesale & Retail Trade	17.0	17.3	16.8	17.7
Transport & Storage	10.0	10.4	8.6	8.8
Hotels & Restaurants	1.9	2.1	1.9	2.2
Information & Communications	4.0	4.0	3.7	3.9
Financial Services	10.9	10.7	13.5	12.2
Business Services	11.6	10.4	14.3	14.1
Other Services Industries	10.2	10.3	10.0	10.2
Ownership of Dwellings	3.5	3.1	5.3	4.6

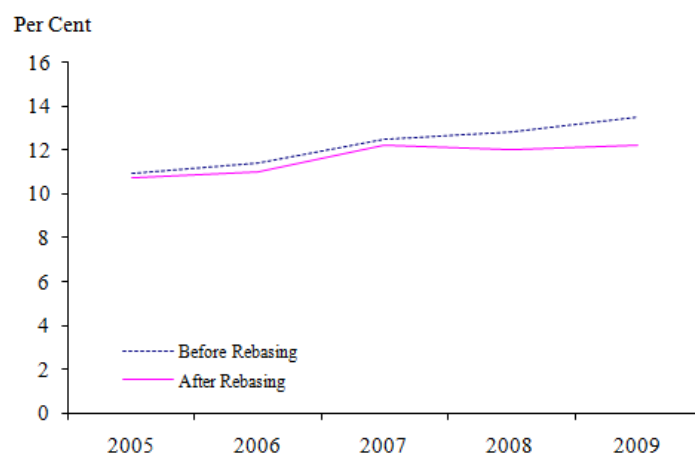
42 The relative shares in GVA of the industries have been significantly affected by the revised estimation and allocation of the intermediate consumption of implicit financial services to the consuming industries.

43 In particular, the share of financial services in GVA has been revised downwards, to 10.7 per cent (after rebasing) from 10.9 per cent (before rebasing) in 2005 and to 12.2 per cent from 13.5 per cent in 2009 (Table 10, Chart 2 and Table A3). This is due to a significant downward revision in the nominal value-added of the financial services (Table 11). Interest income (coupons) from various forms of debt securities, which was included in IBSC, is treated as property income (ie income receivable by the owner of a financial asset) and removed from the production account and therefore, value-added. Instead, the implicit service charge on the transactions of debt securities is now measured by trading spreads and volume of transactions on the secondary market. As this is considerably less than the interest income removed as property income, the resulting downward revision to value-added of financial services is fairly significant.

TABLE 11 FINANCIAL SERVICES VALUE-ADDED AT CURRENT MARKET PRICES

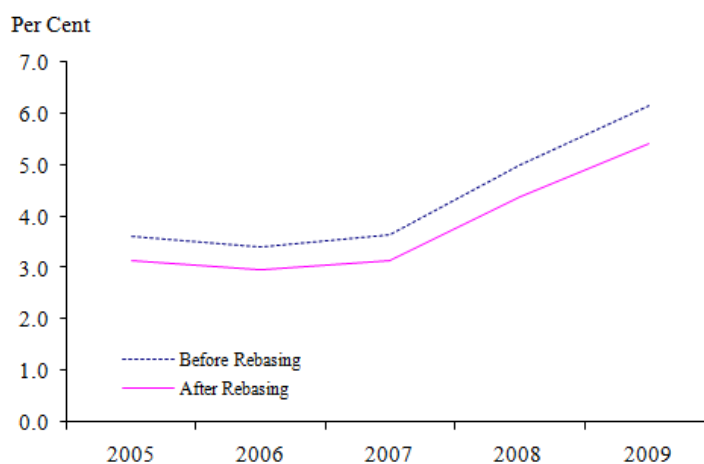
Year	\$ Million	
	Before Rebasing	After Rebasing
2005	21,888.2	21,378.9
2006	25,450.3	24,305.0
2007	31,915.9	30,553.4
2008	34,247.8	31,119.4
2009	35,002.5	30,614.0

CHART 2 SHARE OF FINANCIAL SERVICES IN NOMINAL GVA



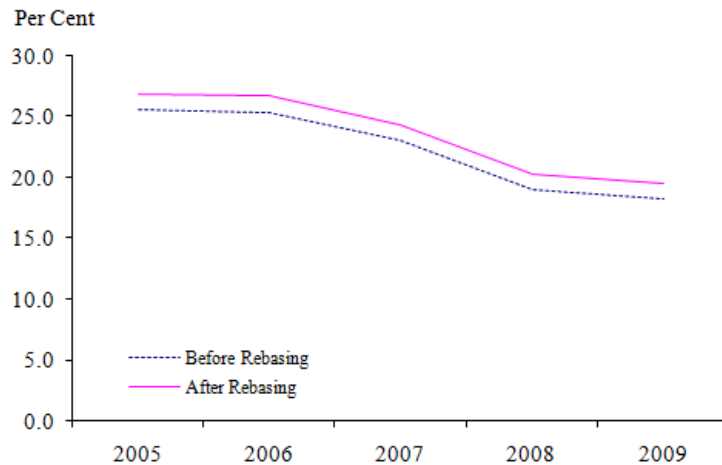
44 With the incorporation of the results from the Census of Construction, the share of construction in GVA has been revised downwards, to 3.1 per cent (after rebasing) from 3.6 per cent (before rebasing) in 2005 and to 5.4 per cent (after rebasing) from 6.2 per cent in 2009 (before rebasing) in 2009 (Table 10, Chart 3 and Table A3).

CHART 3 SHARE OF CONSTRUCTION IN NOMINAL GVA



45 On the other hand, the manufacturing share in GVA has been revised upwards to 26.8 per cent from 25.6 per cent in reference year 2005, and to 19.5 per cent from 18.2 per cent in 2009 (Table 10, Chart 4 and Table A3). The revisions are mainly due to provision for under-coverage of output identified through the commodity balancing exercise as part of the reconciliation with the 2005 I-O tables.

