

# 多因素生產力趨勢分析報告

## THE TRENDS IN MULTIFACTOR PRODUCTIVITY

網 址：<http://www.dgbas.gov.tw> > 政府統計 > 主計總處統計專區  
> 薪資及生產力統計

資料時期：99 年

行政院主計總處

中華民國 101 年 8 月編印

DIRECTORATE-GENERAL OF BUDGET, ACCOUNTING AND  
STATISTICS, EXECUTIVE YUAN, REPUBLIC OF CHINA, AUGUST 2012

## 多因素生產力趨勢分析報告

刊期頻率：年 報

出版機關：行政院主計總處

地址：臺北市中正區廣州街2號

電話：(02) 2380-3627

0800007589-15

網址：<http://www.dgbas.gov.tw>

印刷者：科藝彩色製版股份有限公司

地址：臺北市萬華區大理街157號3樓之2

電話：(02) 2302-0406

編者：行政院主計總處

出版年月：中華民國101年8月

創刊年月：中華民國81年6月

定價：新台幣200元

展售處：中國統計學社

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地址：臺北市中正區廣州街2號

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郵政劃撥帳號 0004130-8

五南文化廣場

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地址：臺中市中山路6號

電話：(04) 2226-0330

五南網路書店：<http://www.wunanbooks.com.tw>

國家書店松江門市

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地址：臺北市中山區松江路209號1樓

電話：(02) 2518-0207

國家網路書店：<http://www.govbooks.com.tw>

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**GPN: 2008100010**

**ISSN: 1022-0534**

# 前言

PREFACE

# 前言

經濟成長來源分為供給面與需求面因素，供給面因素在於探討投入與產出之關係，產出之增加係受生產投入增加與技術改進之影響。為分析供給面經濟成長來源，究係來自大量之生產投入，抑或是投入效率與品質提升、科技進步或產業結構轉變所造成生產力之提高？本總處自民國61年7月起即按月編布製造業及水電燃氣業勞動生產力統計；75年起又編製全體產業勞動生產力統計，為更進一步瞭解資本投入對生產之貢獻，因而蒐集有關資料，編製資本存量資料，完成資本生產力統計，進而研編複雜性較高之多因素生產力統計，以應各界需用。

多因素生產力(multifactor productivity，簡稱 MFP)意指每單位總合要素投入所創造之產出，是分析各類生產資源運用效率之指標，除可補充部分因素生產力(勞動或資本生產力)之不足外，其變動率可觀察產出增加中來自技術進步、投入品質提升、生產效率改善、經營管理能力與結構轉變等非要素投入量變動之效果，若要素投入不斷增加而無技術進步，根據報酬遞減率，將導致產出增加幅度逐步遞減。因此多因素生產力之提升，不僅有利於生產成本之降低，對於經濟持續發展、穩定國內物價及提升國民生活水準等，均有所助益，故如何有效增進生產力，已為各國產業政策致力達成之目標。

編製多因素生產力統計，當總投入僅包括勞動與資本時，產出宜以附加價值與之對應，即所謂之實質生產毛額(GDP)；當總投入除了勞動與資本外，尚包括有能源、原材料、企業服務業等中間投入時，其所對應之產出，則應採用生產總額(Gross output)。多因素生產力統計之主要用途計有：

- (一)了解各種資源投入之運用效率及其變動情形；
- (二)探討不同生產因素之間的替代效果；
- (三)研析經濟成長發生之來源；
- (四)規劃資源分配政策之運用；
- (五)擬訂產業長期發展策略之參據；

本統計就投入因素種類之不同分別編製多因素生產力及總要素生產力，其中多因素生產力統計之投入因素僅含勞動與資本兩項，而總要素生產力統計之投入因素則含有勞動、資本、能源、原材料、企業服務五項，針對工業部門之礦業

及土石採取業、製造業、電力及燃氣供應業、用水供應及污染整治業、營造業，與服務業部門之批發及零售業、運輸及倉儲業、住宿及餐飲業、資訊及通訊傳播業、金融及保險業、不動產業、專業科學及技術服務業、支援服務業、醫療保健服務業、藝術、娛樂及休閒服務業、其他服務業編算其多因素生產力指數及總要素生產力指數。相關重要名詞說明表列如下：

| 名 詞                                              | 說 明                                                                                                  | 主 要 應 用                                                    |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| 1.資本生產力                                          | 係指實質國內生產毛額相對於固定資本存量之比例。                                                                              | 1.觀察資本運用效率之變化<br>2.觀察產業資本密集度之變化                            |
| 2.勞動生產力                                          | 係指實質國內生產毛額相對於就業者工時之比例。                                                                               | 1.觀察勞動運用效率之變化<br>2.潛在經濟生產量指標                               |
| 3.多因素生產力<br>( Multifactor Productivity, 簡稱 MFP ) | 係指實質國內生產毛額相對於就業者工時及固定資本存量兩項生產因素之比例，其成長率係指實質國內生產毛額成長率扣除加權後就業者工時、固定資本存量成長率後之餘額。                        | 1.分析經濟成長來源<br>2.觀察資源分配效果<br>3.觀察投入運用效率之變化<br>4.觀察一國競爭力變化指標 |
| 4.總要素生產力<br>( Totalfactor Productivity, 簡稱 TFP ) | 係指實質生產總額相對於就業者工時、固定資本存量、能源、原材料及企業服務之五項要素投入之比例，其成長率係指實質生產總額成長率扣除加權後就業者工時、固定資本存量、能源、原材料及企業服務投入成長率後之餘額。 | 1.觀察資源分配效果<br>2.觀察一國技術水準<br>3.觀察投入運用效率之變化                  |
| 5.生產總額                                           | 生產總額為商品及服務按銷售價格計算之生產價值。                                                                              | 觀察各產業生產規模與產業結構                                             |
| 6.國內生產毛額<br>( GDP )                              | 生產總額只能代表產品之價值而已，不能代表生產過程中創造之價值，若將生產總額減去中間消費，即為生產毛額。如布廠將紗織成布，所提高之價值即為布廠之生產毛額，亦稱附加價值。                  | 表示一國之經濟成長與各產業附加價值之創造                                       |

本項統計工作雖不斷檢討改進，仍恐有疏漏之處，尚祈各界不吝賜正。

# Preface

Factors that contribute to economic growth are based on supply-side and demand-side ideas. Supply-side factors involved the relationships between inputs and outputs. The increase of outputs is related to increase of production inputs and improved technology. To identify the exact factor that contributes to supply-side economic growth from large volume production inputs and the increased productivities based on improved input qualities, technology advancement, or industry structural transitions. The DGBAS has been generating monthly labor productivity statistics for manufacturing and electricity, gas and water industry since July 1972; Started from 1986, we have also been generating statistics for general levels of labor productivity. In recent years, to further understand how capital inputs contributes to productions, we have been collection related data and formatting the capital stocks to produce the statistics for capital productivity, the more complex statistics for multifactor productivity is then derived for reference and applications need.

Multifactor productivity (MFP) measures the ratio between output and per unit of combined inputs. It is an index for various production resources utilization efficiency analyses. Excepts for supplementing short of some factors' productivities (labor or capital productivity), the MFP fluctuation rate also reveals effects of technical advancement, improved production efficiency, improved management capability, and structural transitions (effects not from the quantity of factors inputs variations) on output increments. Base on the law of diminishing returns, increasing inputs of factors without further technical improvements will lead to the gradual decreasing of output increment rate, The increase of multifactor productivity is thus not only helpful on lowering the production costs but also in continuing economic development, stabilizing domestic price index, and raising domestic living standards, Therefore, to effectively improve productivity has become a primary goal of industry policies for all countries.

In compiling multifactor productivity statistics, if the input includes labor and capital only, the input includes not only labor and capital but energy and intermediate inputs, the corresponding output shall be the total output. The multifactor productivity statistics could be used for the following purposes;

- (1) to gain understanding of the efficiency in utilization of each input resource and the change in such efficiency;
- (2) to explore the substitute effect of different production factors;
- (3) to analyze the sources of economic growth;
- (4) to draw up policy concerning resource allocation;
- (5) to serve as a base for drawing up long-term industrial development strategy.

This report measures multifactor productivity and totalfactor productivity by different sort of outputs and inputs. Multifactor productivity was combined labor input and capital input with real GDP, Totalfactor productivity was combined labor input, capital input, energy input, material input and service input with real gross output. Multifactor productivity and totalfactor productivity indices are calculated for the four component divisions of both industrial and service sectors, the industrial sector including mining & quarrying, manufacturing, electricity &

gas supply, water supply & remediation services, and construction; the service sector including wholesale & retail trade, transportation & storage, accommodation & food services, information & communication, finance & insurance, real estate, professional, scientific & technical services, support services, human health services, art, entertainment & recreation, and other services.

As the report was drawn up in a short time, errors and omissions may be unavoidable, Therefore, we would appreciate it if readers could inform us of any corrections which need to be made in order to pursue improvement in this series of statistics. Relevant important terms are listed in the following chart:

| <b>Term</b>                      | <b>Explanation</b>                                                                                                                                                                                                                                                                                                                                                                                 | <b>Main Applications</b>                                                                                                                                                                                                     |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.Capital Productivity           | The ratio of real GDP against fixed capital stock                                                                                                                                                                                                                                                                                                                                                  | a. Observing changes in capital efficiency<br>b. Observing changes in capital intensiveness of industries                                                                                                                    |
| 2.Labor Productivity             | The ratio of real GDP against employee work hours                                                                                                                                                                                                                                                                                                                                                  | a. Observing changes in labor efficiency<br>b. Indicator of potential economic output value                                                                                                                                  |
| 3.Multifactor Productivity (MFP) | It is the ratio between real GDP and the two production factors of employee work hours and fixed capital stock. Its increase rate is the rate after deducting weighted employee work hours and the increase rate of fixed capital stock from the increase rate of real GDP.                                                                                                                        | a. Analysis on sources of economic growth<br>b. Observation on effects of allocation of resources<br>c. Observation on changes of input efficiency<br>d. Observation on indicator of changes of competitiveness of a country |
| 4.Totalfactor Productivity (TFP) | It is the ratio between real total output value and inputs of the five factors of employee work hours, fixed capital stock, energy, raw materials, and corporate service. Its increase rate is the rate after deducting the increase rate of inputs of weighted employee work hours, fixed capital stock, energy, raw materials and corporate service from the increase rate of real output value. | a. Observation on effects of allocation of resources<br>b. Observation on technological level of a country<br>c. Observation on changes of input efficiency                                                                  |
| 5.Total Output Value             | Total output value is value of production calculated with sales prices of goods and services.                                                                                                                                                                                                                                                                                                      | Observation on scales of output of various industries and industrial structure                                                                                                                                               |
| 6.Gross Domestic Product (GDP)   | Total output value can only represent the value of goods. It can not represent the value of production process. If intermediate consumption is deducted from total output value, it becomes gross output value. For example, when a cloth factory makes cloth from yarn, the value thus raised is gross output value, which is also called value-added.                                            | Indicator of economic growth of a country and creation of value-added of various industries                                                                                                                                  |



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# 壹、提要分析

I、SUMMARY ANALYSIS

## 提要分析

生產力主要是用來觀察生產單位在一定期間內的產出是用多少投入來生產，致力的目標是如何使用最少的投入生產相同的產出水準或者以相同的投入生產更多的產出，以促使產出增加幅度大於投入增加幅度，達到生產力成長之目標。生產力依投入要素種類又分為單要素生產力與複要素生產力，前者如勞動生產力與資本生產力，後者如多因素生產力(Multifactor Productivity，簡稱 MFP)、總要素生產力(Totalfactor Productivity，簡稱 TFP)。由於單要素生產力只能觀察單一投入與產出之關係，忽略了其他投入要素對產出之影響，如勞動生產力僅表現產出與勞動投入之關係，其變化係反映產出之增長排除勞動投入量增加之部分，因此勞動生產力之成長包含資本投入貢獻之因素，以致應用上受到侷限，而 MFP 或 TFP 可表現產出與其使用複合投入間之關係，較能明確反映投入與產出之變化，並可完整分析經濟成長的來源或產出成長之因子。

MFP 為實質 GDP 相對於原始要素(含勞動及資本)投入之比例，因投入部分已將對產出有貢獻之所有實體投入考慮進來，其成長表示產出之增幅超過原始要素投入之部分，可由勞動與資本投入要素變動之外的其他因子來解釋，如技術變遷、經營管理能力改善、投入品質與生產效率提升、規模報酬、產業結構改變、資源重分配等，而這些因素又可稱之為生產力成長因素。一國經濟之成長，雖可透過投入增加來促進，若經濟過度依賴要素投入之擴增，而無 MFP 之增進，在生產資源有限情況下，未來經濟成長將受到侷限。由於我國天然資源貧乏，內需市場規模較小，經濟成長多賴外貿擴充，尤以目前面臨國際化、全球化潮流下，受國際景氣瞬息萬變影響，高度投資並不能確保高獲利，未來經濟成長之動能勢將更依賴 MFP 之提升。TFP 為觀察實質生產總額與總合要素投入(含勞動、資本與能源、原材料、服務等中間投入)間之關係，與 MFP 之差別在於 MFP 係衡量附加價值與原始投入之關係，TFP 除可觀察勞動、資本運用效率外，可進一步了解中間投入對生產總額之影響。

為觀察國內產業之 MFP 與 TFP 變動趨勢，茲根據前述說明，將二者之涵義以公式表示如下：

(1)  $MFP = (\text{實質國內生產毛額指數} / L \text{ 與 } K \text{ 組成之總合投入指數}) * 100$ ，其中 L 表勞動

投入，K 表資本投入。

(2) MFP 變動率＝實質國內生產毛額變動率－L 與 K 組成之總合投入變動率

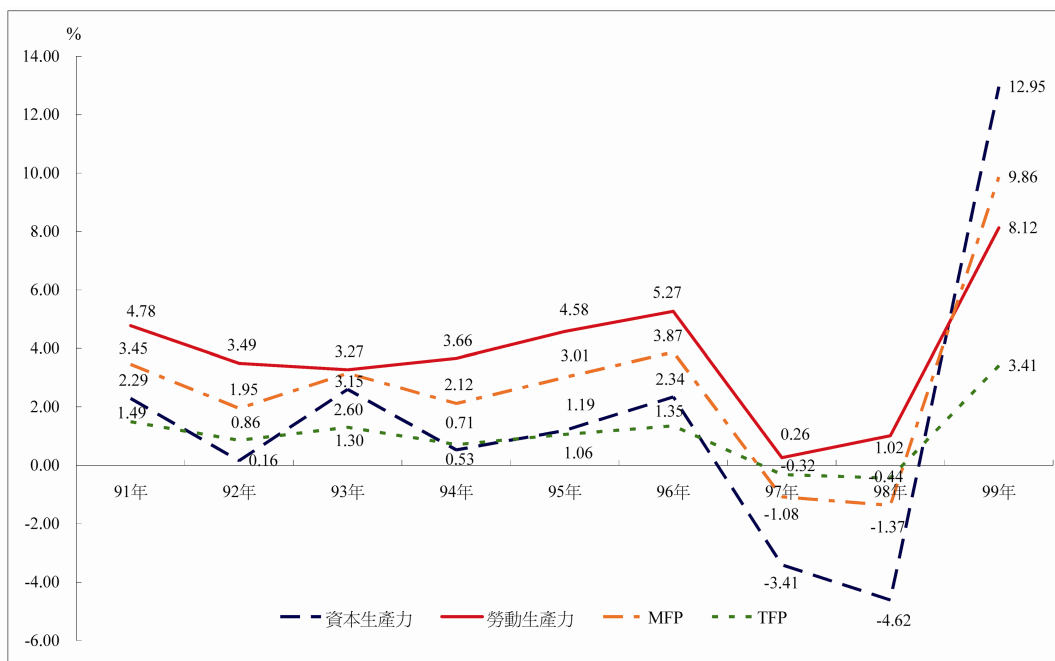
(3)  $TFP = (\text{實質國內生產總額指數} / L、K、E、M、S \text{ 組成之總合投入指數}) * 100$ ，其中 E 表能源投入，M 表原材料投入、S 表企業服務投入。

(4) TFP 變動率＝實質國內生產總額變動率－L、K、E、M、S 組成之總合投入變動率

### 一、多因素生產力及總要素生產力之變動

99 年全球景氣復甦，亞洲新興國家經濟維持擴張，國內經濟在輸出及民間部門需求帶動下，各項經濟指標明顯好轉，全年經濟成長率呈 10.72% 之大幅成長，多因素及總要素生產力之表現均較往年為佳。

圖 1 工業及服務業各要素生產力變動趨勢



▲多因素生產力成長 9.86%：除了生產投入量增加之外，凡能增進生產力成長之因素均歸入 MFP 成長之範疇，99 年景氣擺脫連續兩年下滑及停滯狀態，帶動設備利用率與勞動投入效率提升，工業及服務業實質生產毛額成長 12.88%，超過勞動、資本要素總合投入之成長 3.02%，致 MFP 較上(98)年成長 9.86%；若就單要素生產力觀察，固定資本生產力成長 12.95%，而勞動生產力亦成長 8.12%。

▲總要素生產力成長 3.41%：99 年工業及服務業實質生產總額(實質 GDP 加實質中間投入)成長 16.20%，而除勞動、資本外，加計能源、原材料及企業服務等中間投入後之總合投入成長 12.79%，致 TFP 較上年成長 3.41%。

## 二、部門別各生產力之變動

▲工業部門資本生產力、勞動生產力分別成長 26.42%、14.97%，MFP 成長 18.19%。

99 年工業部門實質 GDP 較上年成長 23.01%，因實質固定資本存量淨額增加 2.34%，以總投入工時表現之勞動投入亦增加 6.99%，致固定資本生產力與勞動生產力分別成長 26.42%、14.97%；而資本、勞動兩要素之總合投入成長 4.82%，致 MFP 較上年成長 18.19%；99 年工業部門實質生產總額成長 21.80%，五要素總合投入亦增 17.69%，致 TFP 成長 4.12%，低於 MFP 之增幅。

▲服務業部門各要素生產力均呈成長，MFP 成長率 4.12%高於 TFP 之 2.53%。

99 年服務業部門之實質 GDP 較上年成長 5.88%，各項投入中，因實質固定資本存量淨額較上年增加 1.02%，致固定資本生產力成長 5.23%，而就業投入總工時增加 2.55%，致勞動生產力上升 3.24%；MFP 受實質 GDP 增幅大於資本、勞動總合投入之增幅 1.76%影響，致較上年成長 4.12%；而 TFP 因服務業部門實質生產總額成長 6.58%，五要素之總合投入亦增 4.05%影響，致較上年成長 2.53%。

▲製造業 MFP 成長 20.11%，係受產能提升所致。

99 年製造業實質 GDP 較上年成長 25.38%，各項投入中，因投資金額未隨景氣好轉而明顯增加，實質固定資本存量淨額僅較上年增加 2.54%，致固定資本生產力上升 28.90%，而就業投入總工時在廠商隨景氣復甦充分運用人數及工時下，較上年增加 8.30%，致勞動生產力呈 15.77%之成長；MFP 受資本、勞動總合投入增加 5.27%，遠不及實質 GDP 之增幅影響，較上年成長 20.11%，主要係產能提升所致；另製造業 TFP 受實質生產總額成長 23.33%，五要素之總合投入亦增 19.07%影響，致呈 4.26%之成長。

表 1 工業及服務業各要素生產力

指數基期：民國 95 年=100

單位：%

| 項 目 別  | 多因素生產力 (MFP) |       | 固定資本生產力 |       | 勞動生產力 (每小時勞動產出) |       | 總要素生產力 (TFP) |       |
|--------|--------------|-------|---------|-------|-----------------|-------|--------------|-------|
|        | 指數           | 年增率   | 指數      | 年增率   | 指數              | 年增率   | 指數           | 年增率   |
| 91 年   |              |       |         |       |                 |       |              |       |
| 工業及服務業 | 90.40        | 3.45  | 95.65   | 2.29  | 86.31           | 4.78  | 96.16        | 1.49  |
| 工業部門   | 87.89        | 7.89  | 97.83   | 5.70  | 80.39           | 10.78 | 97.27        | 1.83  |
| 製造業    | 86.67        | 7.84  | 98.44   | 6.53  | 75.48           | 10.87 | 97.08        | 1.70  |
| 服務業部門  | 91.46        | 0.99  | 92.95   | 0.85  | 90.37           | 1.11  | 94.52        | 0.64  |
| 92 年   |              |       |         |       |                 |       |              |       |
| 工業及服務業 | 92.17        | 1.95  | 95.80   | 0.16  | 89.32           | 3.49  | 96.99        | 0.86  |
| 工業部門   | 91.99        | 4.67  | 99.91   | 2.12  | 86.11           | 7.12  | 98.32        | 1.07  |
| 製造業    | 91.69        | 5.80  | 102.23  | 3.85  | 81.91           | 8.52  | 98.31        | 1.27  |
| 服務業部門  | 91.80        | 0.37  | 92.30   | -0.69 | 91.49           | 1.24  | 94.74        | 0.24  |
| 93 年   |              |       |         |       |                 |       |              |       |
| 工業及服務業 | 95.07        | 3.15  | 98.29   | 2.60  | 92.24           | 3.27  | 98.25        | 1.30  |
| 工業部門   | 95.27        | 3.56  | 101.82  | 1.91  | 90.12           | 4.66  | 99.15        | 0.85  |
| 製造業    | 94.77        | 3.35  | 103.12  | 0.87  | 86.53           | 5.64  | 99.06        | 0.77  |
| 服務業部門  | 94.55        | 3.00  | 95.36   | 3.31  | 93.71           | 2.43  | 96.54        | 1.90  |
| 94 年   |              |       |         |       |                 |       |              |       |
| 工業及服務業 | 97.08        | 2.12  | 98.82   | 0.53  | 95.62           | 3.66  | 98.95        | 0.71  |
| 工業部門   | 96.87        | 1.68  | 100.34  | -1.46 | 94.21           | 4.54  | 99.38        | 0.23  |
| 製造業    | 96.53        | 1.86  | 100.57  | -2.47 | 92.47           | 6.86  | 99.31        | 0.24  |
| 服務業部門  | 97.00        | 2.58  | 97.44   | 2.18  | 96.61           | 3.09  | 98.10        | 1.62  |
| 95 年   |              |       |         |       |                 |       |              |       |
| 工業及服務業 | 100.00       | 3.01  | 100.00  | 1.19  | 100.00          | 4.58  | 100.00       | 1.06  |
| 工業部門   | 100.00       | 3.23  | 100.00  | -0.34 | 100.00          | 6.15  | 100.00       | 0.63  |
| 製造業    | 100.00       | 3.60  | 100.00  | -0.57 | 100.00          | 8.14  | 100.00       | 0.70  |
| 服務業部門  | 100.00       | 3.10  | 100.00  | 2.63  | 100.00          | 3.51  | 100.00       | 1.94  |
| 96 年   |              |       |         |       |                 |       |              |       |
| 工業及服務業 | 103.87       | 3.87  | 102.34  | 2.34  | 105.27          | 5.27  | 101.35       | 1.35  |
| 工業部門   | 104.09       | 4.09  | 100.91  | 0.91  | 106.73          | 6.73  | 100.83       | 0.83  |
| 製造業    | 103.66       | 3.66  | 100.28  | 0.28  | 107.38          | 7.38  | 100.76       | 0.76  |
| 服務業部門  | 104.05       | 4.05  | 103.93  | 3.93  | 104.28          | 4.28  | 102.51       | 2.51  |
| 97 年   |              |       |         |       |                 |       |              |       |
| 工業及服務業 | 102.75       | -1.08 | 98.85   | -3.41 | 105.54          | 0.26  | 101.03       | -0.32 |
| 工業部門   | 101.66       | -2.34 | 93.17   | -7.67 | 107.06          | 0.31  | 100.36       | -0.46 |
| 製造業    | 101.05       | -2.52 | 92.69   | -7.57 | 108.46          | 1.01  | 100.37       | -0.39 |
| 服務業部門  | 104.32       | 0.26  | 103.93  | 0.00  | 104.48          | 0.19  | 102.69       | 0.18  |
| 98 年   |              |       |         |       |                 |       |              |       |
| 工業及服務業 | 101.34       | -1.37 | 94.29   | -4.62 | 106.61          | 1.02  | 100.58       | -0.44 |
| 工業部門   | 100.26       | -1.38 | 85.44   | -8.30 | 109.54          | 2.32  | 100.06       | -0.30 |
| 製造業    | 98.89        | -2.13 | 85.01   | -8.28 | 110.84          | 2.19  | 100.03       | -0.34 |
| 服務業部門  | 103.22       | -1.06 | 101.68  | -2.16 | 104.50          | 0.02  | 102.03       | -0.65 |
| 99 年   |              |       |         |       |                 |       |              |       |
| 工業及服務業 | 111.33       | 9.86  | 106.50  | 12.95 | 115.27          | 8.12  | 104.02       | 3.41  |
| 工業部門   | 118.49       | 18.19 | 108.01  | 26.42 | 125.94          | 14.97 | 104.18       | 4.12  |
| 製造業    | 118.78       | 20.11 | 109.58  | 28.90 | 128.32          | 15.77 | 104.29       | 4.26  |
| 服務業部門  | 107.47       | 4.12  | 107.00  | 5.23  | 107.89          | 3.24  | 104.61       | 2.53  |