CHART 4 SHARE OF MANUFACTURING IN NOMINAL GVA



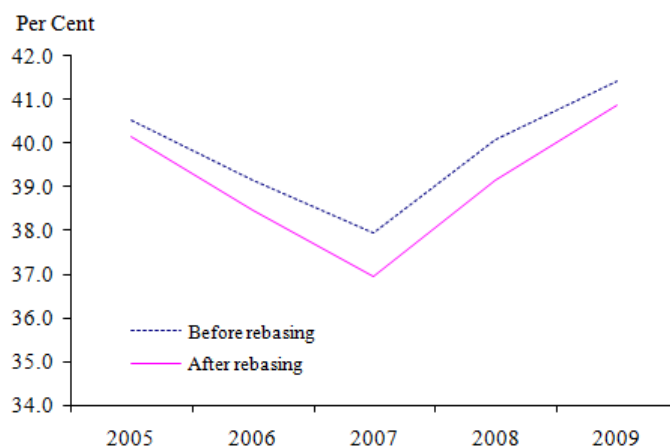
Component Share by Expenditure

46 In terms of expenditure-based GDP, the shares of PCE, GCE, GFCF, changes in inventories and net exports of goods and services have also been revised. The share of PCE, for example, has been revised downwards from 40.5 per cent (before rebasing) to 40.1 per cent (after rebasing) in 2005, and from 41.4 per cent (before rebasing) to 40.9 per cent (after rebasing) in 2009 (Table 12 and Chart 5). While the allocation of implicit charges for financial services to final consumption has raised PCE, this has been more than offset by downward revisions to other PCE components arising from reconciliation with the 2005 I-O tables.

TABLE 12 EXPENDITURE COMPONENTS AS A PERCENTAGE OF NOMINAL GDP

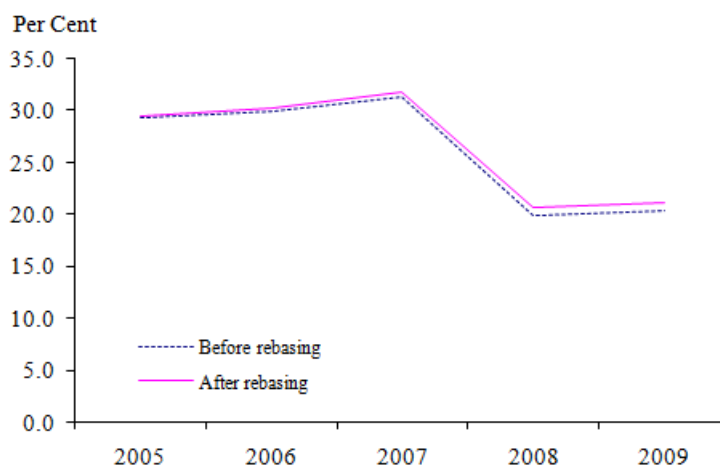
	Per Cent			
	2005		2009	
	Before Rebasing	After Rebasing	Before Rebasing	After Rebasing
Private Consumption Expenditure	40.5	40.1	41.4	40.9
Government Consumption Expenditure	10.6	10.5	11.4	11.5
Gross Fixed Capital Formation	21.3	21.1	28.9	28.7
Changes in Inventories	-1.4	-1.2	-1.3	-1.5
Net Exports of Goods and Services	29.3	29.4	20.4	21.1
Statistical Discrepancy	-0.3	0.0	-0.8	-0.6

CHART 5 PCE AS A PERCENTAGE OF NOMINAL GDP



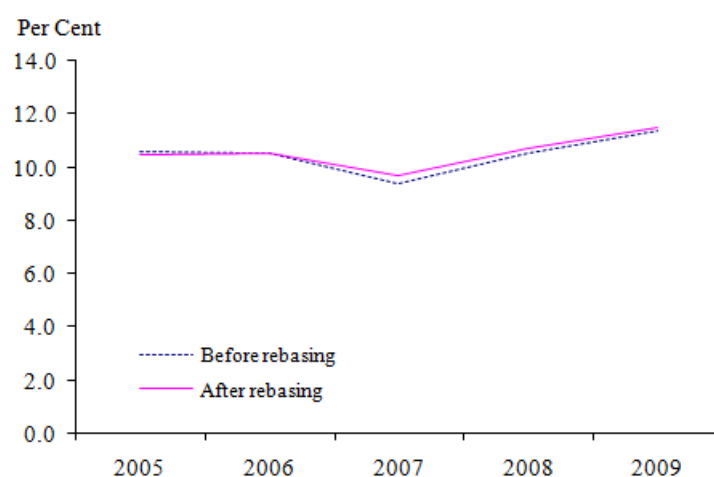
47 The share of net exports of goods and services has, on the other hand, been revised upwards by between 0.1 and 0.7 percentage points from 2005 to 2009 which is largely attributed to the allocation of implicit charges for financial services to exports of services (Chart 6).

CHART 6 NET EXPORTS AS A PERCENTAGE OF NOMINAL GDP



48 Similarly, with the incorporation of implicit charges for financial services, as well as the revised classification of various government fees and charges in GCE, the share of GCE was revised by between -0.1 and 0.3 percentage points from 2005 to 2009 (Chart 7).

CHART 7 GCE AS A PERCENTAGE OF NOMINAL GDP



Component Share by Income

49 Likewise, the current price GDI estimates have been benchmarked and reconciled on the basis of the 2005 I-O tables. Table 13 below shows the revisions to the income components as a share of nominal GDP for 2005 and 2009 before and after rebasing. For reference year 2005, the shares of CoE and taxes less subsidies on production and on imports have been revised downwards by 1.4 and 0.9 percentage points respectively. The share of GOS has increased by 2.5 percentage points, to 53.6 per cent from 51.1 per cent for 2005.

TABLE 13 INCOME COMPONENTS AS A PERCENTAGE OF NOMINAL GDP

	Per Cent			
	2005		2009	
	Before Rebasing	After Rebasing	Before Rebasing	After Rebasing
Compensation of Employees	41.6	40.2	45.7	44.2
Gross Operating Surplus	51.1	53.6	48.7	50.1
of Financial Corporations	5.6	5.1	8.0	5.3
of Non-financial Corporations	42.3	41.4	37.8	36.4
of Others	7.7	7.1	9.4	8.4
Less : FISIM (IBSC)	4.5	–	6.5	–
Taxes less Subsidies on Production & on Imports	7.1	6.2	6.1	5.6
Statistical Discrepancy	0.2	0.0	–0.5	0.1

50 The underlying trends of the shares of CoE and GOS in nominal GDP before and after rebasing are generally consistent (Charts 8 and 9). The share of CoE has been revised downwards by 1.2 to 1.5 percentage points from 2005 to 2009 while the share of GOS has been revised upwards by 1.4 to 2.5 percentage points over the same period.