註：1.固定資本生產力指固定資本淨生產力=(實質國內生產淨額/實質固定資本存量淨額)\*100

2.多因素生產力其投入僅含勞動、資本兩項生產因素，其成長率為勞動與資本生產力成長率的加權平均，即： $MFP = \bar{S}_L(\dot{Q}/Q - \dot{H}/H) + \bar{S}_K(\dot{Q}/Q - \dot{K}/K)$ ；其中  $\dot{Q}/Q$  表實質 GDP 成長率， $MFP$  表多因素生產力成長率， $\dot{K}/K$  表實質固定資本存量淨額成長率， $\dot{H}/H$  表就業投入總工時成長率， $\bar{S}_L$ 、 $\bar{S}_K$  則分別表當期與前期勞動與資本投入份額平均值。

3.總要素生產力含勞動、資本、能源、原材料、企業服務等生產力成長因素。

4.固定資本不含土地。

5.本表資料係根據新版國民經濟會計制度(93SNA)編布。

表 2 工業及服務業總要素生產力與投入要素之年增率

單位：%

| 項 目  | 工業及服務業 |          |       | 工業部門   |          |       | 製造業    |          |       | 服務業部門  |          |       |
|------|--------|----------|-------|--------|----------|-------|--------|----------|-------|--------|----------|-------|
|      | 實質生產總額 | 五要素總投入指數 | TFP   | 實質生產總額 | 五要素總投入指數 | TFP   | 實質生產總額 | 五要素總投入指數 | TFP   | 實質生產總額 | 五要素總投入指數 | TFP   |
| 91 年 | 6.07   | 4.58     | 1.49  | 7.60   | 5.78     | 1.83  | 8.11   | 6.41     | 1.70  | 3.46   | 2.82     | 0.64  |
| 92 年 | 4.77   | 3.91     | 0.86  | 6.13   | 5.06     | 1.07  | 7.34   | 6.08     | 1.27  | 2.35   | 2.10     | 0.24  |
| 93 年 | 8.55   | 7.26     | 1.30  | 9.56   | 8.71     | 0.85  | 9.95   | 9.18     | 0.77  | 6.67   | 4.78     | 1.90  |
| 94 年 | 3.99   | 3.27     | 0.71  | 3.63   | 3.41     | 0.23  | 3.89   | 3.64     | 0.24  | 4.66   | 3.05     | 1.62  |
| 95 年 | 4.55   | 3.49     | 1.06  | 4.53   | 3.90     | 0.63  | 4.85   | 4.16     | 0.70  | 4.59   | 2.65     | 1.94  |
| 96 年 | 5.63   | 4.28     | 1.35  | 6.07   | 5.24     | 0.83  | 6.56   | 5.80     | 0.76  | 4.80   | 2.29     | 2.51  |
| 97 年 | -1.93  | -1.61    | -0.32 | -3.26  | -2.79    | -0.46 | -3.13  | -2.74    | -0.39 | 0.61   | 0.43     | 0.18  |
| 98 年 | -5.21  | -4.77    | -0.44 | -7.30  | -7.00    | -0.30 | -7.44  | -7.10    | -0.34 | -1.38  | -0.73    | -0.65 |
| 99 年 | 16.20  | 12.79    | 3.41  | 21.80  | 17.69    | 4.12  | 23.33  | 19.07    | 4.26  | 6.58   | 4.05     | 2.53  |

註：五要素總投入指數為勞動、資本、原材料、能源及企業服務五種投入之加權組合投入指數。

### 三、實質國內生產毛額之成長來源

觀察 GDP 成長之供給面來源，有來自生產力提高與要素投入量增加之貢獻，依成長會計模式，可將生產力與要素投入對 GDP 之影響效果分離出來，據此可了解我國經濟發展過程中，生產力與要素投入所扮演之角色。

**▲99 年工業及服務業實質 GDP 成長 12.88%，來自 MFP 成長之貢獻率達 76.5%。**

99 年工業及服務業實質 GDP 成長 12.88%，係分別來自資本、勞動投入量之增加及 MFP 之成長，其中資本投入增加對實質 GDP 成長之貢獻率為 6.4%，勞動投入增加對實質 GDP 成長之貢獻率為 17.1%，而 MFP 之成長除了技術進步因子、投入品質改善外，尚有易受景氣波動影響之要素投入運用效率之因素，99 年 MFP 呈現 9.86%之成長，對實質 GDP 成長之貢獻率達 76.5%，即主要受要素投入運用效率提升所致。

**▲90 年代後期工業及服務業實質 GDP 之成長不及前期，且後期主要依賴 MFP 之成長。**

將民國 90 年代區分為 91-95 年與 96-99 年兩階段觀察，前階段工業及服務業實質 GDP 平均每年成長 5.92%，高於後階段之 4.56%，因前階段產出尚可以不斷投資來創

造，就業投入工時亦緩步增加，資本與勞動投入量增加之貢獻度分別為 2.22%、0.97%，兩者合計對實質 GDP 成長率貢獻度為 3.19%，貢獻率達 53.8%，而 MFP 平均成長率 2.74%，對當期實質 GDP 成長之貢獻率為 46.2%。至於後期實質 GDP 之成長受限於資本與勞動投入量增加不及前期，其貢獻度分別為 1.35%、0.39%，較前期共計減 1.45 個百分點，惟 MFP 平均每年成長 2.82%，對當期實質 GDP 之成長貢獻率達 61.8%，顯示 90 年代後期實質 GDP 成長係依賴 MFP 之提升。就 91-99 年全期間觀察，實質 GDP 平均每年成長 5.32%，其中 52.2%係來自 MFP 之成長，貢獻度為 2.77%，34.5%來自資本投入量之增加，貢獻度為 1.84%，僅 13.3%來自勞動投入量之增加，貢獻度為 0.71%。

表 3 工業及服務業實質 GDP 成長之來源分配

單位：%

| 項目      | 成長率    |                    |          |          |       | 對實質 GDP 成長之貢獻 |         |        |        |        |          |
|---------|--------|--------------------|----------|----------|-------|---------------|---------|--------|--------|--------|----------|
|         | 實質 GDP | 資本、勞動              |          |          | MFP   | 資本投入增加        |         | 勞動投入增加 |        | MFP 變動 |          |
|         |        | 總投入<br>(Tornqvist) | 資本<br>投入 | 勞動<br>投入 |       | 貢獻度           | 貢獻率     | 貢獻度    | 貢獻率    | 貢獻度    | 貢獻率      |
| 91 年    | 5.89   | 2.43               | 3.95     | 1.06     | 3.45  | 1.88          | (31.9)  | 0.56   | (9.5)  | 3.45   | (58.6)   |
| 92 年    | 4.25   | 2.30               | 3.90     | 0.73     | 1.95  | 1.92          | (45.3)  | 0.37   | (8.8)  | 1.95   | (46.0)   |
| 93 年    | 7.48   | 4.33               | 4.59     | 4.07     | 3.15  | 2.27          | (30.4)  | 2.06   | (27.5) | 3.15   | (42.1)   |
| 94 年    | 5.65   | 3.53               | 5.18     | 1.92     | 2.12  | 2.56          | (45.3)  | 0.97   | (17.2) | 2.12   | (37.5)   |
| 95 年    | 6.36   | 3.35               | 5.09     | 1.70     | 3.01  | 2.48          | (39.0)  | 0.87   | (13.7) | 3.01   | (47.3)   |
| 96 年    | 6.95   | 3.08               | 4.63     | 1.60     | 3.87  | 2.27          | (32.6)  | 0.82   | (11.7) | 3.87   | (55.7)   |
| 97 年    | 0.79   | 1.87               | 3.31     | 0.53     | -1.08 | 1.60          | (201.6) | 0.28   | (34.7) | -1.08  | (-136.3) |
| 98 年    | -2.38  | -1.01              | 1.52     | -3.36    | -1.37 | 0.73          | (-30.7) | -1.74  | (73.3) | -1.37  | (57.4)   |
| 99 年    | 12.88  | 3.02               | 1.64     | 4.40     | 9.86  | 0.82          | (6.4)   | 2.20   | (17.1) | 9.86   | (76.5)   |
| 91-95 年 | 5.92   | 3.19               | 4.54     | 1.90     | 2.74  | 2.22          | (37.5)  | 0.97   | (16.3) | 2.74   | (46.2)   |
| 96-99 年 | 4.56   | 1.74               | 2.77     | 0.79     | 2.82  | 1.35          | (29.7)  | 0.39   | (8.5)  | 2.82   | (61.8)   |
| 91-99 年 | 5.32   | 2.54               | 3.76     | 1.41     | 2.77  | 1.84          | (34.5)  | 0.71   | (13.3) | 2.77   | (52.2)   |

註：1.根據成長會計方法，可將實質 GDP 之成長分解成多因素生產力與資本、勞動要素投入成長率之和，即：

$\dot{Q}/Q = \dot{MFP} + \bar{S}_K(\dot{K}/K) + \bar{S}_L(\dot{H}/H)$ ；其中  $\dot{Q}/Q$  表實質 GDP 成長率， $\dot{MFP}$  表多因素生產力成長率， $\dot{K}/K$  表實質固定資本存量淨額成長率， $\dot{H}/H$  表就業投入總工時成長率， $\bar{S}_L$ 、 $\bar{S}_K$  則分別表當期與前期勞動與資本投入份額平均值。

2.貢獻度係指各項指標成長率乘以各指標所占權重，故各指標貢獻度之和等於實質 GDP 成長率；貢獻率係以實質 GDP 成長率為分母，各項指標成長率乘以各指標所占權重為分子所計算之結果，故各項指標成長貢獻率之和等於 100%。

3.本表資料係根據新版國民經濟會計制度(93SNA)編布。

圖 2 工業及服務業實質 GDP 成長來源變動趨勢

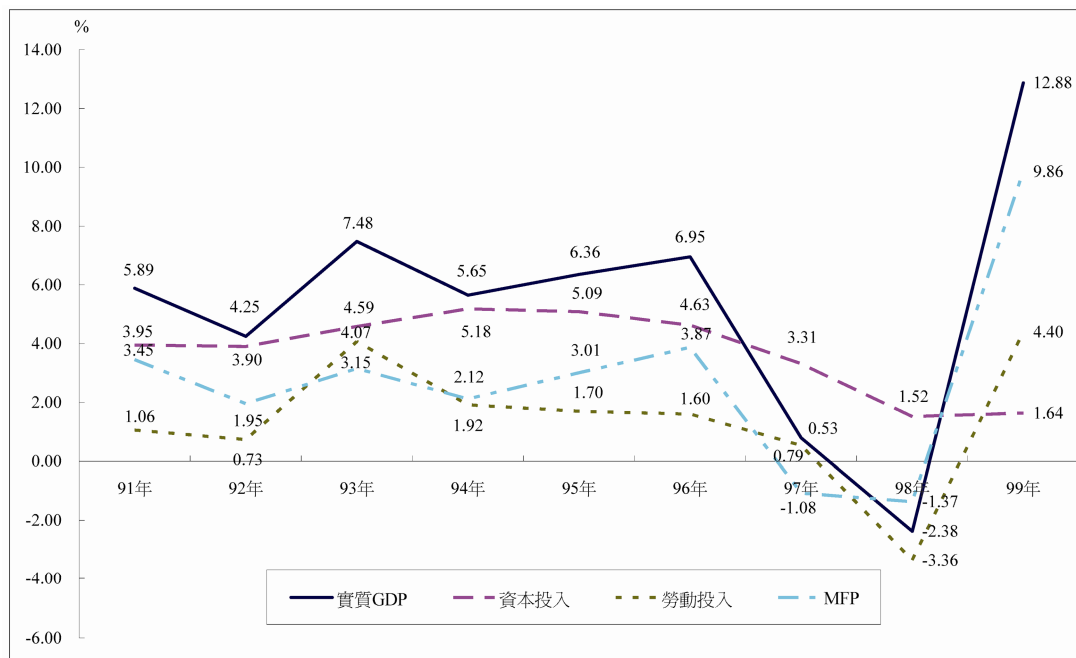
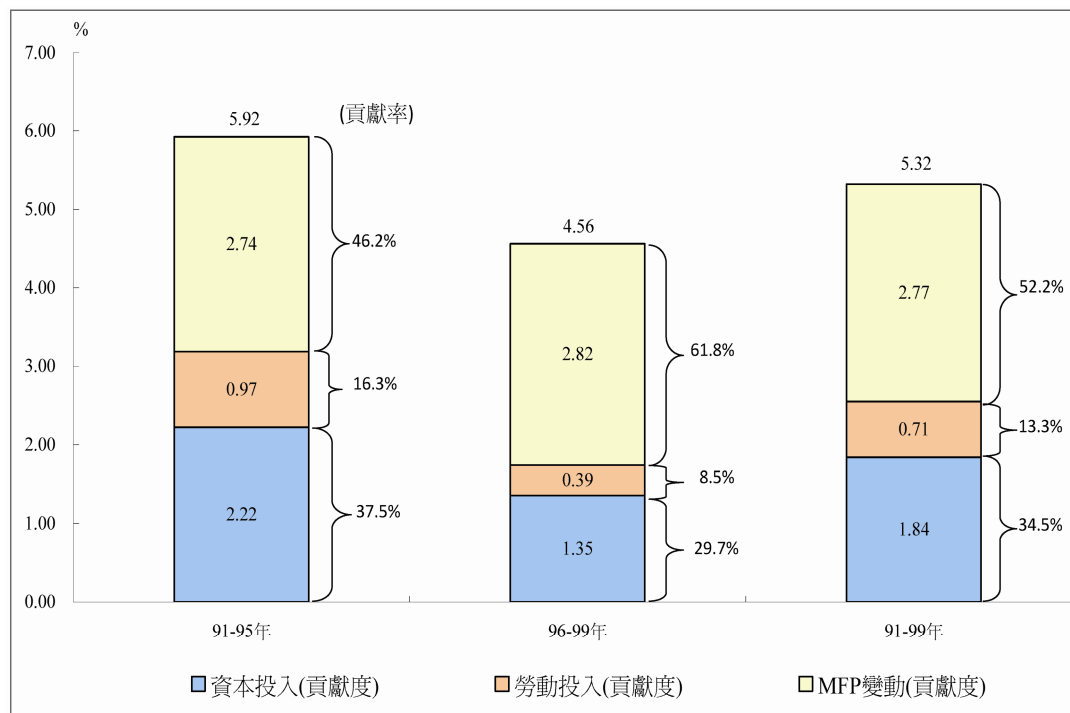


圖 3 工業及服務業實質 GDP 成長來源貢獻度及貢獻率



## Summary Analysis

Productivity is a measure of production output to the required input in a certain period; its goal is to achieve certain production output with minimum input or achieve maximum production output with the same level of input, so as to facilitate greater level of increase in production output than input and achieve productivity growth. Productivity, according to the type of factors, can be differentiated into Single-Factor Productivity (SFP) and Multiple-Factor Productivity; the former includes Labor Productivity and Capital Productivity, while the latter includes Multifactor Productivity (MFP) and Total-factor Productivity (TFP). Single Factor Productivity measures only the relationship between output and input without taking other input factors into consideration; for instance, labor productivity provides a measure of the efficiency with which inputs are used to provide output, and it reflects output growth while excluding the increase of workforce, therefore, the growth of labor productivity includes capital contribution and limits its application. On the other hand, MFP or TFP measures the relation between output and variable input factors; it provides a better view to the variation of input and output and a more comprehensive analysis of the source of economic growth and output growth factors.

MFP is the ratio of real GDP to original factor input (including labor and capital). As the input factors have included all real input factors that made contribution to output, its growth indicates that output growth exceeding primary factor input can be explained by other factors excluding the change of labor and capital input, such as innovation of technology, improvement of management ability, improvement of input quality and production efficiency, returns to scale, change of industry structure, re-allocation of resources, etc.; these factors are categorized as growth factors of productivity. Though national productivity growth can be achieved through increasing input factors, however, when an economy relies heavily on the expansion of input factors without improving MFP, under limited productivity resources, the prospect of future economic growth will then be limited. With scarce natural resources and a small domestic market, Taiwan's economic growth relies heavily on foreign trade. In the face of internationalization and globalization, the global economy is easily affected by any single factor, which leads us to realize that a high level of investment does not guarantee a high level of profit. The dynamic of future economic growth will be driven by MFP. TFP measures the relationship between real GDP and total factor inputs (including labor, capital and intermediate input such as energy, non-energy material and services). In terms of differences between MFP and TFP, MFP measures the relationship between added value and original input, while TFP measures the efficiency of labor and capital, and further allows us to understand the impact of intermediate input to total output value.

To observe the trend of MFP and TFP in Taiwan, both are represented in a formula in accordance with the aforementioned description:

- (1)  $MFP = (\text{Real GDP index} / \text{Total input index composed of L and K}) * 100$ . L represents labor input, K represents capital input.

(10)

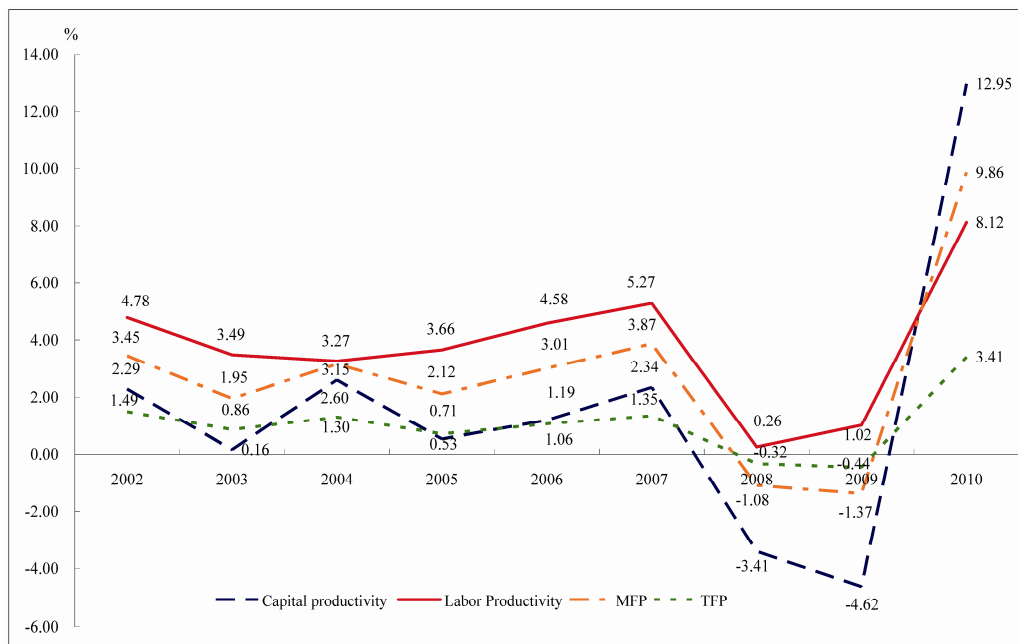
- (2) Rate of change of MFP = Rate of change of real GDP - Rate of Change of Total Input of composed L and K.
- (3) TFP = (Real GDP index/Total input index composed of L, K, E, M, S)\*100. E represents energy input, M represents input of non-energy material, S represents corporate service input.
- (4) Rate of change of TFP = Rate of change of real GDP – Rate of change of total input composed of L, K, E, M, S.

## 1. Change of MFP and TFP

The global economy started to recover in 2010. Emerging economies in Asia maintained their expansion trend, led by demand in the export and private sector. The economic indicators of the domestic economy have improved remarkably, and a substantial growth of 10.72% of the annual economic growth is seen. The performance of MFP and TPF is better than in previous years.

**▲MFP recorded 9.86% growth:** In addition to the increase of productivity input, any factor that may enhance production growth is included in the scope of MFP growth. The year of 2010 has moved away from the downward and stagnation trend of the previous years, driven by the improvement of efficiency in equipment utilization and labor input efficiency. The real GDP of the industrial and service sector increased by 12.88%, which exceeded the 3.02% of total input growth of labor and capital, allowing MFP to rise by 9.86% compared to 2009. If SPF is observed, fixed capital productivity increased by 12.95%, while labor productivity increased by 8.12%.

**Figure 1 The trends of factors Productivity in Industrial and Service Sectors**



**▲ TFP recorded 3.41% growth:** The real GDP of the industrial and service factor (real GDP and real intermediate input) increased by 16.20% in 2010, while in addition to labor and capital, if intermediate input including energy, material and corporate service is taken into consideration, the total input increased by 12.79%, and TFP increased by 3.41% compared to the previous year.

## **2. Change of productivity in each sector**

**▲ Capital productivity and labor productivity of industrial sector recorded 26.42% and 14.97% growth respectively, while MFP recorded 18.19% growth.**

The real GDP of the industrial sector rose 23.01% in 2010 compared to the previous year, as real net fixed capital stock increased by 2.34%. The labor input measured by total working hours followed the same direction; it rose 6.99%, and the resulting fixed capital productivity and labor productivity rose 26.42% and 14.97% respectively. MFP rose 18.19%, affected by 4.82% increase in capital and labor productivity. TFP followed MFP with a lesser result, recording 4.12% growth as the real gross output of the industrial sector rose 21.80% while total input of the five factors rose 17.69%.

**▲ Factor productivities of service sector experienced upward growth; MFP showed better performance than TFP, rising 4.12% and 2.53% respectively.**

Real GDP of the service sector rose 5.88% in 2010 compared to the previous year. Of all input factors, fixed capital productivity rose 5.23%, affected by 1.02% growth of real net fixed capital stock compared to the previous year. Labor productivity rose 3.24%, affected by 2.55% increase in total working hours. MFP rose 4.12% compared to the previous year due to greater increase of GDP than the 1.76% increase of capital and labor. TFP showed 2.53% increase over the previous year as the real output of the service sector rose 6.58% and gross input of the five factors rose 4.05%.

**▲ MFP of manufacturing sector rose 20.11%, affected by increase of productivity**

Real GDP of the manufacturing sector rose 25.38% in 2010 compared to the previous year. Of all inputs, as investment did not follow the same trend as the recovery, real net fixed capital stock performed slightly better than the previous year, with 2.54% growth. Fixed capital productivity increased 28.90%. Total working hours increased 8.30% compared to the previous year as the result of manufacturers making full use of labor and working hours. Labor productivity recorded 15.77% growth. Affected by 5.27% increase of total input (capital and labor) and by greater increase of GDP, the increase of productivity allowed MFP to rise 20.11% compared to the year before. Affected by 23.33% increase of gross real productivity and 19.07% increase of total input of the five factors, TFP of the manufacturing sector recorded 4.26% growth.

**Table 1 Factors Productivity in Industry and Service Sectors**

Base : 2006=100

Unit: %

| Items              | Multi Factor Productivity (MFP) |                       | Fixed Capital Productivity |                       | Labor Productivity (Labor output per hour) |                       | Total Factor Productivity(TFP) |                       |
|--------------------|---------------------------------|-----------------------|----------------------------|-----------------------|--------------------------------------------|-----------------------|--------------------------------|-----------------------|
|                    | Index                           | Annual rate of change | Index                      | Annual rate of change | Index                                      | Annual rate of change | Index                          | Annual rate of change |
| 2002               |                                 |                       |                            |                       |                                            |                       |                                |                       |
| Industry & service | 90.40                           | 3.45                  | 95.65                      | 2.29                  | 86.31                                      | 4.78                  | 96.16                          | 1.49                  |
| Industry Sector    | 87.89                           | 7.89                  | 97.83                      | 5.70                  | 80.39                                      | 10.78                 | 97.27                          | 1.83                  |
| Manufacturing      | 86.67                           | 7.84                  | 98.44                      | 6.53                  | 75.48                                      | 10.87                 | 97.08                          | 1.70                  |
| Services Sector    | 91.46                           | 0.99                  | 92.95                      | 0.85                  | 90.37                                      | 1.11                  | 94.52                          | 0.64                  |
| 2003               |                                 |                       |                            |                       |                                            |                       |                                |                       |
| Industry & service | 92.17                           | 1.95                  | 95.80                      | 0.16                  | 89.32                                      | 3.49                  | 96.99                          | 0.86                  |
| Industry Sector    | 91.99                           | 4.67                  | 99.91                      | 2.12                  | 86.11                                      | 7.12                  | 98.32                          | 1.07                  |
| Manufacturing      | 91.69                           | 5.80                  | 102.23                     | 3.85                  | 81.91                                      | 8.52                  | 98.31                          | 1.27                  |
| Services Sector    | 91.80                           | 0.37                  | 92.30                      | -0.69                 | 91.49                                      | 1.24                  | 94.74                          | 0.24                  |
| 2004               |                                 |                       |                            |                       |                                            |                       |                                |                       |
| Industry & service | 95.07                           | 3.15                  | 98.29                      | 2.60                  | 92.24                                      | 3.27                  | 98.25                          | 1.30                  |
| Industry Sector    | 95.27                           | 3.56                  | 101.82                     | 1.91                  | 90.12                                      | 4.66                  | 99.15                          | 0.85                  |
| Manufacturing      | 94.77                           | 3.35                  | 103.12                     | 0.87                  | 86.53                                      | 5.64                  | 99.06                          | 0.77                  |
| Services Sector    | 94.55                           | 3.00                  | 95.36                      | 3.31                  | 93.71                                      | 2.43                  | 96.54                          | 1.90                  |
| 2005               |                                 |                       |                            |                       |                                            |                       |                                |                       |
| Industry & service | 97.08                           | 2.12                  | 98.82                      | 0.53                  | 95.62                                      | 3.66                  | 98.95                          | 0.71                  |
| Industry Sector    | 96.87                           | 1.68                  | 100.34                     | -1.46                 | 94.21                                      | 4.54                  | 99.38                          | 0.23                  |
| Manufacturing      | 96.53                           | 1.86                  | 100.57                     | -2.47                 | 92.47                                      | 6.86                  | 99.31                          | 0.24                  |
| Services Sector    | 97.00                           | 2.58                  | 97.44                      | 2.18                  | 96.61                                      | 3.09                  | 98.10                          | 1.62                  |
| 2006               |                                 |                       |                            |                       |                                            |                       |                                |                       |
| Industry & service | 100.00                          | 3.01                  | 100.00                     | 1.19                  | 100.00                                     | 4.58                  | 100.00                         | 1.06                  |
| Industry Sector    | 100.00                          | 3.23                  | 100.00                     | -0.34                 | 100.00                                     | 6.15                  | 100.00                         | 0.63                  |
| Manufacturing      | 100.00                          | 3.60                  | 100.00                     | -0.57                 | 100.00                                     | 8.14                  | 100.00                         | 0.70                  |
| Services Sector    | 100.00                          | 3.10                  | 100.00                     | 2.63                  | 100.00                                     | 3.51                  | 100.00                         | 1.94                  |
| 2007               |                                 |                       |                            |                       |                                            |                       |                                |                       |
| Industry & service | 103.87                          | 3.87                  | 102.34                     | 2.34                  | 105.27                                     | 5.27                  | 101.35                         | 1.35                  |
| Industry Sector    | 104.09                          | 4.09                  | 100.91                     | 0.91                  | 106.73                                     | 6.73                  | 100.83                         | 0.83                  |
| Manufacturing      | 103.66                          | 3.66                  | 100.28                     | 0.28                  | 107.38                                     | 7.38                  | 100.76                         | 0.76                  |
| Services Sector    | 104.05                          | 4.05                  | 103.93                     | 3.93                  | 104.28                                     | 4.28                  | 102.51                         | 2.51                  |
| 2008               |                                 |                       |                            |                       |                                            |                       |                                |                       |
| Industry & service | 102.75                          | -1.08                 | 98.85                      | -3.41                 | 105.54                                     | 0.26                  | 101.03                         | -0.32                 |
| Industry Sector    | 101.66                          | -2.34                 | 93.17                      | -7.67                 | 107.06                                     | 0.31                  | 100.36                         | -0.46                 |
| Manufacturing      | 101.05                          | -2.52                 | 92.69                      | -7.57                 | 108.46                                     | 1.01                  | 100.37                         | -0.39                 |
| Services Sector    | 104.32                          | 0.26                  | 103.93                     | 0.00                  | 104.48                                     | 0.19                  | 102.69                         | 0.18                  |
| 2009               |                                 |                       |                            |                       |                                            |                       |                                |                       |
| Industry & service | 101.34                          | -1.37                 | 94.29                      | -4.62                 | 106.61                                     | 1.02                  | 100.58                         | -0.44                 |
| Industry Sector    | 100.26                          | -1.38                 | 85.44                      | -8.30                 | 109.54                                     | 2.32                  | 100.06                         | -0.30                 |
| Manufacturing      | 98.89                           | -2.13                 | 85.01                      | -8.28                 | 110.84                                     | 2.19                  | 100.03                         | -0.34                 |
| Services Sector    | 103.22                          | -1.06                 | 101.68                     | -2.16                 | 104.50                                     | 0.02                  | 102.03                         | -0.65                 |
| 2010               |                                 |                       |                            |                       |                                            |                       |                                |                       |
| Industry & service | 111.33                          | 9.86                  | 106.50                     | 12.95                 | 115.27                                     | 8.12                  | 104.02                         | 3.41                  |
| Industry Sector    | 118.49                          | 18.19                 | 108.01                     | 26.42                 | 125.94                                     | 14.97                 | 104.18                         | 4.12                  |
| Manufacturing      | 118.78                          | 20.11                 | 109.58                     | 28.90                 | 128.32                                     | 15.77                 | 104.29                         | 4.26                  |
| Services Sector    | 107.47                          | 4.12                  | 107.00                     | 5.23                  | 107.89                                     | 3.24                  | 104.61                         | 2.53                  |

Note:1. Fixed capital productivity refers to Net Fixed Capital Productivity=(Real Net Domestic Product/Real Net Capital Stock) ×100

2. Inputs of multifactor productivity include only labor and capital. Its growth rate is a weighted average of labor and capital productivity growth rates, namely  $MFP = \bar{S}_L(\dot{Q}/Q - \dot{H}/H) + \bar{S}_K(\dot{Q}/Q - \dot{K}/K)$ , where  $\dot{Q}/Q$  represents real GDP growth rate;  $MFP$  represents multifactor productivity growth rate;  $\dot{K}/K$  represents real net fixed capital stock growth rate;  $\dot{H}/H$  represents total input of work hours growth rate; and  $\bar{S}_L$  and  $\bar{S}_K$  are respectively the average of current period and previous period labor and capital share.

3. Total Factor Productivity includes various factors of labor, capital, energy, commodities and corporate service.

4. Fixed Capital excludes Land.

5. This Table is compiled in accordance with System of National Accounts (93SNA).

**Table 2 Annual Increase Rate of Totalfactor Productivity of Input Factors of Industrial and Service Sectors**

Unit: %

| Items | Industry & service |                          |       | Industry Sector   |                          |       | Manufacturing     |                          |       | Services Sector   |                          |       |
|-------|--------------------|--------------------------|-------|-------------------|--------------------------|-------|-------------------|--------------------------|-------|-------------------|--------------------------|-------|
|       | Real total output  | Total Factor Input index | TFP   | Real total output | Total Factor Input index | TFP   | Real total output | Total Factor Input index | TFP   | Real total output | Total Factor Input index | TFP   |
| 2002  | 6.07               | 4.58                     | 1.49  | 7.60              | 5.78                     | 1.83  | 8.11              | 6.41                     | 1.70  | 3.46              | 2.82                     | 0.64  |
| 2003  | 4.77               | 3.91                     | 0.86  | 6.13              | 5.06                     | 1.07  | 7.34              | 6.08                     | 1.27  | 2.35              | 2.10                     | 0.24  |
| 2004  | 8.55               | 7.26                     | 1.30  | 9.56              | 8.71                     | 0.85  | 9.95              | 9.18                     | 0.77  | 6.67              | 4.78                     | 1.90  |
| 2005  | 3.99               | 3.27                     | 0.71  | 3.63              | 3.41                     | 0.23  | 3.89              | 3.64                     | 0.24  | 4.66              | 3.05                     | 1.62  |
| 2006  | 4.55               | 3.49                     | 1.06  | 4.53              | 3.90                     | 0.63  | 4.85              | 4.16                     | 0.70  | 4.59              | 2.65                     | 1.94  |
| 2007  | 5.63               | 4.28                     | 1.35  | 6.07              | 5.24                     | 0.83  | 6.56              | 5.80                     | 0.76  | 4.80              | 2.29                     | 2.51  |
| 2008  | -1.93              | -1.61                    | -0.32 | -3.26             | -2.79                    | -0.46 | -3.13             | -2.74                    | -0.39 | 0.61              | 0.43                     | 0.18  |
| 2009  | -5.21              | -4.77                    | -0.44 | -7.30             | -7.00                    | -0.30 | -7.44             | -7.10                    | -0.34 | -1.38             | -0.73                    | -0.65 |
| 2010  | 16.20              | 12.79                    | 3.41  | 21.80             | 17.69                    | 4.12  | 23.33             | 19.07                    | 4.26  | 6.58              | 4.05                     | 2.53  |

Note: Total Factor Input index includes weighted indexes of labor, capital, commodities, energy and corporate service.

### 3. Source of real GDP growth

To observe the source of GDP growth, one cannot disregard the contribution of increase of productivity and factor input. If the impact of productivity and input factor to GDP is separated based on the Growth Accounting Approach, one may discover the role that productivity and input factors played in the economic development process in Taiwan.

#### ▲ Real GDP of industrial and service sector increased 12.88% in 2010 with largest contribution sourced from MFP growth at 76.5%.

Inasmuch as there was an increase of capital and labor input and MFP growth, real GDP of the industrial and service sector increased by 12.88% in 2010. Among them, increase in capital input contributed 6.4% and increase in labor input contributed 17.1%. As for the growth of MFP, in addition to technology innovation factors and input quality improvement, factor input efficiency susceptible to economic fluctuation should not be disregarded. MFP showed 9.86% growth in 2010. Its impressive contribution of 76.5% to real GDP growth was triggered by the increase of factor input efficiency.

#### ▲ Real GDP growth of industrial and service sector showed dimmer result in later period of first decade of 21st century compared to earlier period; later period relied heavily on MFP growth

Let's say we draw a line to divide the first decade of 21<sup>st</sup> century into two periods:

2002~2006 as the first period, and 2007~2010 as the second period. Real GDP of the industrial and service sector in the first period was better, 5.92% increase per annum, than the 4.56% increase in the second period. Productivity in the first period can be established through investment, which allowed working hours to move in the same direction; capital and labor contributed 2.22% and 0.97% respectively with a total contribution of 3.19% and contribution rate of 53.8%, while the average MFP growth rate showed 2.74% increase and contribution rate of 46.2% to real GDP. When it comes to the second period, the growth of real GDP was hindered by reduced growth of capital and labor input than the first period, showing a contribution rate of 1.35% and 0.39% respectively, a decrease 1.45%, whereas MFP showed a growth rate of 2.82% and a contribution rate of 61.8%, indicating that real GDP growth in the later period of the first decade was triggered by MFP growth. Observing the period from 2002 to 2010, real GDP increased at the rate of 5.32% per annum, of which, 52.2% was triggered by MFP growth with a contribution rate of 2.77%, 34.5% was triggered by capital input with a contribution rate of 1.84, and 13.3% was triggered by labor input with a contribution rate of 0.71%.

**Table 3 Contributing Factors to real GDP growth in the industry and service sectors**

Unit: %

| Items     | Growth rate |             |               |             |       | Contributions to real GDP |                   |                         |                   |               |                   |
|-----------|-------------|-------------|---------------|-------------|-------|---------------------------|-------------------|-------------------------|-------------------|---------------|-------------------|
|           | Real GDP    | (Tornqvist) | Capital input | Labor input | MFP   | Increase in capital input |                   | Increase in labor input |                   | Change in MFP |                   |
|           |             |             |               |             |       | Contribution              | Contribution rate | Contribution            | Contribution rate | Contribution  | Contribution rate |
| 2002      | 5.89        | 2.43        | 3.95          | 1.06        | 3.45  | 1.88                      | (31.9)            | 0.56                    | (9.5)             | 3.45          | (58.6)            |
| 2003      | 4.25        | 2.30        | 3.90          | 0.73        | 1.95  | 1.92                      | (45.3)            | 0.37                    | (8.8)             | 1.95          | (46.0)            |
| 2004      | 7.48        | 4.33        | 4.59          | 4.07        | 3.15  | 2.27                      | (30.4)            | 2.06                    | (27.5)            | 3.15          | (42.1)            |
| 2005      | 5.65        | 3.53        | 5.18          | 1.92        | 2.12  | 2.56                      | (45.3)            | 0.97                    | (17.2)            | 2.12          | (37.5)            |
| 2006      | 6.36        | 3.35        | 5.09          | 1.70        | 3.01  | 2.48                      | (39.0)            | 0.87                    | (13.7)            | 3.01          | (47.3)            |
| 2007      | 6.95        | 3.08        | 4.63          | 1.60        | 3.87  | 2.27                      | (32.6)            | 0.82                    | (11.7)            | 3.87          | (55.7)            |
| 2008      | 0.79        | 1.87        | 3.31          | 0.53        | -1.08 | 1.60                      | (201.6)           | 0.28                    | (34.7)            | -1.08         | (-136.3)          |
| 2009      | -2.38       | -1.01       | 1.52          | -3.36       | -1.37 | 0.73                      | (-30.7)           | -1.74                   | (73.3)            | -1.37         | (57.4)            |
| 2010      | 12.88       | 3.02        | 1.64          | 4.40        | 9.86  | 0.82                      | (6.4)             | 2.20                    | (17.1)            | 9.86          | (76.5)            |
| 2002-2006 | 5.92        | 3.19        | 4.54          | 1.90        | 2.74  | 2.22                      | (37.5)            | 0.97                    | (16.3)            | 2.74          | (46.2)            |
| 2007-2010 | 4.56        | 1.74        | 2.77          | 0.79        | 2.82  | 1.35                      | (29.7)            | 0.39                    | (8.5)             | 2.82          | (61.8)            |
| 2002-2010 | 5.32        | 2.54        | 3.76          | 1.41        | 2.77  | 1.84                      | (34.5)            | 0.71                    | (13.3)            | 2.77          | (52.2)            |

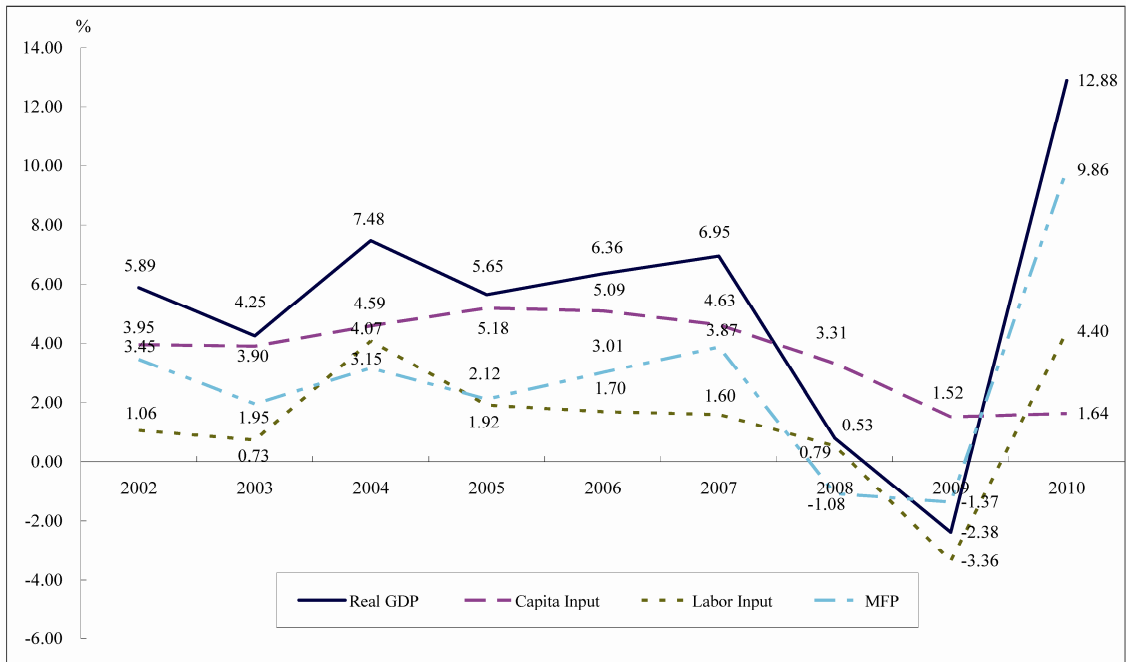
Note: 1. Based on Growth Accounting, real GDP growth can be factorized to the sum of MFP, capital and labor inputs.

That is:  $\dot{Q}/Q = \dot{MFP} + \bar{S}_K(\dot{K}/K) + \bar{S}_L(\dot{H}/H)$ ; in which  $\dot{Q}/Q$  is real GDP growth rate,  $\dot{MFP}$  is MFP growth rate,  $\dot{K}/K$  is growth of net capital stock,  $\dot{H}/H$  is total input of employment labor hours,  $\bar{S}_L$  and  $\bar{S}_K$  indicated the average of labor and capital inputs in current and previous periods.

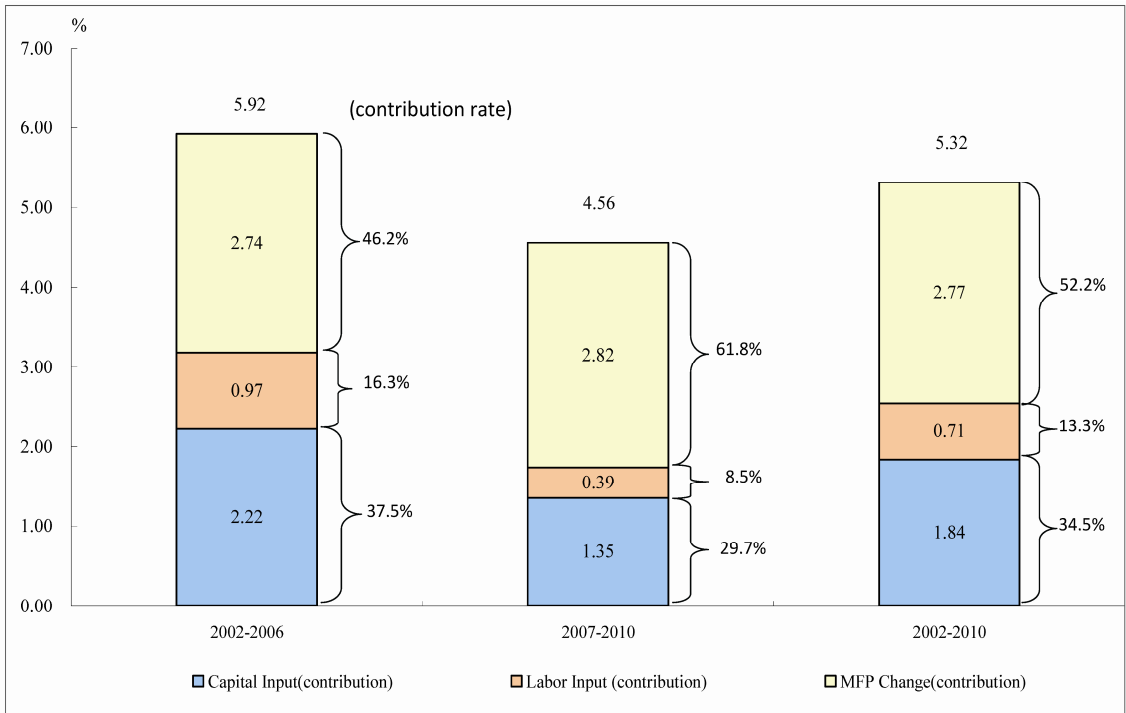
2. Contribution refers to the growth of an indicator multiplied by its weight and the sum of contributions of all indicators equals real GDP growth rate. Contribution rate refers to the growth of an indicator multiplied by its weight and divided by real GDP growth rate. Contribution rates of all indicators equal 100%.