CHART 8 CoE AS PERCENTAGE OF NOMINAL GDP

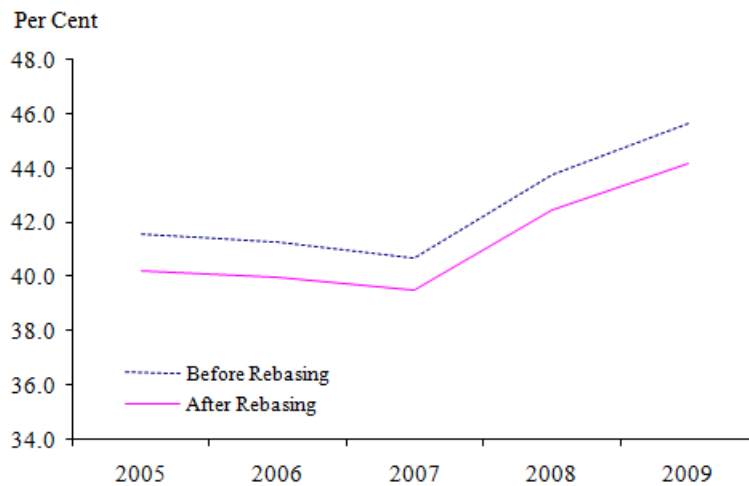
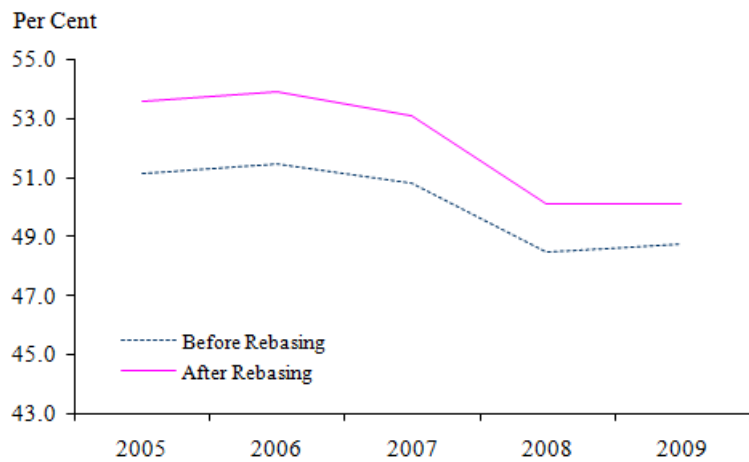


CHART 9 GOS AS A PERCENTAGE OF NOMINAL GDP



51 As noted in paragraph 21, the attribution of IBSC as intermediate consumption of a nominal industry under-estimates overall GOS by the amount of such services consumed by households, government and non-residents. Hence, from an overall economy perspective, the share of GOS had been previously under-estimated while the shares of CoE and taxes less subsidies on production and on imports had been correspondingly over-estimated.

52 From an industry perspective, however, the methodology on IBSC had over-estimated the GOS of respective industries as the consumption of implicit financial services was not identified as their intermediate consumption. Conceptually, the allocation of implicit charges for financial services to consuming industries would result in a downward revision in the share of GOS by industry, with corresponding upward revisions in shares of CoE and taxes less subsidies on production and on imports by industry.

53 Tables 14 and 15 (and Tables A6 and A7) show the revisions in relative shares of CoE and GOS by industry before and after rebasing, reflecting underlying improvements in methodologies, concepts and data sources as well as reconciliation on the basis of the updated I-O tables.

TABLE 14 CoE BY INDUSTRY AS A PERCENTAGE OF NOMINAL GVA

	Per Cent			
	2005		2009	
	Before Rebasing	After Rebasing	Before Rebasing	After Rebasing
Manufacturing	30.9	29.6	40.6	39.3
Construction	62.5	72.0	57.1	66.1
Utilities	23.3	23.5	27.3	27.7
Other Goods Industries	43.2	48.9	52.8	55.4
Wholesale & Retail Trade	40.4	39.8	44.0	43.2
Transport & Storage	33.3	32.2	38.3	38.4
Hotels & Restaurants	65.2	59.7	65.2	60.2
Information & Communications	48.7	48.1	54.6	54.1
Financial Services	43.6	44.7	45.1	50.4
Business Services ¹	35.2	39.3	31.2	33.9
Other Services Industries	77.8	77.8	78.4	78.9

1 Includes Ownership of Dwellings

TABLE 15 GOS BY INDUSTRY AS A PERCENTAGE OF NOMINAL GVA

	Per Cent			
	2005		2009	
	Before Rebasing	After Rebasing	Before Rebasing	After Rebasing
Manufacturing	68.4	69.6	59.9	61.2
Construction	35.4	25.6	41.4	31.8
Utilities	75.8	75.5	76.2	75.9
Other Goods Industries	53.6	46.2	44.0	38.9
Wholesale & Retail Trade	60.7	59.6	60.0	59.3
Transport & Storage	67.5	66.0	63.3	62.3
Hotels & Restaurants	40.8	38.1	43.0	40.3
Information & Communications	51.0	50.2	44.1	44.9
Financial Services	54.4	53.7	62.1	49.9
Business Services ¹	54.7	56.8	62.6	62.1
Other Services Industries	19.7	19.3	16.1	18.1

1 Includes Ownership of Dwellings

(D) GDP Growth Rates

54 The revisions in real GDP growth are moderate, ranging between –0.2 and 0.7 percentage points from 2005 to 2009 (Table 16). The rebased GDP series show that the decline in economic activities in 2009 was less than previously estimated.