3. This Table is compiled in accordance with System of National Accounts (93SNA).

**Figure 2 Changing Trends on Sources of Real GDP Growth of Industrial-and-Service Sector**



**Figure 3 : Contributing Rate of the Industry and Service Sectors to Real GDP Growth**





# 貳、統計結果表

II、STATISTICAL TABLES

表 1 工業及服務業部門歷年多因素生產力統計結果  
(按 95 年價格計算)

基期：民國 95 年=100

單位：新台幣百萬元；%

| 年 別<br>Year | 實質固定資本存量毛額（不含土地）<br>Real gross fixed capital stock (Excluded Land) |             |                                 | 實質固定<br>Real net fixed |
|-------------|--------------------------------------------------------------------|-------------|---------------------------------|------------------------|
|             | 毛額<br>Gross value                                                  | 指數<br>Index | 年增率<br>Annual rate<br>of change | 淨額<br>Net value        |
| 70年 1981    | 4183029                                                            | 13.51       | -                               | 3241527                |
| 71年 1982    | 4721362                                                            | 15.25       | 12.87                           | 3568052                |
| 72年 1983    | 5355638                                                            | 17.30       | 13.43                           | 3854128                |
| 73年 1984    | 6025423                                                            | 19.47       | 12.51                           | 4134055                |
| 74年 1985    | 6709128                                                            | 21.68       | 11.35                           | 4379034                |
| 75年 1986    | 7424108                                                            | 23.99       | 10.66                           | 4605929                |
| 76年 1987    | 8244181                                                            | 26.64       | 11.05                           | 4883484                |
| 77年 1988    | 9183838                                                            | 29.67       | 11.40                           | 5220382                |
| 78年 1989    | 9972116                                                            | 32.22       | 8.58                            | 5515776                |
| 79年 1990    | 10576070                                                           | 34.17       | 6.06                            | 5749771                |
| 80年 1991    | 11222034                                                           | 36.26       | 6.11                            | 5984350                |
| 81年 1992    | 11933737                                                           | 38.56       | 6.34                            | 6249634                |
| 82年 1993    | 12715968                                                           | 41.08       | 6.55                            | 6549924                |
| 83年 1994    | 13537934                                                           | 43.74       | 6.46                            | 6866181                |
| 84年 1995    | 14450248                                                           | 46.69       | 6.74                            | 7255659                |
| 85年 1996    | 15454141                                                           | 49.93       | 6.95                            | 7705073                |
| 86年 1997    | 16597564                                                           | 53.62       | 7.40                            | 8254679                |
| 87年 1998    | 17943077                                                           | 57.97       | 8.11                            | 8961027                |
| 88年 1999    | 19357746                                                           | 62.54       | 7.88                            | 9700092                |
| 89年 2000    | 20869404                                                           | 67.43       | 7.81                            | 10483462               |
| 90年 2001    | 22966865                                                           | 74.20       | 10.05                           | 11184987               |

註：1.本表係依 68 SNA 國民所得統計資料編算。

2.表中資料為年中值。

**TABLE 1 SERIES OF MULTIFACTOR PRODUCTIVITY STATISTICAL RESULT  
OF INDUSTRIAL & SERVICE SECTORS  
( AT 2 0 0 6 CONSTANT PRICE )**

Base : 2006=100

Unit : Million NT\$ ; %

| 資本存量淨額（不含土地）<br>capital stock（Excluded Land） |                                 | 固定資本毛生產力指數<br>Real gross fixed capital stock Productivity |             |                                 | 固定資本淨生產力指數<br>Real net fixed capital stock Productivity |             |                                 |
|----------------------------------------------|---------------------------------|-----------------------------------------------------------|-------------|---------------------------------|---------------------------------------------------------|-------------|---------------------------------|
| 指數<br>Index                                  | 年增率<br>Annual rate<br>of change | 生產力<br>Productivity                                       | 指數<br>Index | 年增率<br>Annual rate<br>of change | 生產力<br>Productivity                                     | 指數<br>Index | 年增率<br>Annual rate<br>of change |
| 23.73                                        | -                               | 0.456                                                     | 164.83      | -                               | 0.535                                                   | 94.07       | -                               |
| 26.12                                        | 10.07                           | 0.415                                                     | 150.04      | -8.97                           | 0.497                                                   | 87.37       | -7.12                           |
| 28.22                                        | 8.02                            | 0.397                                                     | 143.44      | -4.40                           | 0.499                                                   | 87.76       | 0.44                            |
| 30.27                                        | 7.26                            | 0.398                                                     | 143.86      | 0.30                            | 0.527                                                   | 92.68       | 5.60                            |
| 32.06                                        | 5.93                            | 0.376                                                     | 135.88      | -5.54                           | 0.520                                                   | 91.57       | -1.20                           |
| 33.72                                        | 5.18                            | 0.378                                                     | 136.68      | 0.58                            | 0.553                                                   | 97.36       | 6.33                            |
| 35.75                                        | 6.03                            | 0.386                                                     | 139.56      | 2.11                            | 0.594                                                   | 104.58      | 7.41                            |
| 38.22                                        | 6.90                            | 0.377                                                     | 136.12      | -2.46                           | 0.606                                                   | 106.61      | 1.94                            |
| 40.38                                        | 5.66                            | 0.380                                                     | 137.15      | 0.76                            | 0.629                                                   | 110.65      | 3.78                            |
| 42.09                                        | 4.24                            | 0.374                                                     | 135.23      | -1.40                           | 0.629                                                   | 110.64      | -0.01                           |
| 43.81                                        | 4.08                            | 0.378                                                     | 136.60      | 1.01                            | 0.645                                                   | 113.48      | 2.57                            |
| 45.75                                        | 4.43                            | 0.385                                                     | 139.22      | 1.92                            | 0.670                                                   | 117.88      | 3.88                            |
| 47.95                                        | 4.80                            | 0.387                                                     | 139.94      | 0.52                            | 0.685                                                   | 120.45      | 2.18                            |
| 50.27                                        | 4.83                            | 0.392                                                     | 141.53      | 1.14                            | 0.707                                                   | 124.36      | 3.25                            |
| 53.12                                        | 5.67                            | 0.390                                                     | 140.79      | -0.53                           | 0.711                                                   | 125.16      | 0.64                            |
| 56.41                                        | 6.19                            | 0.384                                                     | 138.75      | -1.45                           | 0.705                                                   | 124.04      | -0.90                           |
| 60.43                                        | 7.13                            | 0.387                                                     | 139.93      | 0.85                            | 0.713                                                   | 125.53      | 1.20                            |
| 65.60                                        | 8.56                            | 0.376                                                     | 135.80      | -2.96                           | 0.688                                                   | 121.04      | -3.58                           |
| 71.01                                        | 8.25                            | 0.370                                                     | 133.51      | -1.69                           | 0.673                                                   | 118.46      | -2.13                           |
| 76.75                                        | 8.08                            | 0.364                                                     | 131.50      | -1.50                           | 0.658                                                   | 115.77      | -2.27                           |
| 81.89                                        | 6.69                            | 0.322                                                     | 116.42      | -11.47                          | 0.593                                                   | 104.26      | -9.94                           |

Note:1.The data in this table are based on 68SNA national income statistics.

2.The data in this table are mid-year data.

表1 工業及服務業部門歷年多因素生產力統計結果（續）  
（按95年價格計算）

基期：民國95年=100

單位：新台幣百萬元；%

| 年 別<br>Year | 資本毛額密集度 (GK/L)<br>Real gross fixed capital intensity |                              | 資本淨額密集度 (NK/L)<br>Real net fixed capital intensity |                              |
|-------------|------------------------------------------------------|------------------------------|----------------------------------------------------|------------------------------|
|             | 密集度<br>Intensity                                     | 年增率<br>Annual rate of change | 密集度<br>Intensity                                   | 年增率<br>Annual rate of change |
| 70年 1981    | 808.00                                               | -                            | 626.14                                             | -                            |
| 71年 1982    | 895.21                                               | 10.79                        | 676.54                                             | 8.05                         |
| 72年 1983    | 976.42                                               | 9.07                         | 702.67                                             | 3.86                         |
| 73年 1984    | 1046.99                                              | 7.23                         | 718.34                                             | 2.23                         |
| 74年 1985    | 1145.29                                              | 9.39                         | 747.53                                             | 4.06                         |
| 75年 1986    | 1213.29                                              | 5.94                         | 752.73                                             | 0.69                         |
| 76年 1987    | 1269.31                                              | 4.62                         | 751.88                                             | -0.11                        |
| 77年 1988    | 1372.98                                              | 8.17                         | 780.44                                             | 3.80                         |
| 78年 1989    | 1448.59                                              | 5.51                         | 801.25                                             | 2.67                         |
| 79年 1990    | 1530.55                                              | 5.66                         | 832.09                                             | 3.85                         |
| 80年 1991    | 1591.10                                              | 3.96                         | 848.48                                             | 1.97                         |
| 81年 1992    | 1644.22                                              | 3.34                         | 861.07                                             | 1.48                         |
| 82年 1993    | 1711.90                                              | 4.12                         | 881.79                                             | 2.41                         |
| 83年 1994    | 1770.59                                              | 3.43                         | 898.01                                             | 1.84                         |
| 84年 1995    | 1859.27                                              | 5.01                         | 933.56                                             | 3.96                         |
| 85年 1996    | 1974.72                                              | 6.21                         | 984.55                                             | 5.46                         |
| 86年 1997    | 2081.20                                              | 5.39                         | 1035.07                                            | 5.13                         |
| 87年 1998    | 2200.79                                              | 5.75                         | 1099.11                                            | 6.19                         |
| 88年 1999    | 2335.07                                              | 6.10                         | 1170.10                                            | 6.46                         |
| 89年 2000    | 2473.56                                              | 5.93                         | 1242.56                                            | 6.19                         |
| 90年 2001    | 2751.18                                              | 11.22                        | 1339.84                                            | 7.83                         |

註：1.本表係依68SNA國民所得統計資料編算。

2.表中資料為年中值。

**TABLE 1 SERIES OF MULTIFACTOR PRODUCTIVITY STATISTICAL RESULT  
OF INDUSTRIAL & SERVICE SECTORS (CONT.)  
(AT 2006 CONSTANT PRICE)**

Base : 2006=100

Unit : Million NT\$ ; %

| 要素投入份額<br>Labor and captial shares |                 | TORNQVIST投入指數<br>Tornqvist indexes |                                 | 多因素生產力指數<br>Indexes of multifactor productivity |                                 | 總要素生產力指數<br>Indexes of total factor productivity |                                 |
|------------------------------------|-----------------|------------------------------------|---------------------------------|-------------------------------------------------|---------------------------------|--------------------------------------------------|---------------------------------|
| 勞動份額<br>Labor                      | 資本份額<br>Capital | 指數<br>Index                        | 年增率<br>Annual rate<br>of change | 指數<br>Index                                     | 年增率<br>Annual rate<br>of change | 指數<br>Index                                      | 年增率<br>Annual rate<br>of change |
| 0.533990                           | 0.466010        | 30.44                              | -                               | 54.48                                           | -                               | 78.57                                            | -                               |
| 0.544365                           | 0.455635        | 32.72                              | 7.50                            | 52.58                                           | -3.47                           | 77.80                                            | -0.98                           |
| 0.540586                           | 0.459414        | 35.26                              | 7.76                            | 54.25                                           | 3.16                            | 79.71                                            | 2.44                            |
| 0.538428                           | 0.461572        | 38.20                              | 8.34                            | 58.00                                           | 6.91                            | 83.26                                            | 4.45                            |
| 0.534384                           | 0.465616        | 40.31                              | 5.51                            | 59.25                                           | 2.17                            | 82.55                                            | -0.85                           |
| 0.522589                           | 0.477411        | 43.44                              | 7.76                            | 62.88                                           | 6.12                            | 84.80                                            | 2.73                            |
| 0.522227                           | 0.477773        | 47.14                              | 8.53                            | 67.44                                           | 7.26                            | 87.63                                            | 3.33                            |
| 0.534920                           | 0.465080        | 50.25                              | 6.59                            | 70.26                                           | 4.18                            | 90.37                                            | 3.13                            |
| 0.547097                           | 0.452903        | 52.59                              | 4.66                            | 74.54                                           | 6.09                            | 95.68                                            | 5.88                            |
| 0.555761                           | 0.444239        | 53.69                              | 2.10                            | 77.00                                           | 3.29                            | 95.43                                            | -0.27                           |
| 0.553136                           | 0.446864        | 55.66                              | 3.67                            | 80.39                                           | 4.41                            | 96.33                                            | 0.95                            |
| 0.559633                           | 0.440367        | 58.09                              | 4.36                            | 84.30                                           | 4.87                            | 98.49                                            | 2.24                            |
| 0.556368                           | 0.443632        | 60.55                              | 4.24                            | 87.38                                           | 3.65                            | 100.27                                           | 1.80                            |
| 0.558597                           | 0.441403        | 63.42                              | 4.74                            | 90.58                                           | 3.66                            | 102.48                                           | 2.20                            |
| 0.559942                           | 0.440058        | 65.41                              | 3.14                            | 93.75                                           | 3.51                            | 102.89                                           | 0.41                            |
| 0.546388                           | 0.453612        | 67.53                              | 3.24                            | 96.09                                           | 2.49                            | 102.62                                           | -0.27                           |
| 0.533963                           | 0.466037        | 70.62                              | 4.57                            | 99.81                                           | 3.87                            | 104.75                                           | 2.08                            |
| 0.519366                           | 0.480634        | 73.45                              | 4.01                            | 100.50                                          | 0.69                            | 105.22                                           | 0.45                            |
| 0.514990                           | 0.485010        | 76.93                              | 4.74                            | 101.66                                          | 1.15                            | 106.42                                           | 1.15                            |
| 0.518699                           | 0.481301        | 80.63                              | 4.81                            | 102.92                                          | 1.25                            | 108.24                                           | 1.70                            |
| 0.513638                           | 0.486362        | 82.10                              | 1.83                            | 100.07                                          | -2.77                           | 106.99                                           | -1.15                           |

Note:1.The data in this table are based on 68SNA national income statistics.

2.The data in this table are mid-year data.

表2 工業及服務業部門歷年實質固定資本存量（不含土地）毛額  
（按95年價格計算）

基期：民國95年=100

單位：新台幣百萬元；%

| 年 別<br>Year | 工業及服務業<br>Industry & Services |        |                       | 工業部門<br>Industry |        |                       |
|-------------|-------------------------------|--------|-----------------------|------------------|--------|-----------------------|
|             | 毛額                            | 指數     | 年增率                   | 毛額               | 指數     | 年增率                   |
|             | Gross value                   | Index  | Annual rate of change | Gross value      | Index  | Annual rate of change |
| 90年 2001    | 23297738                      | 72.30  | -                     | 10900085         | 66.20  | -                     |
| 91年 2002    | 24819623                      | 77.02  | 6.53                  | 11807648         | 71.71  | 8.33                  |
| 92年 2003    | 26396533                      | 81.91  | 6.35                  | 12742243         | 77.38  | 7.92                  |
| 93年 2004    | 28174658                      | 87.43  | 6.74                  | 13846266         | 84.09  | 8.66                  |
| 94年 2005    | 30155298                      | 93.58  | 7.03                  | 15120200         | 91.83  | 9.20                  |
| 95年 2006    | 32224623                      | 100.00 | 6.86                  | 16466311         | 100.00 | 8.90                  |
| 96年 2007    | 34291198                      | 106.41 | 6.41                  | 17894618         | 108.67 | 8.67                  |
| 97年 2008    | 36180676                      | 112.28 | 5.51                  | 19221868         | 116.73 | 7.42                  |
| 98年 2009    | 37815649                      | 117.35 | 4.52                  | 20270120         | 123.10 | 5.45                  |
| 99年 2010    | 39546217                      | 122.72 | 4.58                  | 21394041         | 129.93 | 5.54                  |

| 年 別<br>Year | 用水供應及污染整治業<br>Water supply & remediation service |        |                       | 營造業<br>Construction |        |                       |
|-------------|--------------------------------------------------|--------|-----------------------|---------------------|--------|-----------------------|
|             | 毛額                                               | 指數     | 年增率                   | 毛額                  | 指數     | 年增率                   |
|             | Gross value                                      | Index  | Annual rate of change | Gross value         | Index  | Annual rate of change |
| 90年 2001    | 355063                                           | 84.50  | -                     | 531249              | 82.50  | -                     |
| 91年 2002    | 368595                                           | 87.72  | 3.81                  | 552882              | 85.86  | 4.07                  |
| 92年 2003    | 382715                                           | 91.08  | 3.83                  | 574886              | 89.27  | 3.98                  |
| 93年 2004    | 394942                                           | 93.99  | 3.19                  | 596662              | 92.65  | 3.79                  |
| 94年 2005    | 406747                                           | 96.80  | 2.99                  | 619775              | 96.24  | 3.87                  |
| 95年 2006    | 420192                                           | 100.00 | 3.31                  | 643962              | 100.00 | 3.90                  |
| 96年 2007    | 434649                                           | 103.44 | 3.44                  | 669208              | 103.92 | 3.92                  |
| 97年 2008    | 450028                                           | 107.10 | 3.54                  | 694699              | 107.88 | 3.81                  |
| 98年 2009    | 468392                                           | 111.47 | 4.08                  | 719267              | 111.69 | 3.54                  |
| 99年 2010    | 489810                                           | 116.57 | 4.57                  | 744375              | 115.59 | 3.49                  |

註：1.本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

2.表中資料為年中值。

**TABLE 2 SERIES OF REAL GROSS FIXED CAPITAL STOCK (EXCLUDED LAND)  
OF INDUSTRIAL & SERVICE SECTORS  
(AT 2006 CONSTANT PRICE)**

Base : 2006=100

Unit : Million NT\$ : %

| 礦業及土石採取業<br>Mining & quarrying |             |                              | 製造業<br>Manufacturing |             |                              | 電力及燃氣供應業<br>Electricity & gas supply |             |                              |
|--------------------------------|-------------|------------------------------|----------------------|-------------|------------------------------|--------------------------------------|-------------|------------------------------|
| 毛額<br>Gross value              | 指數<br>Index | 年增率<br>Annual rate of change | 毛額<br>Gross value    | 指數<br>Index | 年增率<br>Annual rate of change | 毛額<br>Gross value                    | 指數<br>Index | 年增率<br>Annual rate of change |
| 108013                         | 89.67       | -                            | 7944855              | 62.74       | -                            | 1960906                              | 74.88       | -                            |
| 110852                         | 92.03       | 2.63                         | 8685067              | 68.59       | 9.32                         | 2090253                              | 79.82       | 6.60                         |
| 113557                         | 94.27       | 2.44                         | 9452996              | 74.65       | 8.84                         | 2218089                              | 84.70       | 6.12                         |
| 115928                         | 96.24       | 2.09                         | 10395225             | 82.09       | 9.97                         | 2343510                              | 89.49       | 5.65                         |
| 118092                         | 98.04       | 1.87                         | 11500216             | 90.82       | 10.63                        | 2475371                              | 94.52       | 5.63                         |
| 120455                         | 100.00      | 2.00                         | 12662904             | 100.00      | 10.11                        | 2618798                              | 100.00      | 5.79                         |
| 122944                         | 102.07      | 2.07                         | 13904243             | 109.80      | 9.80                         | 2763575                              | 105.53      | 5.53                         |
| 125453                         | 104.15      | 2.04                         | 15041180             | 118.78      | 8.18                         | 2910509                              | 111.14      | 5.32                         |
| 127798                         | 106.10      | 1.87                         | 15903919             | 125.59      | 5.74                         | 3050744                              | 116.49      | 4.82                         |
| 130077                         | 107.99      | 1.78                         | 16845172             | 133.03      | 5.92                         | 3184608                              | 121.61      | 4.39                         |

| 服務業部門<br>Services |             |                              | 批發及零售業<br>Wholesale & retail trade |             |                              | 運輸及倉儲業<br>Transportation & storage |             |                              |
|-------------------|-------------|------------------------------|------------------------------------|-------------|------------------------------|------------------------------------|-------------|------------------------------|
| 毛額<br>Gross value | 指數<br>Index | 年增率<br>Annual rate of change | 毛額<br>Gross value                  | 指數<br>Index | 年增率<br>Annual rate of change | 毛額<br>Gross value                  | 指數<br>Index | 年增率<br>Annual rate of change |
| 12397653          | 78.67       | -                            | 3954886                            | 83.22       | -                            | 3414821                            | 79.56       | -                            |
| 13011975          | 82.57       | 4.96                         | 4084310                            | 85.95       | 3.27                         | 3555534                            | 82.84       | 4.12                         |
| 13654290          | 86.65       | 4.94                         | 4224436                            | 88.89       | 3.43                         | 3721841                            | 86.72       | 4.68                         |
| 14328392          | 90.93       | 4.94                         | 4383360                            | 92.24       | 3.76                         | 3911030                            | 91.13       | 5.08                         |
| 15035099          | 95.41       | 4.93                         | 4562410                            | 96.01       | 4.08                         | 4117035                            | 95.93       | 5.27                         |
| 15758312          | 100.00      | 4.81                         | 4752224                            | 100.00      | 4.16                         | 4291920                            | 100.00      | 4.25                         |
| 16396581          | 104.05      | 4.05                         | 4947302                            | 104.10      | 4.10                         | 4425964                            | 103.12      | 3.12                         |
| 16958808          | 107.62      | 3.43                         | 5147527                            | 108.32      | 4.05                         | 4520455                            | 105.32      | 2.13                         |
| 17545529          | 111.34      | 3.46                         | 5356728                            | 112.72      | 4.06                         | 4580745                            | 106.73      | 1.33                         |
| 18152176          | 115.19      | 3.46                         | 5578369                            | 117.38      | 4.14                         | 4649732                            | 108.34      | 1.51                         |

Note : 1.The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

2.The data in this table are mid-year data.

表2 工業及服務業部門歷年實質固定資本存量（不含土地）毛額（續）  
（按95年價格計算）

基期：民國95年=100

單位：新台幣百萬元；%

| 年 別<br>Year | 住宿及餐飲業<br>Accommodation & food services |        |                       | 資訊及通訊傳播業<br>Information & communication |        |                       |
|-------------|-----------------------------------------|--------|-----------------------|-----------------------------------------|--------|-----------------------|
|             | 毛額                                      | 指數     | 年增率                   | 毛額                                      | 指數     | 年增率                   |
|             | Gross value                             | Index  | Annual rate of change | Gross value                             | Index  | Annual rate of change |
| 90年 2001    | 683808                                  | 86.11  | -                     | 1214948                                 | 71.67  | -                     |
| 91年 2002    | 703861                                  | 88.64  | 2.93                  | 1341588                                 | 79.13  | 10.42                 |
| 92年 2003    | 724508                                  | 91.24  | 2.93                  | 1449939                                 | 85.53  | 8.08                  |
| 93年 2004    | 746107                                  | 93.96  | 2.98                  | 1542300                                 | 90.97  | 6.37                  |
| 94年 2005    | 769051                                  | 96.85  | 3.08                  | 1623562                                 | 95.77  | 5.27                  |
| 95年 2006    | 794066                                  | 100.00 | 3.25                  | 1695315                                 | 100.00 | 4.42                  |
| 96年 2007    | 820953                                  | 103.39 | 3.39                  | 1766122                                 | 104.18 | 4.18                  |
| 97年 2008    | 849865                                  | 107.03 | 3.52                  | 1840293                                 | 108.55 | 4.20                  |
| 98年 2009    | 878236                                  | 110.60 | 3.34                  | 1912227                                 | 112.79 | 3.91                  |
| 99年 2010    | 906975                                  | 114.22 | 3.27                  | 1978754                                 | 116.72 | 3.48                  |

| 年 別<br>Year | 支援服務業<br>Support services |        |                       | 醫療保健服務業<br>Human health services |        |                       |
|-------------|---------------------------|--------|-----------------------|----------------------------------|--------|-----------------------|
|             | 毛額                        | 指數     | 年增率                   | 毛額                               | 指數     | 年增率                   |
|             | Gross value               | Index  | Annual rate of change | Gross value                      | Index  | Annual rate of change |
| 90年 2001    | 344937                    | 78.34  | -                     | 446753                           | 72.15  | -                     |
| 91年 2002    | 362292                    | 82.28  | 5.03                  | 469721                           | 75.86  | 5.14                  |
| 92年 2003    | 379016                    | 86.08  | 4.62                  | 493213                           | 79.66  | 5.00                  |
| 93年 2004    | 395664                    | 89.86  | 4.39                  | 519342                           | 83.88  | 5.30                  |
| 94年 2005    | 415911                    | 94.46  | 5.12                  | 546751                           | 88.31  | 5.28                  |
| 95年 2006    | 440296                    | 100.00 | 5.86                  | 619158                           | 100.00 | 13.24                 |
| 96年 2007    | 467174                    | 106.10 | 6.10                  | 648575                           | 104.75 | 4.75                  |
| 97年 2008    | 493642                    | 112.12 | 5.67                  | 637123                           | 102.90 | -1.77                 |
| 98年 2009    | 518582                    | 117.78 | 5.05                  | 672991                           | 108.69 | 5.63                  |
| 99年 2010    | 548925                    | 124.67 | 5.85                  | 709587                           | 114.61 | 5.44                  |

註：1.本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

2.表中資料為年中值。

**TABLE 2 SERIES OF REAL GROSS FIXED CAPITAL STOCK (EXCLUDED LAND)  
OF INDUSTRIAL & SERVICE SECTORS (CONT.)**

Base : 2006=100

Unit : Million NT\$ ; %

| 金融及保險業<br>Finance & insurance |             |                                 | 不動產業<br>Real estate |             |                                 | 專業、科學及技術服務業<br>Professional , scientific & technical services |             |                                 |
|-------------------------------|-------------|---------------------------------|---------------------|-------------|---------------------------------|---------------------------------------------------------------|-------------|---------------------------------|
| 毛額<br>Gross value             | 指數<br>Index | 年增率<br>Annual rate<br>of change | 毛額<br>Gross value   | 指數<br>Index | 年增率<br>Annual rate<br>of change | 毛額<br>Gross value                                             | 指數<br>Index | 年增率<br>Annual rate<br>of change |
| 939942                        | 66.38       | -                               | 332750              | 77.57       | -                               | 344474                                                        | 80.05       | -                               |
| 1032325                       | 72.91       | 9.83                            | 349868              | 81.56       | 5.14                            | 355451                                                        | 82.60       | 3.19                            |
| 1124671                       | 79.43       | 8.95                            | 369992              | 86.25       | 5.75                            | 370870                                                        | 86.19       | 4.34                            |
| 1219122                       | 86.10       | 8.40                            | 389788              | 90.87       | 5.35                            | 390603                                                        | 90.77       | 5.32                            |
| 1317865                       | 93.07       | 8.10                            | 409553              | 95.48       | 5.07                            | 410768                                                        | 95.46       | 5.16                            |
| 1415970                       | 100.00      | 7.44                            | 428957              | 100.00      | 4.74                            | 430302                                                        | 100.00      | 4.76                            |
| 1503968                       | 106.21      | 6.21                            | 449365              | 104.76      | 4.76                            | 450201                                                        | 104.62      | 4.62                            |
| 1583282                       | 111.82      | 5.27                            | 470548              | 109.70      | 4.71                            | 471984                                                        | 109.69      | 4.84                            |
| 1666016                       | 117.66      | 5.23                            | 491721              | 114.63      | 4.50                            | 497036                                                        | 115.51      | 5.31                            |
| 1742243                       | 123.04      | 4.58                            | 514941              | 120.04      | 4.72                            | 524402                                                        | 121.87      | 5.51                            |

| 藝術、娛樂及休閒服務業<br>Art , entertainment & recreational services |             |                                 | 其他服務業<br>Other services |             |                                 |
|------------------------------------------------------------|-------------|---------------------------------|-------------------------|-------------|---------------------------------|
| 毛額<br>Gross value                                          | 指數<br>Index | 年增率<br>Annual rate<br>of change | 毛額<br>Gross value       | 指數<br>Index | 年增率<br>Annual rate<br>of change |
| 365505                                                     | 81.81       | -                               | 354832                  | 80.04       | -                               |
| 381526                                                     | 85.39       | 4.38                            | 375503                  | 84.70       | 5.83                            |
| 401656                                                     | 89.90       | 5.28                            | 394148                  | 88.91       | 4.97                            |
| 419201                                                     | 93.83       | 4.37                            | 411878                  | 92.91       | 4.50                            |
| 434084                                                     | 97.16       | 3.55                            | 428112                  | 96.57       | 3.94                            |
| 446788                                                     | 100.00      | 2.93                            | 443318                  | 100.00      | 3.55                            |
| 458319                                                     | 102.58      | 2.58                            | 458640                  | 103.46      | 3.46                            |
| 470186                                                     | 105.24      | 2.59                            | 473906                  | 106.90      | 3.33                            |
| 482694                                                     | 108.04      | 2.66                            | 488556                  | 110.20      | 3.09                            |
| 494993                                                     | 110.79      | 2.55                            | 503256                  | 113.52      | 3.01                            |

Note : 1.The data in this table are based on the eighth revised edition of standard industrial classification system  
in R.O.C. and 93SNA national income statistics.

2.The data in this table are mid-year data.

表3 工業及服務業部門歷年實質固定資本存量（不含土地）淨額  
（按95年價格計算）

基期：民國95年=100

單位：新台幣百萬元；%

| 年 別<br>Year | 工業及服務業<br>Industry & Services |        |                       | 工業部門<br>Industry |        |                       |
|-------------|-------------------------------|--------|-----------------------|------------------|--------|-----------------------|
|             | 淨額                            | 指數     | 年增率                   | 淨額               | 指數     | 年增率                   |
|             | Net value                     | Index  | Annual rate of change | Net value        | Index  | Annual rate of change |
| 90年 2001    | 14885913                      | 80.09  | -                     | 5774045          | 70.48  | -                     |
| 91年 2002    | 15474570                      | 83.25  | 3.95                  | 6128610          | 74.81  | 6.14                  |
| 92年 2003    | 16078670                      | 86.50  | 3.90                  | 6486130          | 79.17  | 5.83                  |
| 93年 2004    | 16816111                      | 90.47  | 4.59                  | 6967003          | 85.04  | 7.41                  |
| 94年 2005    | 17687542                      | 95.16  | 5.18                  | 7567441          | 92.37  | 8.62                  |
| 95年 2006    | 18587553                      | 100.00 | 5.09                  | 8192548          | 100.00 | 8.26                  |
| 96年 2007    | 19447285                      | 104.63 | 4.63                  | 8873464          | 108.31 | 8.31                  |
| 97年 2008    | 20091223                      | 108.09 | 3.31                  | 9423929          | 115.03 | 6.20                  |
| 98年 2009    | 20396799                      | 109.73 | 1.52                  | 9628337          | 117.53 | 2.17                  |
| 99年 2010    | 20731267                      | 111.53 | 1.64                  | 9853223          | 120.27 | 2.34                  |

| 年 別<br>Year | 用水供應及污染整治業<br>Water supply & remediation service |        |                       | 營造業<br>Construction |        |                       |
|-------------|--------------------------------------------------|--------|-----------------------|---------------------|--------|-----------------------|
|             | 淨額                                               | 指數     | 年增率                   | 淨額                  | 指數     | 年增率                   |
|             | Net value                                        | Index  | Annual rate of change | Net value           | Index  | Annual rate of change |
| 90年 2001    | 243152                                           | 94.91  | -                     | 327563              | 93.92  | -                     |
| 91年 2002    | 246851                                           | 96.36  | 1.52                  | 331262              | 94.98  | 1.13                  |
| 92年 2003    | 250814                                           | 97.90  | 1.61                  | 335251              | 96.12  | 1.20                  |
| 93年 2004    | 252435                                           | 98.54  | 0.65                  | 338715              | 97.12  | 1.03                  |
| 94年 2005    | 253527                                           | 98.96  | 0.43                  | 343292              | 98.43  | 1.35                  |
| 95年 2006    | 256184                                           | 100.00 | 1.05                  | 348769              | 100.00 | 1.60                  |
| 96年 2007    | 259672                                           | 101.36 | 1.36                  | 355134              | 101.82 | 1.82                  |
| 97年 2008    | 263775                                           | 102.96 | 1.58                  | 361517              | 103.66 | 1.80                  |
| 98年 2009    | 270116                                           | 105.44 | 2.40                  | 366437              | 105.07 | 1.36                  |
| 99年 2010    | 278481                                           | 108.70 | 3.10                  | 371544              | 106.53 | 1.39                  |

註：1.本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

2.表中資料為年中值。

**TABLE 3 SERIES OF REAL NET FIXED CAPITAL STOCK (EXCLUDED LAND)  
OF INDUSTRIAL & SERVICE SECTORS  
(AT 2006 CONSTANT PRICE)**

Base : 2006=100

Unit : Million NT\$ : %

| 礦業及土石採取業<br>Mining & quarrying |             |                              | 製造業<br>Manufacturing |             |                              | 電力及燃氣供應業<br>Electricity & gas supply |             |                              |
|--------------------------------|-------------|------------------------------|----------------------|-------------|------------------------------|--------------------------------------|-------------|------------------------------|
| 淨額<br>Net value                | 指數<br>Index | 年增率<br>Annual rate of change | 淨額<br>Net value      | 指數<br>Index | 年增率<br>Annual rate of change | 淨額<br>Net value                      | 指數<br>Index | 年增率<br>Annual rate of change |
| 18245                          | 194.82      | -                            | 4187452              | 65.81       | -                            | 997633                               | 82.10       | -                            |
| 16497                          | 176.16      | -9.58                        | 4487770              | 70.53       | 7.17                         | 1046229                              | 86.10       | 4.87                         |
| 14812                          | 158.17      | -10.21                       | 4795360              | 75.36       | 6.85                         | 1089892                              | 89.69       | 4.17                         |
| 12911                          | 137.86      | -12.84                       | 5236465              | 82.29       | 9.20                         | 1126477                              | 92.70       | 3.36                         |
| 10953                          | 116.96      | -15.16                       | 5793177              | 91.04       | 10.63                        | 1166491                              | 96.00       | 3.55                         |
| 9365                           | 100.00      | -14.50                       | 6363083              | 100.00      | 9.84                         | 1215147                              | 100.00      | 4.17                         |
| 7958                           | 84.98       | -15.02                       | 6987944              | 109.82      | 9.82                         | 1262756                              | 103.92      | 3.92                         |
| 6610                           | 70.58       | -16.94                       | 7482135              | 117.59      | 7.07                         | 1309891                              | 107.80      | 3.73                         |
| 5169                           | 55.20       | -21.80                       | 7643245              | 120.12      | 2.15                         | 1343369                              | 110.55      | 2.56                         |
| 3708                           | 39.60       | -28.26                       | 7837337              | 123.17      | 2.54                         | 1362153                              | 112.10      | 1.40                         |

| 服務業部門<br>Services |             |                              | 批發及零售業<br>Wholesale & retail trade |             |                              | 運輸及倉儲業<br>Transportation & storage |             |                              |
|-------------------|-------------|------------------------------|------------------------------------|-------------|------------------------------|------------------------------------|-------------|------------------------------|
| 淨額<br>Net value   | 指數<br>Index | 年增率<br>Annual rate of change | 淨額<br>Net value                    | 指數<br>Index | 年增率<br>Annual rate of change | 淨額<br>Net value                    | 指數<br>Index | 年增率<br>Annual rate of change |
| 9111868           | 87.66       | -                            | 3169739                            | 90.26       | -                            | 2513542                            | 85.48       | -                            |
| 9345961           | 89.91       | 2.57                         | 3215256                            | 91.56       | 1.44                         | 2568932                            | 87.37       | 2.20                         |
| 9592540           | 92.28       | 2.64                         | 3269209                            | 93.09       | 1.68                         | 2648849                            | 90.09       | 3.11                         |
| 9849108           | 94.75       | 2.67                         | 3337411                            | 95.03       | 2.09                         | 2749089                            | 93.50       | 3.78                         |
| 10120101          | 97.36       | 2.75                         | 3421161                            | 97.42       | 2.51                         | 2862077                            | 97.34       | 4.11                         |
| 10395004          | 100.00      | 2.72                         | 3511830                            | 100.00      | 2.65                         | 2940341                            | 100.00      | 2.73                         |
| 10573821          | 101.72      | 1.72                         | 3605468                            | 102.67      | 2.67                         | 2976218                            | 101.22      | 1.22                         |
| 10667294          | 102.62      | 0.88                         | 3702028                            | 105.42      | 2.68                         | 2972741                            | 101.10      | -0.12                        |
| 10768463          | 103.59      | 0.95                         | 3802264                            | 108.27      | 2.71                         | 2935149                            | 99.82       | -1.26                        |
| 10878044          | 104.65      | 1.02                         | 3911136                            | 111.37      | 2.86                         | 2909109                            | 98.94       | -0.89                        |

Note : 1.The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

2.The data in this table are mid-year data.

表3 工業及服務業部門歷年實質固定資本存量（不含土地）淨額（續）  
（按95年價格計算）

基期：民國95年=100

單位：新台幣百萬元；%

| 年 別<br>Year | 住宿及餐飲業<br>Accommodation & food services |        |                       | 資訊及通訊傳播業<br>Information & communication |        |                       |
|-------------|-----------------------------------------|--------|-----------------------|-----------------------------------------|--------|-----------------------|
|             | 淨額                                      | 指數     | 年增率                   | 淨額                                      | 指數     | 年增率                   |
|             | Net value                               | Index  | Annual rate of change | Net value                               | Index  | Annual rate of change |
| 90年 2001    | 561734                                  | 94.92  | -                     | 654605                                  | 84.22  | -                     |
| 91年 2002    | 567617                                  | 95.91  | 1.05                  | 716228                                  | 92.15  | 9.41                  |
| 92年 2003    | 573498                                  | 96.90  | 1.04                  | 756069                                  | 97.27  | 5.56                  |
| 93年 2004    | 579507                                  | 97.92  | 1.05                  | 775634                                  | 99.79  | 2.59                  |
| 94年 2005    | 585691                                  | 98.96  | 1.07                  | 781477                                  | 100.54 | 0.75                  |
| 95年 2006    | 591824                                  | 100.00 | 1.05                  | 777278                                  | 100.00 | -0.54                 |
| 96年 2007    | 598360                                  | 101.10 | 1.10                  | 771735                                  | 99.29  | -0.71                 |
| 97年 2008    | 605142                                  | 102.25 | 1.13                  | 768711                                  | 98.90  | -0.39                 |
| 98年 2009    | 608685                                  | 102.85 | 0.59                  | 760587                                  | 97.85  | -1.06                 |
| 99年 2010    | 611466                                  | 103.32 | 0.46                  | 744219                                  | 95.75  | -2.15                 |

| 年 別<br>Year | 支援服務業<br>Support services |        |                       | 醫療保健服務業<br>Human health services |        |                       |
|-------------|---------------------------|--------|-----------------------|----------------------------------|--------|-----------------------|
|             | 淨額                        | 指數     | 年增率                   | 淨額                               | 指數     | 年增率                   |
|             | Net value                 | Index  | Annual rate of change | Net value                        | Index  | Annual rate of change |
| 90年 2001    | 231887                    | 92.88  | -                     | 309405                           | 83.04  | -                     |
| 91年 2002    | 234313                    | 93.85  | 1.05                  | 311788                           | 83.68  | 0.77                  |
| 92年 2003    | 235994                    | 94.52  | 0.72                  | 313423                           | 84.12  | 0.52                  |
| 93年 2004    | 237303                    | 95.05  | 0.55                  | 316816                           | 85.03  | 1.08                  |
| 94年 2005    | 241798                    | 96.85  | 1.89                  | 321227                           | 86.22  | 1.39                  |
| 95年 2006    | 249665                    | 100.00 | 3.25                  | 372579                           | 100.00 | 15.99                 |
| 96年 2007    | 259468                    | 103.93 | 3.93                  | 379027                           | 101.73 | 1.73                  |
| 97年 2008    | 268259                    | 107.45 | 3.39                  | 341968                           | 91.78  | -9.78                 |
| 98年 2009    | 274275                    | 109.86 | 2.24                  | 352068                           | 94.49  | 2.95                  |
| 99年 2010    | 284685                    | 114.03 | 3.80                  | 361137                           | 96.93  | 2.58                  |

註：1.本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

2.表中資料為年中值。

**TABLE 3 SERIES OF REAL NET FIXED CAPITAL STOCK (EXCLUDED LAND)  
OF INDUSTRIAL & SERVICE SECTORS (CONT.)  
(AT 2006 CONSTANT PRICE)**

Base : 2006=100

Unit : Million NT\$ ; %

| 金融及保險業<br>Finance & insurance |             |                                 | 不動產業<br>Real estate |             |                                 | 專業、科學及技術服務業<br>Professional , scientific & technical services |             |                                 |
|-------------------------------|-------------|---------------------------------|---------------------|-------------|---------------------------------|---------------------------------------------------------------|-------------|---------------------------------|
| 淨額<br>Net value               | 指數<br>Index | 年增率<br>Annual rate<br>of change | 淨額<br>Net value     | 指數<br>Index | 年增率<br>Annual rate<br>of change | 淨額<br>Net value                                               | 指數<br>Index | 年增率<br>Annual rate<br>of change |
| 569047                        | 81.23       | -                               | 278979              | 84.35       | -                               | 269250                                                        | 89.99       | -                               |
| 599960                        | 85.64       | 5.43                            | 288120              | 87.12       | 3.28                            | 271927                                                        | 90.89       | 0.99                            |
| 627379                        | 89.55       | 4.57                            | 299811              | 90.65       | 4.06                            | 277566                                                        | 92.77       | 2.07                            |
| 653053                        | 93.22       | 4.09                            | 310615              | 93.92       | 3.60                            | 284636                                                        | 95.14       | 2.55                            |
| 678958                        | 96.91       | 3.97                            | 320960              | 97.05       | 3.33                            | 292061                                                        | 97.62       | 2.61                            |
| 700571                        | 100.00      | 3.18                            | 330728              | 100.00      | 3.04                            | 299188                                                        | 100.00      | 2.44                            |
| 710063                        | 101.35      | 1.35                            | 341356              | 103.21      | 3.21                            | 306062                                                        | 102.30      | 2.30                            |
| 710051                        | 101.35      | 0.00                            | 352590              | 106.61      | 3.29                            | 314131                                                        | 104.99      | 2.64                            |
| 710586                        | 101.43      | 0.08                            | 363582              | 109.93      | 3.12                            | 324143                                                        | 108.34      | 3.19                            |
| 702526                        | 100.28      | -1.13                           | 376624              | 113.88      | 3.59                            | 335325                                                        | 112.08      | 3.45                            |

| 藝術、娛樂及休閒服務業<br>Art , entertainment & recreational services |             |                                 | 其他服務業<br>Other services |             |                                 |
|------------------------------------------------------------|-------------|---------------------------------|-------------------------|-------------|---------------------------------|
| 淨額<br>Net value                                            | 指數<br>Index | 年增率<br>Annual rate<br>of change | 淨額<br>Net value         | 指數<br>Index | 年增率<br>Annual rate<br>of change |
| 269060                                                     | 90.89       | -                               | 284621                  | 87.58       | -                               |
| 274953                                                     | 92.88       | 2.19                            | 296868                  | 91.35       | 4.30                            |
| 284351                                                     | 96.06       | 3.42                            | 306391                  | 94.28       | 3.21                            |
| 290751                                                     | 98.22       | 2.25                            | 314294                  | 96.71       | 2.58                            |
| 294483                                                     | 99.48       | 1.28                            | 320208                  | 98.53       | 1.88                            |
| 296022                                                     | 100.00      | 0.52                            | 324978                  | 100.00      | 1.49                            |
| 296243                                                     | 100.07      | 0.07                            | 329823                  | 101.49      | 1.49                            |
| 297156                                                     | 100.38      | 0.31                            | 334518                  | 102.94      | 1.42                            |
| 298723                                                     | 100.91      | 0.53                            | 338402                  | 104.13      | 1.16                            |
| 299528                                                     | 101.18      | 0.27                            | 342288                  | 105.33      | 1.15                            |

Note : 1.The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

2.The data in this table are mid-year data.