TABLE 16 REAL GDP GROWTH

Year	Per Cent	
	Before Rebasing	After Rebasing
2005	7.6	7.4
2006	8.7	8.6
2007	8.2	8.5
2008	1.4	1.8
2009	–2.0	–1.3

55 Revisions in the growth rates of the individual industries show a greater variation than that of the overall economy, particularly for business services and financial services. Mainly due to rebasing changes, annual growth of business services has been revised upwards by 0.6 to 3.5 percentage points from 2005 to 2009. Growth of financial services has been revised by –1.1 to 2.6 percentage points from 2005 to 2009, largely due to the implementation of the new methodologies for implicit charges for financial services (Table 17).

TABLE 17 REAL GROWTH OF FINANCIAL SERVICES

Year	Per Cent	
	Before Rebasing	After Rebasing
2005	8.8	8.9
2006	12.3	12.3
2007	15.2	14.2
2008	6.2	5.7
2009	–1.4	1.3

56 Revisions in industries' relative shares of GVA and growth rates have caused corresponding changes to their contribution to growth, as shown in Table 18. For example, the contribution of financial services to real GDP growth in 2009 is 0.1 per cent at 2005 prices, compared to –0.2 per cent at 2000 prices (Table 18 and Table A3).

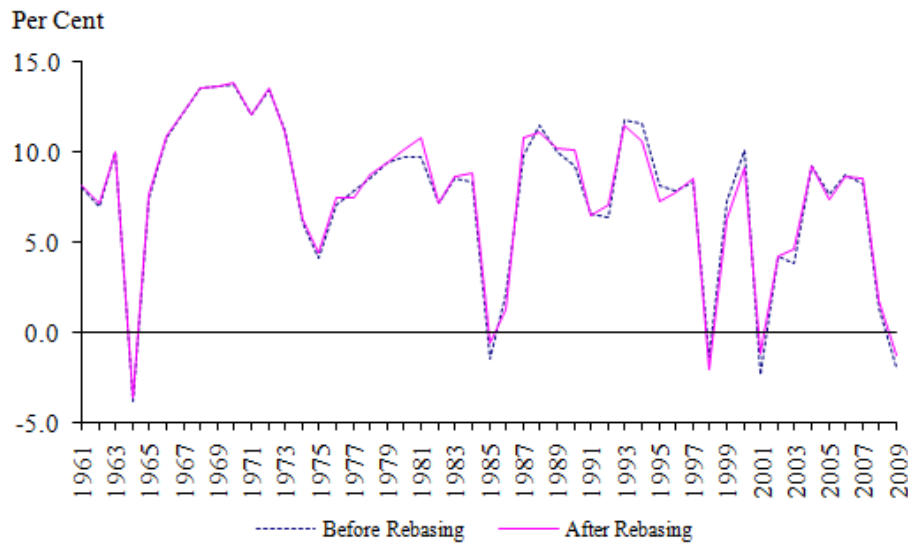
TABLE 18 CONTRIBUTION TO GROWTH IN REAL GDP

	Per Cent			
	2006		2009	
	Before Rebasing	After Rebasing	Before Rebasing	After Rebasing
Total GDP at Market Prices	8.7	8.6	-2.0	-1.3
Goods Producing Industries	3.3	3.2	-0.3	-0.4
Manufacturing	3.0	3.1	-1.0	-1.0
Construction	0.1	0.1	0.7	0.6
Utilities	0.1	0.1	0.0	0.0
Other Goods Industries	0.0	0.0	0.0	0.0
Services Producing Industries	5.2	5.0	-1.4	-0.9
Wholesale & Retail Trade	1.6	1.5	-1.5	-1.4
Transport & Storage	0.7	0.6	-0.6	-0.7
Hotels & Restaurants	0.1	0.1	-0.1	0.0
Information & Communications	0.2	0.2	0.0	0.0
Financial Services	1.3	1.3	-0.2	0.1
Business Services	0.8	0.9	0.4	0.5
Other Services Industries	0.4	0.4	0.5	0.5
Ownership of Dwellings	0.1	0.1	0.0	0.0
Less : FISIM (IBSC)	0.2	-	0.1	-
Add : Taxes on Products	0.4	0.4	-0.2	0.0

57 With the adoption of the revised concepts and methodologies described earlier, in particular for implicit charges for financial services, historical GDP growth rates have been revised (Chart 10). The period 1998 to 2001 saw revisions of between -1.0 and 1.2 percentage points, reflecting the considerable economic volatility over the period. The contraction in the financial services industry during the Asian Financial Crisis in 1998 is now estimated to be worse than in the previous estimates, in large part contributing to the downward revision in GDP growth for that year, to -2.1 per cent from -1.4 per cent. This makes 1998 the second worst year for the Singapore economy on record¹⁰. On the other hand, based on the revised methodologies, the impact of the bursting of the dot-com bubble and the September 11 attacks in America was smaller than earlier estimated; 2001 growth is revised upwards to -1.2 per cent from -2.4 per cent.

10 As can be seen from Chart 10, Singapore's worst recession occurred in 1964, with GDP declining by 3.7 per cent.

CHART 10 ANNUAL REAL GDP GROWTH RATES, 1960-2009



IV CONCLUSION

58 The successful completion of this rebasing exercise improves the coherence and reliability of our GDP estimates and enhances its relevance to the underlying and changing economic conditions. The adoption of the SNA recommendations on FISIM and implicit service charges associated with the acquisition and disposal of debt securities will improve the relevance of our GDP estimates by painting a more accurate picture of the use of implicit and indirectly measured services produced by FIs. This will also increase the international comparability of Singapore’s national accounts as most national statistical offices in the European Union and OECD countries are already using the reference rate approach.

59 While nominal GDP estimates have been revised upwards, by between 2.7 and 3.4 per cent, the revisions in real GDP growth have been relatively moderate, ranging from –0.2 and 0.7 percentage points from 2005 to 2009. On a year-on-year basis, real GDP at the base year 2005 is estimated to have grown by 15.5 per cent in the first quarter of 2010. Growth of real GDP at the previous base year 2000 is 14.6 per cent, which is an upward revision from 13.1 per cent in the advance estimates.

60 The rebased historical series may be purchased from DOS using the Singstat Online Data Request Form at <http://app.singstat.gov.sg/data1.asp>. Subscribers to the Department’s Singstat Time Series (STS) may also download the historical data electronically.

Methodological Appendix

EFFECT OF ALLOCATION OF IMPLICIT CHARGES ON FINANCIAL SERVICES¹¹

BEFORE ALLOCATION

	(\$m)		(\$m)
GDP by Production Approach		GDP by Expenditure Approach	
Goods Producing Industries	1,000	Private Consumption Expenditure	1,670
Services Producing Industries	3,000	Government Consumption Expenditure	450
Ownership of Dwellings	200	Gross Fixed Capital Formation	840
Less : IBSC	250	Changes in Inventories	-40
Add : Taxes on Products	220	Net Exports of Goods and Services	1,250
GDP	4,170	GDP	4,170

- > \$190m of IBSC allocated as IC of industries
- > \$20m of IBSC allocated as PCE
- > \$5m of IBSC allocated as GCE
- > \$35m of IBSC allocated as Net Exports of Goods and Services



ALLOCATION TO FINAL DEMAND INCREASES GDP

	(\$m)		(\$m)
GDP by Production Approach		GDP by Expenditure Approach	
Goods Producing Industries	1,000	→ 20 Private Consumption Expenditure	1,690 (1,670 + 20)
Services Producing Industries	3,000	→ 5 Government Consumption Expenditure	455 (450 + 5)
Ownership of Dwellings	200	Gross Fixed Capital Formation	840
Less : IBSC	190 (250 - 60)	Changes in Inventories	-40
Add : Taxes on Products	220	→ 35 Net Exports of Goods and Services	1,285 (1,250 + 35)
Total GDP	4,230	60 Total GDP	4,230 (4,170 + 60)

- > \$70m of IBSC allocated as IC of Goods Producing Industries
- > \$100m of IBSC allocated as IC of Services Producing Industries
- > \$20m of IBSC allocated as IC of Ownership of Dwellings



ALLOCATION TO INDUSTRIES DECREASES INDUSTRIES' VALUE-ADDED

	(\$m)		(\$m)
GDP by Production Approach		GDP by Expenditure Approach	
→ 70 Goods Producing Industries	930 (1000 - 70)	Private Consumption Expenditure	1,690
→ 100 Services Producing Industries	2,900 (3000 - 100)	Government Consumption Expenditure	455
→ 20 Ownership of Dwellings	180 (200 - 20)	Gross Fixed Capital Formation	840
← 190 Less : IBSC	-	Changes in Inventories	-40
Add : Taxes on Products	220	Net Exports of Goods and Services	1,285
Total GDP	4,230	Total GDP	4,230

11 Figures are for illustration purposes only.

COMPILING AND ALLOCATING FISIM BY THE REFERENCE RATE APPROACH

1 In this rebasing exercise, DOS has implemented the SNA93/08's (hereafter referred to as SNA) FISIM concept and compilation methodology. This revision recognises that financial intermediaries (FIs) provide services, on which explicit charges are not levied, to households, businesses, governments and the rest of the world, and recommends the estimation of such FISIM using the "reference rate approach" (see illustration in *Box 1*)

2 According to the SNA, the reference rate represents the pure cost of borrowing funds – that is, a rate that does not include any intermediation services. It is effectively a rate based on a transaction that involves no provision of implicitly-priced services. The absence of depositor services makes the reference rate higher than the rate paid to depositors and the absence of borrower services makes the reference rate lower than the rate paid to borrowers.

3 In line with the SNA's recommendation, DOS has utilised total interest received from inter-bank¹² deposits and the total stock of inter-bank deposits to derive a "reference rate"¹³ :

$$\text{Reference Rate} = \frac{\text{Total Interest on Inter-bank Deposits}}{\text{Total Stock of Inter-bank Deposits}}$$

4 FISIM on loans and deposits consumed by each resident user sector is thus calculated as follows :

$$\text{FISIM}_L = R_L - Lr_1^* \quad (1)$$

$$\text{FISIM}_D = Dr_1^* - R_D \quad (2)$$

where

- FISIM_L : FISIM on loans
- FISIM_D : FISIM on deposits
- R_L : interest flows receivable on loans
- R_D : interest flows payable on deposits
- r₁^{*} : reference rate
- L : stock of loans
- D : stock of deposits

FISIM provided to a user sector *j*, for example, is obtained as a sum of FISIM on loans granted to that sector (FISIM^L_{*j*}) and FISIM on deposits placed by the sector (FISIM^D_{*j*}) :

$$\begin{aligned} \text{FISIM}_j &= \text{FISIM}_j^L + \text{FISIM}_j^D \\ &= R_L - L_j r_1^* + D_j r_1^* - R_D \end{aligned} \quad (3)$$

12 There is often little, if any, service provided in association with banks lending and borrowing to and from one another, ie no FISIM is produced or consumed on inter-bank loans and deposits.

13 The reference rate approach utilises 2 reference rates. The internal reference rate, which is used to derive FISIM on domestic loans and deposits, is derived from total interest received on domestic inter-bank deposits and the total stock of domestic inter-bank deposits. The external reference rate, which is used in the computation of exports and imports of FISIM, is derived from total interest paid to non-resident banks on inter-bank deposits and the total stock of such deposits placed by non-resident banks.

Rearranging equation (3), we obtain :

$$\begin{aligned} \text{FISIM}_j &= \text{FISIM}_j^L + \text{FISIM}_j^D \\ &= R_L - R_D - (L_j - D_j) r_1^* \end{aligned} \quad (4)$$

The total FISIM generated by banks and finance companies is obtained by totalling the FISIM consumed on loans and deposits for each user sector.

Box 1 : Deriving FISIM on Loans and Deposits via the Reference Rate Approach

A loan of \$20,000 provided by Bank A to Firm B:

- Interest receivable by Bank A is 7%
- Reference rate is 3%

A deposit of \$10,000 is received by Bank A from Firm C:

- Interest payable by Bank B is 1%
- Reference rate is 3%

Interest Rate on Deposit : 1%	Reference Rate : 3%	Interest Rate on Loan : 7%
----------------------------------	------------------------	-------------------------------

3% - 1% = 2%

(Interest margin Bank A earns for providing financial intermediation services to depositor, Firm C)

7% - 3% = 4%

(Interest margin Bank A earns for providing financial intermediation services to borrower, Firm B)

The chart above illustrates how to use the concept of reference rate in calculating the value of FISIM provided by Bank A to borrower, Firm B and depositor, Firm C. To depositor, Firm C, Bank A pays interest rate that is lower than the reference rate of interest. The difference of 2 percentage points represents the interest margin Bank A earns through providing various financial intermediation services for Firm C. Similarly, to borrower, Firm B, Bank A charges an interest rate that is higher than the reference rate of interest. The difference of 4 percentage points represents the interest margin that Bank A earns through the provision of various financial intermediation services for Firm B.