表4 工業及服務業部門歷年固定資本（不含土地）毛生產力指數  
（按95年價格計算）

基期：民國95年=100

單位：新台幣百萬元/百萬元；%

| 年 別<br>Year | 工業及服務業<br>Industry & Services |        |                       | 工業部門<br>Industry |        |                       |
|-------------|-------------------------------|--------|-----------------------|------------------|--------|-----------------------|
|             | 生產力                           | 指數     | 年增率                   | 生產力              | 指數     | 年增率                   |
|             | Productivity                  | Index  | Annual rate of change | Productivity     | Index  | Annual rate of change |
| 90年 2001    | 0.301                         | 103.76 | -                     | 0.235            | 100.84 | -                     |
| 91年 2002    | 0.299                         | 103.13 | -0.61                 | 0.239            | 102.54 | 1.69                  |
| 92年 2003    | 0.293                         | 101.09 | -1.98                 | 0.238            | 102.31 | -0.23                 |
| 93年 2004    | 0.295                         | 101.79 | 0.69                  | 0.240            | 103.14 | 0.81                  |
| 94年 2005    | 0.291                         | 100.48 | -1.29                 | 0.235            | 100.99 | -2.08                 |
| 95年 2006    | 0.290                         | 100.00 | -0.47                 | 0.233            | 100.00 | -0.98                 |
| 96年 2007    | 0.291                         | 100.51 | 0.51                  | 0.234            | 100.32 | 0.32                  |
| 97年 2008    | 0.278                         | 96.01  | -4.47                 | 0.218            | 93.61  | -6.69                 |
| 98年 2009    | 0.260                         | 89.68  | -6.60                 | 0.198            | 85.09  | -9.11                 |
| 99年 2010    | 0.281                         | 96.80  | 7.94                  | 0.231            | 99.17  | 16.55                 |

| 年 別<br>Year | 用水供應及污染整治業<br>Water supply & remediation service |        |                       | 營造業<br>Construction |        |                       |
|-------------|--------------------------------------------------|--------|-----------------------|---------------------|--------|-----------------------|
|             | 生產力                                              | 指數     | 年增率                   | 生產力                 | 指數     | 年增率                   |
|             | Productivity                                     | Index  | Annual rate of change | Productivity        | Index  | Annual rate of change |
| 90年 2001    | 0.134                                            | 72.92  | -                     | 0.568               | 110.02 | -                     |
| 91年 2002    | 0.144                                            | 78.28  | 7.36                  | 0.560               | 108.56 | -1.33                 |
| 92年 2003    | 0.155                                            | 83.95  | 7.24                  | 0.518               | 100.33 | -7.58                 |
| 93年 2004    | 0.165                                            | 89.56  | 6.69                  | 0.535               | 103.57 | 3.22                  |
| 94年 2005    | 0.174                                            | 94.30  | 5.30                  | 0.521               | 100.96 | -2.51                 |
| 95年 2006    | 0.184                                            | 100.00 | 6.04                  | 0.516               | 100.00 | -0.95                 |
| 96年 2007    | 0.197                                            | 106.92 | 6.92                  | 0.504               | 97.70  | -2.30                 |
| 97年 2008    | 0.196                                            | 106.34 | -0.54                 | 0.459               | 88.89  | -9.01                 |
| 98年 2009    | 0.190                                            | 102.86 | -3.27                 | 0.413               | 79.99  | -10.02                |
| 99年 2010    | 0.188                                            | 102.16 | -0.68                 | 0.444               | 86.05  | 7.58                  |

註：1.本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

2.表中資料為年中值。

**TABLE 4 SERIES OF GROSS FIXED CAPITAL STOCK (EXCLUDED LAND)**  
**PRODUCTIVITY OF INDUSTRIAL & SERVICE SECTORS**  
**(AT 2006 CONSTANT PRICE)**

Base : 2006=100

Unit : Million/Million NT\$ : %

| 礦業及土石採取業<br>Mining & quarrying |             |                              | 製造業<br>Manufacturing |             |                              | 電力及燃氣供應業<br>Electricity & gas supply |             |                              |
|--------------------------------|-------------|------------------------------|----------------------|-------------|------------------------------|--------------------------------------|-------------|------------------------------|
| 生產力<br>Productivity            | 指數<br>Index | 年增率<br>Annual rate of change | 生產力<br>Productivity  | 指數<br>Index | 年增率<br>Annual rate of change | 生產力<br>Productivity                  | 指數<br>Index | 年增率<br>Annual rate of change |
| 0.602                          | 183.86      | -                            | 0.255                | 99.83       | -                            | 0.060                                | 106.10      | -                            |
| 0.608                          | 185.79      | 1.05                         | 0.261                | 102.03      | 2.21                         | 0.059                                | 104.73      | -1.30                        |
| 0.479                          | 146.39      | -21.21                       | 0.264                | 103.20      | 1.14                         | 0.059                                | 104.14      | -0.56                        |
| 0.463                          | 141.43      | -3.39                        | 0.265                | 103.54      | 0.33                         | 0.058                                | 102.86      | -1.22                        |
| 0.430                          | 131.31      | -7.16                        | 0.258                | 100.98      | -2.47                        | 0.057                                | 101.92      | -0.92                        |
| 0.327                          | 100.00      | -23.84                       | 0.256                | 100.00      | -0.97                        | 0.056                                | 100.00      | -1.88                        |
| 0.386                          | 117.95      | 17.95                        | 0.256                | 100.02      | 0.02                         | 0.056                                | 98.98       | -1.02                        |
| 0.336                          | 102.62      | -13.00                       | 0.239                | 93.38       | -6.64                        | 0.052                                | 91.53       | -7.52                        |
| 0.344                          | 105.20      | 2.52                         | 0.216                | 84.52       | -9.49                        | 0.049                                | 87.16       | -4.78                        |
| 0.376                          | 114.92      | 9.24                         | 0.256                | 100.04      | 18.37                        | 0.050                                | 89.05       | 2.17                         |

| 服務業部門<br>Services   |             |                              | 批發及零售業<br>Wholesale & retail trade |             |                              | 運輸及倉儲業<br>Transportation & storage |             |                              |
|---------------------|-------------|------------------------------|------------------------------------|-------------|------------------------------|------------------------------------|-------------|------------------------------|
| 生產力<br>Productivity | 指數<br>Index | 年增率<br>Annual rate of change | 生產力<br>Productivity                | 指數<br>Index | 年增率<br>Annual rate of change | 生產力<br>Productivity                | 指數<br>Index | 年增率<br>Annual rate of change |
| 0.359               | 102.67      | -                            | 0.444                              | 96.50       | -                            | 0.101                              | 109.71      | -                            |
| 0.354               | 101.17      | -1.45                        | 0.443                              | 96.11       | -0.40                        | 0.100                              | 108.33      | -1.26                        |
| 0.344               | 98.49       | -2.65                        | 0.437                              | 94.85       | -1.32                        | 0.096                              | 104.09      | -3.91                        |
| 0.348               | 99.62       | 1.15                         | 0.448                              | 97.24       | 2.52                         | 0.096                              | 104.30      | 0.20                         |
| 0.348               | 99.49       | -0.13                        | 0.457                              | 99.19       | 2.01                         | 0.093                              | 101.20      | -2.97                        |
| 0.349               | 100.00      | 0.51                         | 0.461                              | 100.00      | 0.81                         | 0.092                              | 100.00      | -1.19                        |
| 0.354               | 101.41      | 1.41                         | 0.469                              | 101.77      | 1.77                         | 0.093                              | 101.40      | 1.40                         |
| 0.347               | 99.22       | -2.16                        | 0.460                              | 99.97       | -1.76                        | 0.092                              | 99.77       | -1.60                        |
| 0.331               | 94.83       | -4.42                        | 0.438                              | 95.10       | -4.87                        | 0.087                              | 95.04       | -4.74                        |
| 0.339               | 97.04       | 2.34                         | 0.441                              | 95.68       | 0.61                         | 0.093                              | 100.80      | 6.06                         |

Note : 1.The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

2.The data in this table are mid-year data.

表4 工業及服務業部門歷年固定資本（不含土地）毛生產力指數（續）  
（按95年價格計算）

基期：民國95年=100

單位：新台幣百萬元/百萬元；%

| 年 別<br>Year | 住宿及餐飲業<br>Accommodation & food services |        |                       | 資訊及通訊傳播業<br>Information & communication |        |                       |
|-------------|-----------------------------------------|--------|-----------------------|-----------------------------------------|--------|-----------------------|
|             | 生產力                                     | 指數     | 年增率                   | 生產力                                     | 指數     | 年增率                   |
|             | Productivity                            | Index  | Annual rate of change | Productivity                            | Index  | Annual rate of change |
| 90年 2001    | 0.299                                   | 101.36 | -                     | 0.272                                   | 110.82 | -                     |
| 91年 2002    | 0.292                                   | 98.95  | -2.38                 | 0.264                                   | 107.70 | -2.82                 |
| 92年 2003    | 0.279                                   | 94.57  | -4.42                 | 0.255                                   | 104.17 | -3.27                 |
| 93年 2004    | 0.282                                   | 95.70  | 1.19                  | 0.255                                   | 103.88 | -0.27                 |
| 94年 2005    | 0.290                                   | 98.37  | 2.79                  | 0.248                                   | 101.16 | -2.62                 |
| 95年 2006    | 0.295                                   | 100.00 | 1.66                  | 0.245                                   | 100.00 | -1.15                 |
| 96年 2007    | 0.297                                   | 100.64 | 0.64                  | 0.244                                   | 99.48  | -0.52                 |
| 97年 2008    | 0.282                                   | 95.63  | -4.98                 | 0.246                                   | 100.22 | 0.74                  |
| 98年 2009    | 0.269                                   | 91.30  | -4.53                 | 0.246                                   | 100.55 | 0.33                  |
| 99年 2010    | 0.285                                   | 96.70  | 5.92                  | 0.258                                   | 105.27 | 4.70                  |

| 年 別<br>Year | 支援服務業<br>Support services |        |                       | 醫療保健服務業<br>Human health services |        |                       |
|-------------|---------------------------|--------|-----------------------|----------------------------------|--------|-----------------------|
|             | 生產力                       | 指數     | 年增率                   | 生產力                              | 指數     | 年增率                   |
|             | Productivity              | Index  | Annual rate of change | Productivity                     | Index  | Annual rate of change |
| 90年 2001    | 0.290                     | 79.90  | -                     | 0.726                            | 129.43 | -                     |
| 91年 2002    | 0.305                     | 83.99  | 5.12                  | 0.731                            | 130.28 | 0.65                  |
| 92年 2003    | 0.299                     | 82.48  | -1.80                 | 0.702                            | 125.04 | -4.02                 |
| 93年 2004    | 0.317                     | 87.40  | 5.96                  | 0.681                            | 121.34 | -2.96                 |
| 94年 2005    | 0.335                     | 92.39  | 5.70                  | 0.636                            | 113.34 | -6.60                 |
| 95年 2006    | 0.363                     | 100.00 | 8.24                  | 0.561                            | 100.00 | -11.77                |
| 96年 2007    | 0.372                     | 102.43 | 2.43                  | 0.562                            | 100.16 | 0.16                  |
| 97年 2008    | 0.377                     | 103.96 | 1.49                  | 0.589                            | 105.01 | 4.83                  |
| 98年 2009    | 0.353                     | 97.14  | -6.56                 | 0.585                            | 104.17 | -0.79                 |
| 99年 2010    | 0.360                     | 99.10  | 2.02                  | 0.564                            | 100.55 | -3.48                 |

註：1.本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

2.表中資料為年中值。

**TABLE 4 SERIES OF GROSS FIXED CAPITAL STOCK (EXCLUDED LAND)**  
**PRODUCTIVITY OF INDUSTRIAL & SERVICE SECTORS (CONT.)**  
**(AT 2006 CONSTANT PRICE)**

Base : 2006=100

Unit : Million/Million NT\$ ; %

| 金融及保險業<br>Finance & insurance |             |                              | 不動產業<br>Real estate |             |                              | 專業、科學及技術服務業<br>Professional , scientific & technical services |             |                              |
|-------------------------------|-------------|------------------------------|---------------------|-------------|------------------------------|---------------------------------------------------------------|-------------|------------------------------|
| 生產力<br>Productivity           | 指數<br>Index | 年增率<br>Annual rate of change | 生產力<br>Productivity | 指數<br>Index | 年增率<br>Annual rate of change | 生產力<br>Productivity                                           | 指數<br>Index | 年增率<br>Annual rate of change |
| 0.800                         | 127.03      | -                            | 0.256               | 62.43       | -                            | 0.551                                                         | 93.52       | -                            |
| 0.745                         | 118.37      | -6.82                        | 0.210               | 51.27       | -17.87                       | 0.556                                                         | 94.31       | 0.84                         |
| 0.688                         | 109.32      | -7.65                        | 0.251               | 61.19       | 19.34                        | 0.558                                                         | 94.80       | 0.52                         |
| 0.684                         | 108.61      | -0.65                        | 0.291               | 71.00       | 16.03                        | 0.564                                                         | 95.66       | 0.91                         |
| 0.660                         | 104.82      | -3.50                        | 0.311               | 76.03       | 7.08                         | 0.553                                                         | 93.91       | -1.83                        |
| 0.630                         | 100.00      | -4.60                        | 0.410               | 100.00      | 31.53                        | 0.589                                                         | 100.00      | 6.48                         |
| 0.629                         | 99.93       | -0.07                        | 0.402               | 98.23       | -1.77                        | 0.611                                                         | 103.79      | 3.79                         |
| 0.585                         | 92.84       | -7.10                        | 0.347               | 84.67       | -13.81                       | 0.581                                                         | 98.57       | -5.02                        |
| 0.513                         | 81.42       | -12.30                       | 0.320               | 78.02       | -7.85                        | 0.567                                                         | 96.25       | -2.36                        |
| 0.521                         | 82.75       | 1.63                         | 0.344               | 84.01       | 7.68                         | 0.575                                                         | 97.61       | 1.42                         |

| 藝術、娛樂及休閒服務業<br>Art , entertainment & recreational services |             |                              | 其他服務業<br>Other services |             |                              |
|------------------------------------------------------------|-------------|------------------------------|-------------------------|-------------|------------------------------|
| 生產力<br>Productivity                                        | 指數<br>Index | 年增率<br>Annual rate of change | 生產力<br>Productivity     | 指數<br>Index | 年增率<br>Annual rate of change |
| 0.223                                                      | 98.22       | -                            | 0.788                   | 101.12      | -                            |
| 0.229                                                      | 101.05      | 2.89                         | 0.794                   | 101.84      | 0.72                         |
| 0.225                                                      | 99.26       | -1.78                        | 0.768                   | 98.49       | -3.29                        |
| 0.220                                                      | 97.09       | -2.18                        | 0.750                   | 96.23       | -2.30                        |
| 0.221                                                      | 97.34       | 0.25                         | 0.765                   | 98.16       | 2.01                         |
| 0.227                                                      | 100.00      | 2.73                         | 0.779                   | 100.00      | 1.87                         |
| 0.230                                                      | 101.42      | 1.42                         | 0.785                   | 100.65      | 0.65                         |
| 0.229                                                      | 101.16      | -0.26                        | 0.785                   | 100.75      | 0.09                         |
| 0.230                                                      | 101.56      | 0.39                         | 0.779                   | 99.94       | -0.80                        |
| 0.235                                                      | 103.49      | 1.91                         | 0.791                   | 101.52      | 1.58                         |

Note : 1.The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

2.The data in this table are mid-year data.

表5 工業及服務業部門歷年固定資本（不含土地）淨生產力指數  
（按95年價格計算）

基期：民國95年=100

單位：新台幣百萬元/百萬元；%

| 年 別<br>Year | 工業及服務業<br>Industry & Services |        |                       | 工業部門<br>Industry |        |                       |
|-------------|-------------------------------|--------|-----------------------|------------------|--------|-----------------------|
|             | 生產力                           | 指數     | 年增率                   | 生產力              | 指數     | 年增率                   |
|             | Productivity                  | Index  | Annual rate of change | Productivity     | Index  | Annual rate of change |
| 90年 2001    | 0.409                         | 93.50  | -                     | 0.349            | 92.55  | -                     |
| 91年 2002    | 0.419                         | 95.65  | 2.29                  | 0.369            | 97.83  | 5.70                  |
| 92年 2003    | 0.419                         | 95.80  | 0.16                  | 0.377            | 99.91  | 2.12                  |
| 93年 2004    | 0.430                         | 98.29  | 2.60                  | 0.384            | 101.82 | 1.91                  |
| 94年 2005    | 0.433                         | 98.82  | 0.53                  | 0.378            | 100.34 | -1.46                 |
| 95年 2006    | 0.438                         | 100.00 | 1.19                  | 0.377            | 100.00 | -0.34                 |
| 96年 2007    | 0.448                         | 102.34 | 2.34                  | 0.380            | 100.91 | 0.91                  |
| 97年 2008    | 0.433                         | 98.85  | -3.41                 | 0.351            | 93.17  | -7.67                 |
| 98年 2009    | 0.413                         | 94.29  | -4.62                 | 0.322            | 85.44  | -8.30                 |
| 99年 2010    | 0.466                         | 106.50 | 12.95                 | 0.407            | 108.01 | 26.42                 |

| 年 別<br>Year | 用水供應及污染整治業<br>Water supply & remediation service |        |                       | 營造業<br>Construction |        |                       |
|-------------|--------------------------------------------------|--------|-----------------------|---------------------|--------|-----------------------|
|             | 生產力                                              | 指數     | 年增率                   | 生產力                 | 指數     | 年增率                   |
|             | Productivity                                     | Index  | Annual rate of change | Productivity        | Index  | Annual rate of change |
| 90年 2001    | 0.156                                            | 60.18  | -                     | 0.866               | 96.38  | -                     |
| 91年 2002    | 0.175                                            | 67.54  | 12.23                 | 0.881               | 98.02  | 1.71                  |
| 92年 2003    | 0.195                                            | 75.01  | 11.07                 | 0.834               | 92.79  | -5.34                 |
| 93年 2004    | 0.215                                            | 83.01  | 10.66                 | 0.887               | 98.67  | 6.34                  |
| 94年 2005    | 0.237                                            | 91.34  | 10.03                 | 0.887               | 98.66  | -0.01                 |
| 95年 2006    | 0.260                                            | 100.00 | 9.49                  | 0.899               | 100.00 | 1.36                  |
| 96年 2007    | 0.285                                            | 109.92 | 9.92                  | 0.896               | 99.65  | -0.35                 |
| 97年 2008    | 0.287                                            | 110.65 | 0.66                  | 0.827               | 91.94  | -7.74                 |
| 98年 2009    | 0.278                                            | 107.23 | -3.10                 | 0.756               | 84.07  | -8.57                 |
| 99年 2010    | 0.279                                            | 107.43 | 0.19                  | 0.836               | 92.98  | 10.60                 |

註：本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

**TABLE 5 SERIES OF NET FIXED CAPITAL STOCK (EXCLUDED LAND)**  
**PRODUCTIVITY OF INDUSTRIAL & SERVICE SECTORS**  
**(AT 2006 CONSTANT PRICE)**

Base : 2006=100

Unit : Million/Million NT\$ : %

| 礦業及土石採取業<br>Mining & quarrying |             |                              | 製造業<br>Manufacturing |             |                              | 電力及燃氣供應業<br>Electricity & gas supply |             |                              |
|--------------------------------|-------------|------------------------------|----------------------|-------------|------------------------------|--------------------------------------|-------------|------------------------------|
| 生產力<br>Productivity            | 指數<br>Index | 年增率<br>Annual rate of change | 生產力<br>Productivity  | 指數<br>Index | 年增率<br>Annual rate of change | 生產力<br>Productivity                  | 指數<br>Index | 年增率<br>Annual rate of change |
| 3.307                          | 87.12       | -                            | 0.381                | 92.41       | -                            | 0.038                                | 91.19       | -                            |
| 3.817                          | 100.55      | 15.42                        | 0.406                | 98.44       | 6.53                         | 0.039                                | 95.31       | 4.52                         |
| 3.384                          | 89.15       | -11.34                       | 0.421                | 102.23      | 3.85                         | 0.040                                | 96.90       | 1.67                         |
| 3.830                          | 100.91      | 13.19                        | 0.425                | 103.12      | 0.87                         | 0.039                                | 95.28       | -1.67                        |
| 4.270                          | 112.49      | 11.48                        | 0.415                | 100.57      | -2.47                        | 0.043                                | 102.90      | 8.00                         |
| 3.796                          | 100.00      | -11.11                       | 0.412                | 100.00      | -0.57                        | 0.041                                | 100.00      | -2.82                        |
| 5.488                          | 144.57      | 44.57                        | 0.413                | 100.28      | 0.28                         | 0.041                                | 98.73       | -1.27                        |
| 5.809                          | 153.04      | 5.86                         | 0.382                | 92.69       | -7.57                        | 0.030                                | 71.82       | -27.25                       |
| 7.796                          | 205.39      | 34.21                        | 0.350                | 85.01       | -8.28                        | 0.023                                | 55.18       | -23.16                       |
| 12.225                         | 322.08      | 56.81                        | 0.452                | 109.58      | 28.90                        | 0.029                                | 68.81       | 24.69                        |

| 服務業部門<br>Services   |             |                              | 批發及零售業<br>Wholesale & retail trade |             |                              | 運輸及倉儲業<br>Transportation & storage |             |                              |
|---------------------|-------------|------------------------------|------------------------------------|-------------|------------------------------|------------------------------------|-------------|------------------------------|
| 生產力<br>Productivity | 指數<br>Index | 年增率<br>Annual rate of change | 生產力<br>Productivity                | 指數<br>Index | 年增率<br>Annual rate of change | 生產力<br>Productivity                | 指數<br>Index | 年增率<br>Annual rate of change |
| 0.448               | 92.16       | -                            | 0.528                              | 88.89       | -                            | 0.103                              | 102.46      | -                            |
| 0.451               | 92.95       | 0.85                         | 0.536                              | 90.18       | 1.45                         | 0.104                              | 103.59      | 1.10                         |
| 0.448               | 92.30       | -0.69                        | 0.538                              | 90.46       | 0.31                         | 0.102                              | 100.83      | -2.67                        |
| 0.463               | 95.36       | 3.31                         | 0.560                              | 94.24       | 4.18                         | 0.103                              | 102.50      | 1.66                         |
| 0.473               | 97.44       | 2.18                         | 0.581                              | 97.74       | 3.72                         | 0.101                              | 99.81       | -2.62                        |
| 0.486               | 100.00      | 2.63                         | 0.594                              | 100.00      | 2.31                         | 0.101                              | 100.00      | 0.19                         |
| 0.505               | 103.93      | 3.93                         | 0.614                              | 103.27      | 3.27                         | 0.106                              | 104.93      | 4.93                         |
| 0.505               | 103.93      | 0.00                         | 0.610                              | 102.63      | -0.62                        | 0.106                              | 105.66      | 0.70                         |
| 0.494               | 101.68      | -2.16                        | 0.587                              | 98.80       | -3.73                        | 0.105                              | 104.16      | -1.42                        |
| 0.520               | 107.00      | 5.23                         | 0.598                              | 100.69      | 1.92                         | 0.117                              | 116.28      | 11.63                        |

Note : The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

表5 工業及服務業部門歷年固定資本（不含土地）淨生產力指數（續）  
（按95年價格計算）

基期：民國95年=100

單位：新台幣百萬元/百萬元；%

| 年 別<br>Year | 住宿及餐飲業<br>Accommodation & food services |        |                       | 資訊及通訊傳播業<br>Information & communication |        |                       |
|-------------|-----------------------------------------|--------|-----------------------|-----------------------------------------|--------|-----------------------|
|             | 生產力                                     | 指數     | 年增率                   | 生產力                                     | 指數     | 年增率                   |
|             | Productivity                            | Index  | Annual rate of change | Productivity                            | Index  | Annual rate of change |
| 90年 2001    | 0.339                                   | 93.87  | -                     | 0.407                                   | 93.36  | -                     |
| 91年 2002    | 0.336                                   | 93.10  | -0.83                 | 0.401                                   | 91.96  | -1.50                 |
| 92年 2003    | 0.326                                   | 90.25  | -3.06                 | 0.397                                   | 90.90  | -1.16                 |
| 93年 2004    | 0.335                                   | 92.88  | 2.91                  | 0.409                                   | 93.78  | 3.17                  |
| 94年 2005    | 0.351                                   | 97.20  | 4.66                  | 0.418                                   | 95.89  | 2.25                  |
| 95年 2006    | 0.361                                   | 100.00 | 2.88                  | 0.436                                   | 100.00 | 4.28                  |
| 96年 2007    | 0.367                                   | 101.65 | 1.65                  | 0.457                                   | 104.71 | 4.71                  |
| 97年 2008    | 0.353                                   | 97.85  | -3.74                 | 0.481                                   | 110.30 | 5.34                  |
| 98年 2009    | 0.345                                   | 95.62  | -2.27                 | 0.509                                   | 116.77 | 5.87                  |
| 99年 2010    | 0.379                                   | 104.89 | 9.69                  | 0.574                                   | 131.57 | 12.68                 |

| 年 別<br>Year | 支援服務業<br>Support services |        |                       | 醫療保健服務業<br>Human health services |        |                       |
|-------------|---------------------------|--------|-----------------------|----------------------------------|--------|-----------------------|
|             | 生產力                       | 指數     | 年增率                   | 生產力                              | 指數     | 年增率                   |
|             | Productivity              | Index  | Annual rate of change | Productivity                     | Index  | Annual rate of change |
| 90年 2001    | 0.367                     | 64.22  | -                     | 0.995                            | 114.22 | -                     |
| 91年 2002    | 0.408                     | 71.29  | 11.02                 | 1.048                            | 120.24 | 5.26                  |
| 92年 2003    | 0.417                     | 72.89  | 2.24                  | 1.048                            | 120.21 | -0.02                 |
| 93年 2004    | 0.464                     | 81.06  | 11.22                 | 1.054                            | 120.89 | 0.57                  |
| 94年 2005    | 0.511                     | 89.34  | 10.21                 | 1.018                            | 116.75 | -3.43                 |
| 95年 2006    | 0.572                     | 100.00 | 11.93                 | 0.872                            | 100.00 | -14.35                |
| 96年 2007    | 0.599                     | 104.77 | 4.77                  | 0.897                            | 102.93 | 2.93                  |
| 97年 2008    | 0.622                     | 108.70 | 3.75                  | 1.019                            | 116.90 | 13.57                 |
| 98年 2009    | 0.593                     | 103.66 | -4.64                 | 1.038                            | 119.08 | 1.86                  |
| 99年 2010    | 0.618                     | 108.09 | 4.28                  | 1.029                            | 118.02 | -0.88                 |

註：本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

**TABLE 5 SERIES OF NET FIXED CAPITAL STOCK (EXCLUDED LAND)**  
**PRODUCTIVITY OF INDUSTRIAL & SERVICE SECTORS (CONT.)**  
**(AT 2006 CONSTANT PRICE)**

Base : 2006=100

Unit : Million/Million NT\$ ; %

| 金融及保險業<br>Finance & insurance |             |                              | 不動產業<br>Real estate |             |                              | 專業、科學及技術服務業<br>Professional , scientific & technical services |             |                              |
|-------------------------------|-------------|------------------------------|---------------------|-------------|------------------------------|---------------------------------------------------------------|-------------|------------------------------|
| 生產力<br>Productivity           | 指數<br>Index | 年增率<br>Annual rate of change | 生產力<br>Productivity | 指數<br>Index | 年增率<br>Annual rate of change | 生產力<br>Productivity                                           | 指數<br>Index | 年增率<br>Annual rate of change |
| 1.217                         | 104.84      | -                            | 0.277               | 55.28       | -                            | 0.673                                                         | 83.69       | -                            |
| 1.177                         | 101.38      | -3.29                        | 0.227               | 45.14       | -18.33                       | 0.697                                                         | 86.73       | 3.63                         |
| 1.128                         | 97.21       | -4.12                        | 0.281               | 55.91       | 23.85                        | 0.704                                                         | 87.63       | 1.03                         |
| 1.168                         | 100.61      | 3.50                         | 0.335               | 66.75       | 19.39                        | 0.725                                                         | 90.24       | 2.98                         |
| 1.171                         | 100.93      | 0.31                         | 0.368               | 73.31       | 9.83                         | 0.738                                                         | 91.79       | 1.72                         |
| 1.161                         | 100.00      | -0.92                        | 0.502               | 100.00      | 36.40                        | 0.804                                                         | 100.00      | 8.95                         |
| 1.220                         | 105.11      | 5.11                         | 0.500               | 99.67       | -0.33                        | 0.852                                                         | 106.04      | 6.04                         |
| 1.185                         | 102.09      | -2.87                        | 0.434               | 86.46       | -13.25                       | 0.823                                                         | 102.35      | -3.48                        |
| 1.083                         | 93.34       | -8.57                        | 0.404               | 80.61       | -6.77                        | 0.818                                                         | 101.77      | -0.57                        |
| 1.172                         | 100.96      | 8.16                         | 0.443               | 88.22       | 9.44                         | 0.845                                                         | 105.11      | 3.29                         |

| 藝術、娛樂及休閒服務業<br>Art , entertainment & recreational services |             |                              | 其他服務業<br>Other services |             |                              |
|------------------------------------------------------------|-------------|------------------------------|-------------------------|-------------|------------------------------|
| 生產力<br>Productivity                                        | 指數<br>Index | 年增率<br>Annual rate of change | 生產力<br>Productivity     | 指數<br>Index | 年增率<br>Annual rate of change |
| 0.266                                                      | 87.53       | -                            | 0.954                   | 92.57       | -                            |
| 0.280                                                      | 92.07       | 5.19                         | 0.974                   | 94.50       | 2.09                         |
| 0.279                                                      | 91.83       | -0.27                        | 0.957                   | 92.80       | -1.80                        |
| 0.278                                                      | 91.64       | -0.20                        | 0.950                   | 92.17       | -0.68                        |
| 0.288                                                      | 94.70       | 3.34                         | 0.991                   | 96.07       | 4.23                         |
| 0.304                                                      | 100.00      | 5.59                         | 1.031                   | 100.00      | 4.09                         |
| 0.320                                                      | 105.26      | 5.26                         | 1.059                   | 102.67      | 2.67                         |
| 0.325                                                      | 106.89      | 1.55                         | 1.080                   | 104.75      | 2.02                         |
| 0.333                                                      | 109.50      | 2.44                         | 1.093                   | 106.00      | 1.19                         |
| 0.348                                                      | 114.68      | 4.73                         | 1.132                   | 109.78      | 3.57                         |

Note : The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

表6 工業及服務業部門歷年資本毛額密集度（GK/L）

單位：新台幣百萬元/就業者千人；%

| 年 別<br>Year | 工業及服務業<br>Industry & Services |                              | 工業部門<br>Industry |                              |
|-------------|-------------------------------|------------------------------|------------------|------------------------------|
|             | 密集度<br>Intensity              | 年增率<br>Annual rate of change | 密集度<br>Intensity | 年增率<br>Annual rate of change |
| 90年 2001    | 2967.86                       | -                            | 3176.94          | -                            |
| 91年 2002    | 3136.17                       | 5.67                         | 3485.14          | 9.70                         |
| 92年 2003    | 3304.94                       | 5.38                         | 3748.82          | 7.57                         |
| 93年 2004    | 3421.75                       | 3.53                         | 3940.31          | 5.11                         |
| 94年 2005    | 3569.94                       | 4.33                         | 4176.85          | 6.00                         |
| 95年 2006    | 3727.98                       | 4.43                         | 4450.35          | 6.55                         |
| 96年 2007    | 3890.10                       | 4.35                         | 4725.28          | 6.18                         |
| 97年 2008    | 4061.59                       | 4.41                         | 5014.84          | 6.13                         |
| 98年 2009    | 4335.17                       | 6.74                         | 5500.71          | 9.69                         |
| 99年 2010    | 4434.92                       | 2.30                         | 5676.32          | 3.19                         |

| 年 別<br>Year | 用水供應及污染整治業<br>Water supply & remediation service |                              | 營造業<br>Construction |                              |
|-------------|--------------------------------------------------|------------------------------|---------------------|------------------------------|
|             | 密集度<br>Intensity                                 | 年增率<br>Annual rate of change | 密集度<br>Intensity    | 年增率<br>Annual rate of change |
| 90年 2001    | 6575.23                                          | -                            | 713.09              | -                            |
| 91年 2002    | 6701.73                                          | 1.92                         | 763.65              | 7.09                         |
| 92年 2003    | 6378.58                                          | -4.82                        | 820.09              | 7.39                         |
| 93年 2004    | 6170.96                                          | -3.25                        | 814.00              | -0.74                        |
| 94年 2005    | 6667.98                                          | 8.05                         | 783.53              | -3.74                        |
| 95年 2006    | 7121.90                                          | 6.81                         | 776.79              | -0.86                        |
| 96年 2007    | 6686.90                                          | -6.11                        | 791.03              | 1.83                         |
| 97年 2008    | 6338.42                                          | -5.21                        | 825.06              | 4.30                         |
| 98年 2009    | 6416.33                                          | 1.23                         | 912.78              | 10.63                        |
| 99年 2010    | 6279.62                                          | -2.13                        | 933.97              | 2.32                         |

註：本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

**TABLE 6 SERIES OF GROSS FIXED CAPITAL INTENSITY (GK/L)  
OF INDUSTRIAL & SERVICE SECTORS**

Unit : Million NT\$/Thousand Person : %

| 礦業及土石採取業<br>Mining & quarrying |                                 | 製造業<br>Manufacturing |                                 | 電力及燃氣供應業<br>Electricity & gas supply |                                 |
|--------------------------------|---------------------------------|----------------------|---------------------------------|--------------------------------------|---------------------------------|
| 密集度<br>Intensity               | 年增率<br>Annual rate<br>of change | 密集度<br>Intensity     | 年增率<br>Annual rate<br>of change | 密集度<br>Intensity                     | 年增率<br>Annual rate<br>of change |
| 10801.30                       | -                               | 3062.78              | -                               | 70032.36                             | -                               |
| 12316.83                       | 14.03                           | 3376.78              | 10.25                           | 74651.87                             | 6.60                            |
| 12617.44                       | 2.44                            | 3635.77              | 7.67                            | 76485.83                             | 2.46                            |
| 16561.14                       | 31.26                           | 3877.37              | 6.65                            | 80810.69                             | 5.65                            |
| 16870.29                       | 1.87                            | 4209.45              | 8.56                            | 85357.62                             | 5.63                            |
| 17207.86                       | 2.00                            | 4559.92              | 8.33                            | 93528.50                             | 9.57                            |
| 20490.67                       | 19.08                           | 4892.41              | 7.29                            | 98699.09                             | 5.53                            |
| 20908.75                       | 2.04                            | 5211.77              | 6.53                            | 103946.73                            | 5.32                            |
| 25559.50                       | 22.24                           | 5700.33              | 9.37                            | 105198.07                            | 1.20                            |
| 32519.25                       | 27.23                           | 5887.86              | 3.29                            | 109814.05                            | 4.39                            |

| 服務業部門<br>Services |                                 | 批發及零售業<br>Wholesale & retail trade |                                 | 運輸及倉儲業<br>Transportation & storage |                                 |
|-------------------|---------------------------------|------------------------------------|---------------------------------|------------------------------------|---------------------------------|
| 密集度<br>Intensity  | 年增率<br>Annual rate<br>of change | 密集度<br>Intensity                   | 年增率<br>Annual rate<br>of change | 密集度<br>Intensity                   | 年增率<br>Annual rate<br>of change |
| 2805.53           | -                               | 2355.50                            | -                               | 8111.21                            | -                               |
| 2874.94           | 2.47                            | 2412.47                            | 2.42                            | 8735.95                            | 7.70                            |
| 2976.09           | 3.52                            | 2487.89                            | 3.13                            | 8989.95                            | 2.91                            |
| 3035.68           | 2.00                            | 2539.61                            | 2.08                            | 9311.97                            | 3.58                            |
| 3114.79           | 2.61                            | 2643.34                            | 4.08                            | 9992.80                            | 7.31                            |
| 3187.36           | 2.33                            | 2701.66                            | 2.21                            | 10267.75                           | 2.75                            |
| 3261.05           | 2.31                            | 2776.26                            | 2.76                            | 10664.97                           | 3.87                            |
| 3341.64           | 2.47                            | 2908.21                            | 4.75                            | 10918.97                           | 2.38                            |
| 3482.64           | 4.22                            | 3087.45                            | 6.16                            | 11394.89                           | 4.36                            |
| 3526.06           | 1.25                            | 3193.11                            | 3.42                            | 11509.24                           | 1.00                            |

Note : The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

表6 工業及服務業部門歷年資本毛額密集度（GK/L）（續）

單位：新台幣百萬元/就業者千人；%

| 年 別<br>Year | 住宿及餐飲業<br>Accommodation & food services |                              | 資訊及通訊傳播業<br>Information & communication |                              |
|-------------|-----------------------------------------|------------------------------|-----------------------------------------|------------------------------|
|             | 密集度<br>Intensity                        | 年增率<br>Annual rate of change | 密集度<br>Intensity                        | 年增率<br>Annual rate of change |
| 90年 2001    | 1285.35                                 | -                            | 6394.46                                 | -                            |
| 91年 2002    | 1215.65                                 | -5.42                        | 7024.02                                 | 9.85                         |
| 92年 2003    | 1227.98                                 | 1.01                         | 7753.68                                 | 10.39                        |
| 93年 2004    | 1235.28                                 | 0.59                         | 7950.00                                 | 2.53                         |
| 94年 2005    | 1213.01                                 | -1.80                        | 8199.81                                 | 3.14                         |
| 95年 2006    | 1194.08                                 | -1.56                        | 8150.55                                 | -0.60                        |
| 96年 2007    | 1205.51                                 | 0.96                         | 8573.41                                 | 5.19                         |
| 97年 2008    | 1237.07                                 | 2.62                         | 9065.48                                 | 5.74                         |
| 98年 2009    | 1267.30                                 | 2.44                         | 9237.81                                 | 1.90                         |
| 99年 2010    | 1247.56                                 | -1.56                        | 9513.24                                 | 2.98                         |

| 年 別<br>Year | 支援服務業<br>Support services |                              | 醫療保健服務業<br>Human health services |                              |
|-------------|---------------------------|------------------------------|----------------------------------|------------------------------|
|             | 密集度<br>Intensity          | 年增率<br>Annual rate of change | 密集度<br>Intensity                 | 年增率<br>Annual rate of change |
| 90年 2001    | 2254.49                   | -                            | 1666.99                          | -                            |
| 91年 2002    | 2292.99                   | 1.71                         | 1671.60                          | 0.28                         |
| 92年 2003    | 2105.64                   | -8.17                        | 1689.09                          | 1.05                         |
| 93年 2004    | 2150.35                   | 2.12                         | 1708.36                          | 1.14                         |
| 94年 2005    | 2132.87                   | -0.81                        | 1692.73                          | -0.92                        |
| 95年 2006    | 2147.79                   | 0.70                         | 1859.33                          | 9.84                         |
| 96年 2007    | 2172.90                   | 1.17                         | 1907.57                          | 2.59                         |
| 97年 2008    | 2136.98                   | -1.65                        | 1794.71                          | -5.92                        |
| 98年 2009    | 2235.27                   | 4.60                         | 1828.78                          | 1.90                         |
| 99年 2010    | 2325.95                   | 4.06                         | 1838.31                          | 0.52                         |

註：本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

**TABLE 6 SERIES OF GROSS FIXED CAPITAL INTENSITY (GK/L)  
OF INDUSTRIAL & SERVICE SECTORS (CONT.)**

| Unit : Million NT\$/Thousand Person ; %                    |                                 |                     |                                 |                                                               |                                 |
|------------------------------------------------------------|---------------------------------|---------------------|---------------------------------|---------------------------------------------------------------|---------------------------------|
| 金融及保險業<br>Finance & insurance                              |                                 | 不動產業<br>Real estate |                                 | 專業、科學及技術服務業<br>Professional , scientific & technical services |                                 |
| 密集度<br>Intensity                                           | 年增率<br>Annual rate<br>of change | 密集度<br>Intensity    | 年增率<br>Annual rate<br>of change | 密集度<br>Intensity                                              | 年增率<br>Annual rate<br>of change |
| 2519.95                                                    | -                               | 8318.74             | -                               | 1705.32                                                       | -                               |
| 2716.64                                                    | 7.81                            | 8533.35             | 2.58                            | 1623.06                                                       | -4.82                           |
| 2975.32                                                    | 9.52                            | 8408.91             | -1.46                           | 1655.67                                                       | 2.01                            |
| 3117.96                                                    | 4.79                            | 7087.05             | -15.72                          | 1676.41                                                       | 1.25                            |
| 3245.97                                                    | 4.11                            | 6713.98             | -5.26                           | 1598.32                                                       | -4.66                           |
| 3479.04                                                    | 7.18                            | 6499.35             | -3.20                           | 1617.67                                                       | 1.21                            |
| 3722.69                                                    | 7.00                            | 6072.50             | -6.57                           | 1495.68                                                       | -7.54                           |
| 3852.27                                                    | 3.48                            | 6358.75             | 4.71                            | 1488.91                                                       | -0.45                           |
| 4033.94                                                    | 4.72                            | 7231.18             | 13.72                           | 1577.89                                                       | 5.98                            |
| 4070.66                                                    | 0.91                            | 6865.88             | -5.05                           | 1613.54                                                       | 2.26                            |
| 藝術、娛樂及休閒服務業<br>Art , entertainment & recreational services |                                 |                     |                                 | 其他服務業<br>Other services                                       |                                 |
| 密集度<br>Intensity                                           | 年增率<br>Annual rate<br>of change | 密集度<br>Intensity    | 年增率<br>Annual rate<br>of change | 密集度<br>Intensity                                              | 年增率<br>Annual rate<br>of change |
| 4568.81                                                    | -                               | 737.70              | -                               |                                                               |                                 |
| 4016.06                                                    | -12.10                          | 779.05              | 5.61                            |                                                               |                                 |
| 4098.53                                                    | 2.05                            | 816.04              | 4.75                            |                                                               |                                 |
| 4109.81                                                    | 0.28                            | 812.38              | -0.45                           |                                                               |                                 |
| 4173.88                                                    | 1.56                            | 837.79              | 3.13                            |                                                               |                                 |
| 4513.01                                                    | 8.12                            | 855.83              | 2.15                            |                                                               |                                 |
| 5092.43                                                    | 12.84                           | 882.00              | 3.06                            |                                                               |                                 |
| 5404.43                                                    | 6.13                            | 900.96              | 2.15                            |                                                               |                                 |
| 5959.18                                                    | 10.26                           | 932.36              | 3.48                            |                                                               |                                 |
| 6036.50                                                    | 1.30                            | 949.54              | 1.84                            |                                                               |                                 |

Note : The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

表7 工業及服務業部門歷年資本淨額密集度(NK/L)

單位：新台幣百萬元/就業者千人；%

| 年 別<br>Year | 工業及服務業<br>Industry & Services |                              | 工業部門<br>Industry |                              |
|-------------|-------------------------------|------------------------------|------------------|------------------------------|
|             | 密集度<br>Intensity              | 年增率<br>Annual rate of change | 密集度<br>Intensity | 年增率<br>Annual rate of change |
| 90年 2001    | 1896.29                       | -                            | 1682.90          | -                            |
| 91年 2002    | 1955.34                       | 3.11                         | 1808.92          | 7.49                         |
| 92年 2003    | 2013.11                       | 2.95                         | 1908.25          | 5.49                         |
| 93年 2004    | 2042.28                       | 1.45                         | 1982.64          | 3.90                         |
| 94年 2005    | 2093.94                       | 2.53                         | 2090.45          | 5.44                         |
| 95年 2006    | 2150.34                       | 2.69                         | 2214.20          | 5.92                         |
| 96年 2007    | 2206.16                       | 2.60                         | 2343.14          | 5.82                         |
| 97年 2008    | 2255.41                       | 2.23                         | 2458.63          | 4.93                         |
| 98年 2009    | 2338.28                       | 3.67                         | 2612.85          | 6.27                         |
| 99年 2010    | 2324.92                       | -0.57                        | 2614.28          | 0.05                         |

| 年 別<br>Year | 用水供應及污染整治業<br>Water supply & remediation service |                              | 營造業<br>Construction |                              |
|-------------|--------------------------------------------------|------------------------------|---------------------|------------------------------|
|             | 密集度<br>Intensity                                 | 年增率<br>Annual rate of change | 密集度<br>Intensity    | 年增率<br>Annual rate of change |
| 90年 2001    | 4502.82                                          | -                            | 439.68              | -                            |
| 91年 2002    | 4488.20                                          | -0.32                        | 457.54              | 4.06                         |
| 92年 2003    | 4180.24                                          | -6.86                        | 478.25              | 4.52                         |
| 93年 2004    | 3944.30                                          | -5.64                        | 462.09              | -3.38                        |
| 94年 2005    | 4156.19                                          | 5.37                         | 434.00              | -6.08                        |
| 95年 2006    | 4342.11                                          | 4.47                         | 420.71              | -3.06                        |
| 96年 2007    | 3994.95                                          | -8.00                        | 419.78              | -0.22                        |
| 97年 2008    | 3715.14                                          | -7.00                        | 429.36              | 2.28                         |
| 98年 2009    | 3700.22                                          | -0.40                        | 465.02              | 8.31                         |
| 99年 2010    | 3570.27                                          | -3.51                        | 466.18              | 0.25                         |

註：本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

**TABLE 7 SERIES OF NET FIXED CAPITAL INTENSITY (NK/L)  
OF INDUSTRIAL & SERVICE SECTORS**

Unit : Million NT\$/Thousand Person : %

| 礦業及土石採取業<br>Mining & quarrying |                                 | 製造業<br>Manufacturing |                                 | 電力及燃氣供應業<br>Electricity & gas supply |                                 |
|--------------------------------|---------------------------------|----------------------|---------------------------------|--------------------------------------|---------------------------------|
| 密集度<br>Intensity               | 年增率<br>Annual rate<br>of change | 密集度<br>Intensity     | 年增率<br>Annual rate<br>of change | 密集度<br>Intensity                     | 年增率<br>Annual rate<br>of change |
| 1824.48                        | -                               | 1614.28              | -                               | 35629.75                             | -                               |
| 1833.05                        | 0.47                            | 1744.86              | 8.09                            | 37365.33                             | 4.87                            |
| 1645.81                        | -10.21                          | 1844.37              | 5.70                            | 37582.49                             | 0.58                            |
| 1844.38                        | 12.06                           | 1953.18              | 5.90                            | 38844.04                             | 3.36                            |
| 1564.73                        | -15.16                          | 2120.49              | 8.57                            | 40223.84                             | 3.55                            |
| 1337.86                        | -14.50                          | 2291.35              | 8.06                            | 43398.11                             | 7.89                            |
| 1326.33                        | -0.86                           | 2458.81              | 7.31                            | 45098.41                             | 3.92                            |
| 1101.71                        | -16.94                          | 2592.56              | 5.44                            | 46781.84                             | 3.73                            |
| 1033.81                        | -6.16                           | 2739.51              | 5.67                            | 46323.07                             | -0.98                           |
| 927.03                         | -10.33                          | 2739.37              | -0.01                           | 46970.79                             | 1.40                            |

| 服務業部門<br>Services |                                 | 批發及零售業<br>Wholesale & retail trade |                                 | 運輸及倉儲業<br>Transportation & storage |                                 |
|-------------------|---------------------------------|------------------------------------|---------------------------------|------------------------------------|---------------------------------|
| 密集度<br>Intensity  | 年增率<br>Annual rate<br>of change | 密集度<br>Intensity                   | 年增率<br>Annual rate<br>of change | 密集度<br>Intensity                   | 年增率<br>Annual rate<br>of change |
| 2061.98           | -                               | 1887.87                            | -                               | 5970.41                            | -                               |
| 2064.95           | 0.14                            | 1899.15                            | 0.60                            | 6311.87                            | 5.72                            |
| 2090.79           | 1.25                            | 1925.33                            | 1.38                            | 6398.19                            | 1.37                            |
| 2086.68           | -0.20                           | 1933.61                            | 0.43                            | 6545.45                            | 2.30                            |
| 2096.56           | 0.47                            | 1982.13                            | 2.51                            | 6946.79                            | 6.13                            |
| 2102.55           | 0.29                            | 1996.49                            | 0.72                            | 7034.31                            | 1.26                            |
| 2102.99           | 0.02                            | 2023.27                            | 1.34                            | 7171.61                            | 1.95                            |
| 2101.93           | -0.05                           | 2091.54                            | 3.37                            | 7180.53                            | 0.12                            |
| 2137.45           | 1.69                            | 2191.51                            | 4.78                            | 7301.37                            | 1.68                            |
| 2113.06           | -1.14                           | 2238.77                            | 2.16                            | 7200.77                            | -1.38                           |