By the reference rate approach :

FISIM on loan	=	\$20,000 x (7% - 3%)
	=	\$800
FISIM on deposit	=	\$10,000 x (3% - 1%)
	=	\$200
Total FISIM on loans and deposits	=	\$800 + \$200
	=	\$1,000

Statistical Appendix

Table A1 Annual Changes in Real Gross Domestic Product

Table A2 Contribution to Growth in Real Gross Domestic Product

Table A3 Share of Gross Value-added at Current Prices

Table A4 Expenditure Components as a Percentage of Nominal Gross Domestic Product

Table A5 Income Components as a Percentage of Nominal Gross Domestic Product

Table A6 Compensation of Employees by Industry as a Percentage of Nominal Gross Value-added

Table A7 Gross Operating Surplus by Industry as a Percentage of Nominal Gross Value-added

TABLE A1 ANNUAL CHANGES IN REAL GROSS DOMESTIC PRODUCT

	Per Cent				
	2005	2006	2007	2008	2009
	Before Rebasing (2000 Prices)				
TOTAL	7.6	8.7	8.2	1.4	-2.0
Goods Producing Industries	8.0	10.7	7.1	-1.0	-1.1
Manufacturing	9.5	11.9	5.9	-4.2	-4.1
Construction	0.7	3.6	18.2	20.8	16.0
Utilities	3.0	6.0	4.5	2.5	-0.4
Other Goods Industries	-1.2	15.5	-3.0	-4.0	-1.0
Services Producing Industries	7.5	8.2	8.8	5.4	-2.2
Wholesale & Retail Trade	9.8	10.3	8.0	4.0	-9.1
Transport & Storage	6.2	6.9	6.7	2.9	-7.0
Hotels & Restaurants	8.7	7.8	6.4	0.9	-3.0
Information & Communications	5.5	5.8	6.1	7.3	0.8
Financial Services	8.8	12.3	15.2	6.2	-1.4
Business Services	7.6	6.5	10.4	8.2	3.3
Other Services Industries	4.4	4.4	4.2	5.6	5.1
Ownership of Dwellings	2.7	1.8	1.1	1.1	0.9
Less : FISIM (IBSC)	0.9	4.9	8.5	18.8	2.1
Add : Taxes on Products	5.0	5.7	12.6	-12.7	-2.6
	After Rebasing (2005 Prices)				
TOTAL	7.4	8.6	8.5	1.8	-1.3
Goods Producing Industries	8.1	10.6	6.9	-1.5	-1.5
Manufacturing	9.5	11.9	5.9	-4.2	-4.1
Construction	0.8	2.6	16.7	20.1	16.2
Utilities	3.0	5.2	4.8	1.8	-0.6
Other Goods Industries	2.1	3.3	2.5	-4.4	-1.4
Services Producing Industries	7.6	8.0	9.0	4.8	-1.4
Wholesale & Retail Trade	9.6	9.4	8.2	3.1	-8.2
Transport & Storage	6.6	6.4	6.6	2.2	-7.0
Hotels & Restaurants	8.6	6.7	6.5	0.8	-1.5
Information & Communications	5.4	4.4	4.8	6.1	1.2
Financial Services	8.9	12.3	14.2	5.7	1.3
Business Services	8.2	8.8	13.9	9.4	4.5
Other Services Industries	4.4	3.7	4.1	4.7	5.0
Ownership of Dwellings	2.2	2.1	-0.3	-0.9	0.5
Add : Taxes on Products	4.9	8.2	18.6	-15.0	1.1

TABLE A2 CONTRIBUTION TO GROWTH IN REAL GROSS DOMESTIC PRODUCT

	Per Cent				
	2005	2006	2007	2008	2009
Before Rebasing (2000 Prices)					
TOTAL	7.6	8.7	8.2	1.4	-2.0
Goods Producing Industries	2.5	3.3	2.2	-0.3	-0.3
Manufacturing	2.4	3.0	1.6	-1.1	-1.0
Construction	0.0	0.1	0.6	0.7	0.7
Utilities	0.1	0.1	0.1	0.0	0.0
Other Goods Industries	0.0	0.0	0.0	0.0	0.0
Services Producing Industries	4.8	5.2	5.6	3.4	-1.4
Wholesale & Retail Trade	1.5	1.6	1.3	0.6	-1.5
Transport & Storage	0.6	0.7	0.6	0.3	-0.6
Hotels & Restaurants	0.2	0.1	0.1	0.0	-0.1
Information & Communications	0.2	0.2	0.3	0.3	0.0
Financial Services	0.9	1.3	1.7	0.7	-0.2
Business Services	0.9	0.8	1.2	1.0	0.4
Other Services Industries	0.4	0.4	0.4	0.5	0.5
Ownership of Dwellings	0.1	0.1	0.0	0.0	0.0
Less: FISIM (IBSC)	0.0	0.2	0.4	0.9	0.1
Add : Taxes on Products	0.3	0.4	0.8	-0.9	-0.2
After Rebasing (2005 Prices)					
TOTAL	7.4	8.6	8.5	1.8	-1.3
Goods Producing Industries	2.4	3.2	2.1	-0.4	-0.4
Manufacturing	2.3	3.1	1.6	-1.1	-1.0
Construction	0.0	0.1	0.5	0.6	0.6
Utilities	0.1	0.1	0.1	0.0	0.0
Other Goods Industries	0.0	0.0	0.0	0.0	0.0
Services Producing Industries	4.6	5.0	5.6	3.0	-0.9
Wholesale & Retail Trade	1.4	1.5	1.4	0.5	-1.4
Transport & Storage	0.6	0.6	0.6	0.2	-0.7
Hotels & Restaurants	0.1	0.1	0.1	0.0	0.0
Information & Communications	0.2	0.2	0.2	0.2	0.0
Financial Services	1.0	1.3	1.5	0.6	0.1
Business Services	0.8	0.9	1.4	1.0	0.5
Other Services Industries	0.4	0.4	0.4	0.4	0.5
Ownership of Dwellings	0.1	0.1	0.0	0.0	0.0
Add : Taxes on Products	0.3	0.4	0.8	-0.7	0.0

TABLE A3 SHARE OF GROSS VALUE-ADDED AT CURRENT PRICES

	Per Cent				
	2005	2006	2007	2008	2009
Before Rebasing					
Goods Producing Industries	30.9	30.5	28.2	25.5	25.9
Manufacturing	25.6	25.4	23.0	19.0	18.2
Construction	3.6	3.4	3.6	5.0	6.2
Utilities	1.6	1.7	1.5	1.4	1.4
Other Goods Industries	0.1	0.1	0.1	0.1	0.1
Services Producing Industries	65.6	65.6	67.5	69.4	68.9
Wholesale & Retail Trade	17.0	17.9	18.2	18.0	16.8
Transport & Storage	10.0	9.2	9.6	9.2	8.6
Hotels & Restaurants	1.9	1.9	2.0	2.1	1.9
Information & Communications	4.0	3.8	3.5	3.6	3.7
Financial Services	10.9	11.4	12.5	12.8	13.5
Business Services	11.6	11.7	12.5	14.2	14.3
Other Services Industries	10.2	9.7	9.1	9.5	10.0
Ownership of Dwellings	3.5	3.9	4.3	5.1	5.3
After Rebasing					
Goods Producing Industries	31.7	31.4	29.0	26.0	26.3
Manufacturing	26.8	26.7	24.3	20.2	19.5
Construction	3.1	3.0	3.1	4.4	5.4
Utilities	1.6	1.7	1.5	1.4	1.4
Other Goods Industries	0.1	0.0	0.0	0.0	0.0
Services Producing Industries	65.3	65.4	67.7	69.9	69.1
Wholesale & Retail Trade	17.3	18.3	18.8	18.8	17.7
Transport & Storage	10.4	9.5	10.0	9.8	8.8
Hotels & Restaurants	2.1	2.1	2.2	2.3	2.2
Information & Communications	4.0	3.8	3.6	3.7	3.9
Financial Services	10.7	11.0	12.2	12.0	12.2
Business Services	10.4	10.7	11.7	13.5	14.1
Other Services Industries	10.3	9.9	9.3	9.7	10.2
Ownership of Dwellings	3.1	3.2	3.3	4.1	4.6

TABLE A4 EXPENDITURE COMPONENTS AS A PERCENTAGE OF NOMINAL GDP

	Per Cent				
	2005	2006	2007	2008	2009
	Before Rebasing				
Private Consumption Expenditure	40.5	39.1	38.0	40.1	41.4
Government Consumption Expenditure	10.6	10.5	9.4	10.5	11.4
Gross Fixed Capital Formation	21.3	21.8	23.3	27.8	28.9
Changes in Inventories	-1.4	-1.6	-2.6	2.3	-1.3
Net Exports of Goods & Services	29.3	29.9	31.2	20.0	20.4
Statistical Discrepancy	-0.3	0.2	0.7	-0.6	-0.8
	After Rebasing				
Private Consumption Expenditure	40.1	38.5	36.9	39.1	40.9
Government Consumption Expenditure	10.5	10.5	9.7	10.7	11.5
Gross Fixed Capital Formation	21.1	22.0	23.7	27.9	28.7
Changes in Inventories	-1.2	-1.2	-2.6	2.1	-1.5
Net Exports of Goods & Services	29.4	30.2	31.8	20.7	21.1
Statistical Discrepancy	0.0	0.1	0.4	-0.4	-0.6

TABLE A5 INCOME COMPONENTS AS A PERCENTAGE OF NOMINAL GDP

	Per Cent				
	2005	2006	2007	2008	2009
	Before Rebasing				
Compensation of Employees	41.6	41.3	40.7	43.8	45.7
Gross Operating Surplus	51.1	51.5	50.8	48.4	48.7
of Financial Corporations	5.6	5.7	6.6	7.6	8.0
of Non-Financial Corporations	42.3	42.9	41.1	37.8	37.8
of Others	7.7	7.7	7.9	8.9	9.4
Less : FISIM (IBSC)	4.5	4.8	4.8	5.9	6.5
Taxes less Subsidies on Production & on Imports	7.1	6.7	8.2	7.7	6.1
Statistical Discrepancy	0.2	0.5	0.3	0.1	-0.5
	After Rebasing				
Compensation of Employees	40.2	40.0	39.5	42.5	44.2
Gross Operating Surplus	53.6	53.9	53.1	50.1	50.1
of Financial Corporations	5.1	5.2	5.6	5.3	5.3
of Non-Financial Corporations	41.4	41.8	40.8	37.1	36.4
of Others	7.1	6.9	6.7	7.7	8.4
Less : FISIM (IBSC)	–	–	–	–	–
Taxes less Subsidies on Production & on Imports	6.2	6.0	7.5	7.1	5.6
Statistical Discrepancy	0.0	0.1	-0.1	0.3	0.1

TABLE A6 COMPENSATION OF EMPLOYEES BY INDUSTRY
AS A PERCENTAGE OF NOMINAL GVA

	2005	2006	2007	2008	Per Cent 2009
Before Rebasing					
Manufacturing	30.9	30.3	32.2	40.0	40.6
Construction	62.5	65.1	63.4	58.0	57.1
Utilities	23.3	22.5	25.2	28.0	27.3
Other Goods Industries	43.2	42.1	45.9	50.0	52.8
Wholesale & Retail Trade	40.4	38.2	37.3	39.7	44.0
Transport & Storage	33.3	35.1	32.5	34.9	38.3
Hotels & Restaurants	65.2	59.7	57.5	58.0	65.2
Information & Communications	48.7	49.6	52.0	53.9	54.6
Financial Services	43.6	44.4	45.6	46.1	45.1
Business Services ¹	35.2	34.2	31.5	30.0	31.2
Other Services Industries	77.8	77.9	80.3	79.4	78.4
After Rebasing					
Manufacturing	29.6	29.1	30.8	38.8	39.3
Construction	72.0	74.5	73.1	67.2	66.1
Utilities	23.5	22.7	25.4	28.4	27.7
Other Goods Industries	48.9	48.0	52.6	53.8	55.4
Wholesale & Retail Trade	39.8	37.9	36.9	38.9	43.2
Transport & Storage	32.2	34.4	31.6	33.9	38.4
Hotels & Restaurants	59.7	57.2	55.1	53.6	60.2
Information & Communications	48.1	49.3	51.8	53.9	54.1
Financial Services	44.7	46.5	47.6	49.7	50.4
Business Services ¹	39.3	38.4	36.0	33.9	33.9
Other Services Industries	77.8	77.8	80.2	79.7	78.9

¹ Includes Ownership of Dwellings

TABLE A7 GROSS OPERATING SURPLUS BY INDUSTRY
AS A PERCENTAGE OF NOMINAL GVA

	2005	2006	2007	2008	Per Cent 2009
Before Rebasing					
Manufacturing	68.4	69.2	67.4	57.7	59.9
Construction	35.4	32.4	32.8	39.1	41.4
Utilities	75.8	79.3	73.8	73.4	76.2
Other Goods Industries	53.6	55.1	50.4	45.5	44.0
Wholesale & Retail Trade	60.7	64.0	64.2	63.1	60.0
Transport & Storage	67.5	61.8	67.0	65.4	63.3
Hotels & Restaurants	40.8	45.0	46.7	45.5	43.0
Information & Communications	51.0	49.6	46.9	44.2	44.1
Financial Services	54.4	53.2	56.8	62.0	62.1
Business Services ¹	54.7	56.0	55.3	56.5	62.6
Other Services Industries	19.7	17.9	16.7	15.9	16.1
After Rebasing					
Manufacturing	69.6	70.4	68.5	59.2	61.2
Construction	25.6	22.2	22.8	29.1	31.8
Utilities	75.5	79.1	73.7	73.0	75.9
Other Goods Industries	46.2	46.9	41.5	38.6	38.9
Wholesale & Retail Trade	59.6	62.5	64.4	61.9	59.3
Transport & Storage	66.0	62.8	67.1	64.9	62.3
Hotels & Restaurants	38.1	41.5	43.6	42.7	40.3
Information & Communications	50.2	48.8	45.8	43.5	44.9
Financial Services	53.7	52.8	52.5	50.2	49.9
Business Services ¹	56.8	56.0	56.9	59.1	62.1
Other Services Industries	19.3	17.0	15.7	15.9	18.1

¹ Includes Ownership of Dwellings

SINGAPORE DEPARTMENT OF STATISTICS INFORMATION DISSEMINATION SERVICES

Statistics Singapore Website

The Statistics Singapore Website was launched by the Singapore Department of Statistics (DOS) in January 1995. Internet users can access the website by connecting to:

<http://www.singstat.gov.sg>

Key Singapore statistics are available via the following sections:

- ◆ Statistics
which provide key data on Singapore's economy and population.
- ◆ News
which cover the Performance of Singapore Economy, the Consumer Price Index, the Wholesale Trade Index, Business Receipts Index for Service Industries, Retail Sales and Catering Trade Indices, Manufacturing Performance, Singapore External Trade, Tourism Sector Performance, Real Estate Information and Employment Situation.
- ◆ Publications - Papers & Analyses
which provide papers on economic and social topics.
- ◆ Themes
which presents official statistics compiled by DOS and the Research and Statistics Units in the various ministries and statutory boards according to themes. Within each theme, relevant statistics and related press releases, publications and references are provided.

Statistical resources are available via:

- ◆ Publication Catalogue
which lists the latest editions of publications released by the Singapore Department of Statistics at <http://www.singstat.gov.sg/pubn/catalog.html>. All softcopy DOS publications are available for free downloading. Statistical tables of DOS publications in Excel format are also available.
- ◆ Advance Release Calendar
which covers key Singapore economic indicators.

The website also provides a convenient gateway to international statistical websites under the "Statistical Resources" section:

- ◆ Guide to International Statistics
which covers international databases, classifications and links, and statistical terms and definitions.
- ◆ IMF Dissemination Standards Bulletin Board
which provides metadata about Singapore's key indicators in the real, fiscal, financial and external sectors, including dissemination practices and information about pre-release access of current indicators.

SingStat Express

SingStat Express is a personalised data delivery service which sends the latest press releases, notices of publication, newsletter, occasional and information papers to subscribers via email. SMS alert service is also available to local users. Subscription details are available from the Statistics Singapore Website (www.singstat.gov.sg/express).

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SingStat Time Series (STS) Online System

The SingStat Time Series (STS) Online System is an internet-accessible time series retrieval system. The STS includes more than 7,000 historical data series on Singapore society and economy from several domains, including national accounts, balance of payments, investments, finance, labour, prices, business expectations, trade, manufacturing, tourism, demography, health and education.

Besides the usual monthly, quarterly and annual data, STS includes also seasonally adjusted data series for key economic indicators providing for a better analysis and understanding of current economic trends. The STS also offers:

- Web-based search engine that is easy to use;
- “Bookmark” features that enable users to save and organise links in their personalised portals.

Subscription to STS is opened to local and overseas users. More information on STS are available via Statistics Singapore Website. For enquiries, please contact our Department at **Tel : 6332-7119**.

E-survey

The E-survey enables business organisations to complete and submit their survey forms through the internet. Using secured encryption protocols, the E-survey ensures that the information transmitted through the net is secured and protected. The system features online helps and validation checks to assist respondents in completing their survey forms. With the E-survey, respondents do away with the tedious paper work and manual tasks of mailing or faxing their survey returns to the Department.

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If you have any statistical enquiries or comment or suggestions on our statistical publications and electronic services, you are welcomed to :

- ◆ E-mail us at **info@singstat.gov.sg**
- ◆ Fax to us at **(65) 6332-7689**
- ◆ Call us at **1800-3238118* (local callers)**
(65) 6332-7738 (overseas callers)

* Calls from mobile telephone lines to 1800 local toll free number may be subject to mobile airtime charges as imposed by the relevant mobile service provider.