Note : The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

表7 工業及服務業部門歷年資本淨額密集度（NK/L）（續）

單位：新台幣百萬元/就業者千人；%

| 年 別<br>Year | 住宿及餐飲業<br>Accommodation & food services |                              | 資訊及通訊傳播業<br>Information & communication |                              |
|-------------|-----------------------------------------|------------------------------|-----------------------------------------|------------------------------|
|             | 密集度<br>Intensity                        | 年增率<br>Annual rate of change | 密集度<br>Intensity                        | 年增率<br>Annual rate of change |
| 90年 2001    | 1055.89                                 | -                            | 3445.29                                 | -                            |
| 91年 2002    | 980.34                                  | -7.16                        | 3749.88                                 | 8.84                         |
| 92年 2003    | 972.03                                  | -0.85                        | 4043.15                                 | 7.82                         |
| 93年 2004    | 959.45                                  | -1.29                        | 3998.12                                 | -1.11                        |
| 94年 2005    | 923.80                                  | -3.72                        | 3946.85                                 | -1.28                        |
| 95年 2006    | 889.96                                  | -3.66                        | 3736.92                                 | -5.32                        |
| 96年 2007    | 878.65                                  | -1.27                        | 3746.28                                 | 0.25                         |
| 97年 2008    | 880.85                                  | 0.25                         | 3786.76                                 | 1.08                         |
| 98年 2009    | 880.85                                  | 0.25                         | 3786.76                                 | 1.08                         |
| 99年 2010    | 877.79                                  | -0.35                        | 3684.97                                 | -2.69                        |

| 年 別<br>Year | 支援服務業<br>Support services |                              | 醫療保健服務業<br>Human health services |                              |
|-------------|---------------------------|------------------------------|----------------------------------|------------------------------|
|             | 密集度<br>Intensity          | 年增率<br>Annual rate of change | 密集度<br>Intensity                 | 年增率<br>Annual rate of change |
| 90年 2001    | 1515.60                   | -                            | 1154.50                          | -                            |
| 91年 2002    | 1483.00                   | -2.15                        | 1109.56                          | -3.89                        |
| 92年 2003    | 1311.08                   | -11.59                       | 1073.37                          | -3.26                        |
| 93年 2004    | 1289.69                   | -1.63                        | 1042.16                          | -2.91                        |
| 94年 2005    | 1239.99                   | -3.85                        | 994.51                           | -4.57                        |
| 95年 2006    | 1217.88                   | -1.78                        | 1118.85                          | 12.50                        |
| 96年 2007    | 1206.83                   | -0.91                        | 1114.79                          | -0.36                        |
| 97年 2008    | 1161.29                   | -3.77                        | 963.29                           | -13.59                       |
| 98年 2009    | 1182.22                   | 1.80                         | 956.71                           | -0.68                        |
| 99年 2010    | 1206.29                   | 2.04                         | 935.59                           | -2.21                        |

註：本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

**TABLE 7 SERIES OF NET FIXED CAPITAL INTENSITY (NK/L)  
OF INDUSTRIAL & SERVICE SECTORS (CONT.)**

| Unit : Million NT\$/Thousand Person ; %                    |                                 |                     |                                 |                                                               |                                 |
|------------------------------------------------------------|---------------------------------|---------------------|---------------------------------|---------------------------------------------------------------|---------------------------------|
| 金融及保險業<br>Finance & insurance                              |                                 | 不動產業<br>Real estate |                                 | 專業、科學及技術服務業<br>Professional , scientific & technical services |                                 |
| 密集度<br>Intensity                                           | 年增率<br>Annual rate<br>of change | 密集度<br>Intensity    | 年增率<br>Annual rate<br>of change | 密集度<br>Intensity                                              | 年增率<br>Annual rate<br>of change |
| 1525.59                                                    | -                               | 6974.47             | -                               | 1332.92                                                       | -                               |
| 1578.84                                                    | 3.49                            | 7027.32             | 0.76                            | 1241.67                                                       | -6.85                           |
| 1659.73                                                    | 5.12                            | 6813.89             | -3.04                           | 1239.13                                                       | -0.20                           |
| 1670.21                                                    | 0.63                            | 5647.54             | -17.12                          | 1221.61                                                       | -1.41                           |
| 1672.31                                                    | 0.13                            | 5261.64             | -6.83                           | 1136.43                                                       | -6.97                           |
| 1721.30                                                    | 2.93                            | 5011.03             | -4.76                           | 1124.77                                                       | -1.03                           |
| 1757.58                                                    | 2.11                            | 4612.92             | -7.94                           | 1016.82                                                       | -9.60                           |
| 1727.62                                                    | -1.70                           | 4764.73             | 3.29                            | 990.95                                                        | -2.54                           |
| 1727.62                                                    | -1.70                           | 4764.73             | 3.29                            | 990.95                                                        | -2.54                           |
| 1721.75                                                    | -0.34                           | 5342.23             | 12.12                           | 1033.27                                                       | 4.27                            |
|                                                            |                                 |                     |                                 |                                                               |                                 |
| 藝術、娛樂及休閒服務業<br>Art , entertainment & recreational services |                                 |                     |                                 | 其他服務業<br>Other services                                       |                                 |
| 密集度<br>Intensity                                           | 年增率<br>Annual rate<br>of change | 密集度<br>Intensity    | 年增率<br>Annual rate<br>of change | 密集度<br>Intensity                                              | 年增率<br>Annual rate<br>of change |
| 3363.25                                                    | -                               | 591.73              | -                               |                                                               |                                 |
| 2894.24                                                    | -13.95                          | 615.91              | 4.09                            |                                                               |                                 |
| 2901.54                                                    | 0.25                            | 634.35              | 2.99                            |                                                               |                                 |
| 2850.50                                                    | -1.76                           | 619.91              | -2.28                           |                                                               |                                 |
| 2831.57                                                    | -0.66                           | 626.63              | 1.08                            |                                                               |                                 |
| 2990.12                                                    | 5.60                            | 627.37              | 0.12                            |                                                               |                                 |
| 3291.58                                                    | 10.08                           | 634.27              | 1.10                            |                                                               |                                 |
| 3415.58                                                    | 3.77                            | 635.97              | 0.27                            |                                                               |                                 |
| 3687.94                                                    | 7.97                            | 645.80              | 1.55                            |                                                               |                                 |
| 3652.78                                                    | -0.95                           | 645.83              | 0.00                            |                                                               |                                 |

Note : The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

表 8 工業及服務業部門要素投入份額

| 年 別<br>Year | 工業及服務業<br>Industry & Services |          | 工業部門<br>Industry |          |
|-------------|-------------------------------|----------|------------------|----------|
|             | 勞動份額                          | 資本份額     | 勞動份額             | 資本份額     |
|             | Labor                         | Capital  | Labor            | Capital  |
| 90年 2001    | 0.541910                      | 0.458090 | 0.616505         | 0.383495 |
| 91年 2002    | 0.508302                      | 0.491698 | 0.539114         | 0.460886 |
| 92年 2003    | 0.506602                      | 0.493398 | 0.524421         | 0.475579 |
| 93年 2004    | 0.502611                      | 0.497389 | 0.522308         | 0.477692 |
| 94年 2005    | 0.509585                      | 0.490415 | 0.541695         | 0.458305 |
| 95年 2006    | 0.515914                      | 0.484086 | 0.554880         | 0.445120 |
| 96年 2007    | 0.504617                      | 0.495383 | 0.543140         | 0.456860 |
| 97年 2008    | 0.529422                      | 0.470578 | 0.613312         | 0.386688 |
| 98年 2009    | 0.508601                      | 0.491399 | 0.549914         | 0.450086 |
| 99年 2010    | 0.493712                      | 0.506288 | 0.517572         | 0.482428 |

| 年 別<br>Year | 用水供應及污染整治業<br>Water supply & remediation service |          | 營造業<br>Construction |          |
|-------------|--------------------------------------------------|----------|---------------------|----------|
|             | 勞動份額                                             | 資本份額     | 勞動份額                | 資本份額     |
|             | Labor                                            | Capital  | Labor               | Capital  |
| 90年 2001    | 0.396347                                         | 0.603653 | 0.914067            | 0.085933 |
| 91年 2002    | 0.343678                                         | 0.656322 | 0.851692            | 0.148308 |
| 92年 2003    | 0.329806                                         | 0.670194 | 0.822112            | 0.177888 |
| 93年 2004    | 0.309796                                         | 0.690204 | 0.731050            | 0.268950 |
| 94年 2005    | 0.289340                                         | 0.710660 | 0.792256            | 0.207744 |
| 95年 2006    | 0.276134                                         | 0.723866 | 0.767937            | 0.232063 |
| 96年 2007    | 0.273873                                         | 0.726127 | 0.771149            | 0.228851 |
| 97年 2008    | 0.282061                                         | 0.717939 | 0.782356            | 0.217644 |
| 98年 2009    | 0.275844                                         | 0.724156 | 0.780149            | 0.219851 |
| 99年 2010    | 0.259705                                         | 0.740295 | 0.728871            | 0.271129 |

註：本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

TABLE 8 LABOR AND CAPITAL SHARES OF INDUSTRIAL &amp; SERVICE SECTORS

| 礦業及土石採取業<br>Mining & quarrying |                 | 製造業<br>Manufacturing |                 | 電力及燃氣供應業<br>Electricity & gas supply |                 |
|--------------------------------|-----------------|----------------------|-----------------|--------------------------------------|-----------------|
| 勞動份額<br>Labor                  | 資本份額<br>Capital | 勞動份額<br>Labor        | 資本份額<br>Capital | 勞動份額<br>Labor                        | 資本份額<br>Capital |
| 0.422779                       | 0.577221        | 0.545497             | 0.454503        | 0.225845                             | 0.774155        |
| 0.383759                       | 0.616241        | 0.480439             | 0.519561        | 0.216384                             | 0.783616        |
| 0.500502                       | 0.499498        | 0.467442             | 0.532558        | 0.283652                             | 0.716348        |
| 0.354329                       | 0.645671        | 0.466630             | 0.533370        | 0.339759                             | 0.660241        |
| 0.412504                       | 0.587496        | 0.483245             | 0.516755        | 0.339656                             | 0.660344        |
| 0.474555                       | 0.525445        | 0.492788             | 0.507212        | 0.274456                             | 0.725544        |
| 0.292871                       | 0.707129        | 0.477248             | 0.522752        | 0.329724                             | 0.670276        |
| 0.857705                       | 0.142295        | 0.526247             | 0.473753        | 0.584782                             | 0.415218        |
| 0.285252                       | 0.714748        | 0.489014             | 0.510986        | 0.236499                             | 0.763501        |
| 0.216552                       | 0.783448        | 0.459186             | 0.540814        | 0.263060                             | 0.736940        |

| 服務業部門<br>Services |                 | 批發及零售業<br>Wholesale & retail trade |                 | 運輸及倉儲業<br>Transportation & storage |                 |
|-------------------|-----------------|------------------------------------|-----------------|------------------------------------|-----------------|
| 勞動份額<br>Labor     | 資本份額<br>Capital | 勞動份額<br>Labor                      | 資本份額<br>Capital | 勞動份額<br>Labor                      | 資本份額<br>Capital |
| 0.501342          | 0.498658        | 0.442261                           | 0.557739        | 0.498979                           | 0.501021        |
| 0.489941          | 0.510059        | 0.439913                           | 0.560087        | 0.466496                           | 0.533504        |
| 0.495336          | 0.504664        | 0.438890                           | 0.561110        | 0.480296                           | 0.519704        |
| 0.490066          | 0.509934        | 0.426037                           | 0.573963        | 0.443903                           | 0.556097        |
| 0.489834          | 0.510166        | 0.418763                           | 0.581237        | 0.469118                           | 0.530882        |
| 0.492124          | 0.507876        | 0.410140                           | 0.589860        | 0.489291                           | 0.510709        |
| 0.481259          | 0.518741        | 0.388981                           | 0.611019        | 0.486998                           | 0.513002        |
| 0.484107          | 0.515893        | 0.386421                           | 0.613579        | 0.497331                           | 0.502669        |
| 0.485985          | 0.514015        | 0.381639                           | 0.618361        | 0.528269                           | 0.471731        |
| 0.479242          | 0.520758        | 0.375790                           | 0.624210        | 0.475318                           | 0.524682        |

Note : The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

表 8 工業及服務業部門要素投入份額（續）

| 年 別<br>Year | 住宿及餐飲業<br>Accommodation & food services |          | 資訊及通訊傳播業<br>Information & communication |          |
|-------------|-----------------------------------------|----------|-----------------------------------------|----------|
|             | 勞動份額                                    | 資本份額     | 勞動份額                                    | 資本份額     |
|             | Labor                                   | Capital  | Labor                                   | Capital  |
| 90年 2001    | 0.537646                                | 0.462354 | 0.429209                                | 0.570791 |
| 91年 2002    | 0.534976                                | 0.465024 | 0.387309                                | 0.612691 |
| 92年 2003    | 0.538118                                | 0.461882 | 0.392860                                | 0.607140 |
| 93年 2004    | 0.586940                                | 0.413060 | 0.399534                                | 0.600466 |
| 94年 2005    | 0.576292                                | 0.423708 | 0.413416                                | 0.586584 |
| 95年 2006    | 0.591619                                | 0.408381 | 0.418784                                | 0.581216 |
| 96年 2007    | 0.598329                                | 0.401671 | 0.408543                                | 0.591457 |
| 97年 2008    | 0.627660                                | 0.372340 | 0.410245                                | 0.589755 |
| 98年 2009    | 0.623553                                | 0.376447 | 0.387246                                | 0.612754 |
| 99年 2010    | 0.621822                                | 0.378178 | 0.394222                                | 0.605778 |

| 年 別<br>Year | 支援服務業<br>Support services |          | 醫療保健服務業<br>Human health services |          |
|-------------|---------------------------|----------|----------------------------------|----------|
|             | 勞動份額                      | 資本份額     | 勞動份額                             | 資本份額     |
|             | Labor                     | Capital  | Labor                            | Capital  |
| 90年 2001    | 0.591375                  | 0.408625 | 0.678671                         | 0.321329 |
| 91年 2002    | 0.593668                  | 0.406332 | 0.651021                         | 0.348979 |
| 92年 2003    | 0.632194                  | 0.367806 | 0.664763                         | 0.335237 |
| 93年 2004    | 0.671995                  | 0.328005 | 0.672065                         | 0.327935 |
| 94年 2005    | 0.701940                  | 0.298060 | 0.680368                         | 0.319632 |
| 95年 2006    | 0.768003                  | 0.231997 | 0.669350                         | 0.330650 |
| 96年 2007    | 0.803136                  | 0.196864 | 0.653285                         | 0.346715 |
| 97年 2008    | 0.807648                  | 0.192352 | 0.650419                         | 0.349581 |
| 98年 2009    | 0.799666                  | 0.200334 | 0.647621                         | 0.352379 |
| 99年 2010    | 0.799454                  | 0.200546 | 0.666719                         | 0.333281 |

註：本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

TABLE 8 LABOR AND CAPITAL SHARES OF INDUSTRIAL &amp; SERVICE SECTORS (CONT.)

| 金融及保險業<br>Finance & insurance                              |                 | 不動產業<br>Real estate |                         | 專業、科學及技術服務業<br>Professional , scientific & technical services |                 |
|------------------------------------------------------------|-----------------|---------------------|-------------------------|---------------------------------------------------------------|-----------------|
| 勞動份額<br>Labor                                              | 資本份額<br>Capital | 勞動份額<br>Labor       | 資本份額<br>Capital         | 勞動份額<br>Labor                                                 | 資本份額<br>Capital |
| 0.440920                                                   | 0.559080        | 0.433549            | 0.566451                | 0.676895                                                      | 0.323105        |
| 0.421537                                                   | 0.578463        | 0.464313            | 0.535687                | 0.636083                                                      | 0.363917        |
| 0.445230                                                   | 0.554770        | 0.370597            | 0.629403                | 0.626678                                                      | 0.373322        |
| 0.438191                                                   | 0.561809        | 0.326225            | 0.673775                | 0.640020                                                      | 0.359980        |
| 0.428907                                                   | 0.571093        | 0.317224            | 0.682776                | 0.643176                                                      | 0.356824        |
| 0.454067                                                   | 0.545933        | 0.238927            | 0.761073                | 0.611860                                                      | 0.388140        |
| 0.455125                                                   | 0.544875        | 0.239534            | 0.760466                | 0.599614                                                      | 0.400386        |
| 0.439579                                                   | 0.560421        | 0.290439            | 0.709561                | 0.614804                                                      | 0.385196        |
| 0.458689                                                   | 0.541311        | 0.276983            | 0.723017                | 0.596316                                                      | 0.403684        |
| 0.455741                                                   | 0.544259        | 0.280691            | 0.719309                | 0.585522                                                      | 0.414478        |
|                                                            |                 |                     |                         |                                                               |                 |
| 藝術、娛樂及休閒服務業<br>Art , entertainment & recreational services |                 |                     | 其他服務業<br>Other services |                                                               |                 |
| 勞動份額<br>Labor                                              | 資本份額<br>Capital |                     | 勞動份額<br>Labor           | 資本份額<br>Capital                                               |                 |
|                                                            | 0.453617        |                     | 0.546383                | 0.833311                                                      | 0.166689        |
|                                                            | 0.493443        |                     | 0.506557                | 0.832195                                                      | 0.167805        |
|                                                            | 0.530066        |                     | 0.469934                | 0.821372                                                      | 0.178628        |
|                                                            | 0.596112        |                     | 0.403888                | 0.826721                                                      | 0.173279        |
|                                                            | 0.644712        |                     | 0.355288                | 0.812589                                                      | 0.187411        |
|                                                            | 0.768480        |                     | 0.231520                | 0.792225                                                      | 0.207775        |
|                                                            | 0.765209        |                     | 0.234791                | 0.770287                                                      | 0.229713        |
|                                                            | 0.756363        |                     | 0.243637                | 0.772706                                                      | 0.227294        |
|                                                            | 0.747478        |                     | 0.252522                | 0.769943                                                      | 0.230057        |
|                                                            | 0.740186        |                     | 0.259814                | 0.765999                                                      | 0.234001        |

Note : The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

表9 工業及服務業部門資本、勞動總投入指數(TORNQVIST)

基期：民國95年=100

| 年 別<br>Year | 工業及服務業<br>Industry & Services |                                 | 工業部門<br>Industry |                                 |
|-------------|-------------------------------|---------------------------------|------------------|---------------------------------|
|             | 指數<br>Index                   | 年增率<br>Annual rate<br>of change | 指數<br>Index      | 年增率<br>Annual rate<br>of change |
| 90年 2001    | 85.49                         | -                               | 81.36            | -                               |
| 91年 2002    | 87.57                         | 2.43                            | 83.21            | 2.27                            |
| 92年 2003    | 89.58                         | 2.29                            | 85.71            | 3.00                            |
| 93年 2004    | 93.46                         | 4.33                            | 90.83            | 5.98                            |
| 94年 2005    | 96.76                         | 3.53                            | 95.60            | 5.24                            |
| 95年 2006    | 100.00                        | 3.35                            | 100.00           | 4.61                            |
| 96年 2007    | 103.08                        | 3.08                            | 104.93           | 4.93                            |
| 97年 2008    | 105.01                        | 1.87                            | 107.63           | 2.57                            |
| 98年 2009    | 103.95                        | -1.01                           | 104.65           | -2.77                           |
| 99年 2010    | 107.09                        | 3.02                            | 109.69           | 4.82                            |

| 年 別<br>Year | 用水供應及污染整治業<br>Water supply & remediation service |                                 | 營造業<br>Construction |                                 |
|-------------|--------------------------------------------------|---------------------------------|---------------------|---------------------------------|
|             | 指數<br>Index                                      | 年增率<br>Annual rate<br>of change | 指數<br>Index         | 年增率<br>Annual rate<br>of change |
| 90年 2001    | 93.08                                            | -                               | 92.75               | -                               |
| 91年 2002    | 94.45                                            | 1.48                            | 88.46               | -4.62                           |
| 92年 2003    | 97.96                                            | 3.71                            | 86.07               | -2.70                           |
| 93年 2004    | 101.17                                           | 3.28                            | 90.06               | 4.63                            |
| 94年 2005    | 100.33                                           | -0.83                           | 95.95               | 6.54                            |
| 95年 2006    | 100.00                                           | -0.33                           | 100.00              | 4.22                            |
| 96年 2007    | 104.27                                           | 4.27                            | 101.31              | 1.31                            |
| 97年 2008    | 107.95                                           | 3.53                            | 100.97              | -0.34                           |
| 98年 2009    | 110.00                                           | 1.90                            | 95.72               | -5.20                           |
| 99年 2010    | 114.61                                           | 4.19                            | 97.90               | 2.28                            |

註：本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

**TABLE 9 INDEXES OF COMBINED UNITS OF CAPITAL AND LABOR INPUT  
OF INDUSTRIAL & SERVICE SECTORS**

Base : 2006=100

| 礦業及土石採取業<br>Mining & quarrying |                                 | 製造業<br>Manufacturing |                                 | 電力及燃氣供應業<br>Electricity & gas supply |                                 |
|--------------------------------|---------------------------------|----------------------|---------------------------------|--------------------------------------|---------------------------------|
| 指數<br>Index                    | 年增率<br>Annual rate<br>of change | 指數<br>Index          | 年增率<br>Annual rate<br>of change | 指數<br>Index                          | 年增率<br>Annual rate<br>of change |
| 173.46                         | -                               | 77.16                | -                               | 87.20                                | -                               |
| 160.32                         | -7.57                           | 80.17                | 3.89                            | 90.42                                | 3.69                            |
| 146.54                         | -8.60                           | 83.61                | 4.29                            | 93.35                                | 3.24                            |
| 126.86                         | -13.42                          | 89.43                | 6.97                            | 95.65                                | 2.47                            |
| 111.98                         | -11.73                          | 94.84                | 6.04                            | 97.41                                | 1.84                            |
| 100.00                         | -10.70                          | 100.00               | 5.44                            | 100.00                               | 2.66                            |
| 87.85                          | -12.15                          | 106.16               | 6.16                            | 102.63                               | 2.63                            |
| 78.58                          | -10.55                          | 109.90               | 3.52                            | 104.78                               | 2.09                            |
| 62.89                          | -19.97                          | 107.51               | -2.17                           | 107.52                               | 2.61                            |
| 48.15                          | -23.44                          | 113.18               | 5.27                            | 109.08                               | 1.46                            |

| 服務業部門<br>Services |                                 | 批發及零售業<br>Wholesale & retail trade |                                 | 運輸及倉儲業<br>Transportation & storage |                                 |
|-------------------|---------------------------------|------------------------------------|---------------------------------|------------------------------------|---------------------------------|
| 指數<br>Index       | 年增率<br>Annual rate<br>of change | 指數<br>Index                        | 年增率<br>Annual rate<br>of change | 指數<br>Index                        | 年增率<br>Annual rate<br>of change |
| 88.97             | -                               | 93.18                              | -                               | 93.07                              | -                               |
| 91.14             | 2.44                            | 94.08                              | 0.97                            | 92.33                              | -0.79                           |
| 92.76             | 1.78                            | 94.77                              | 0.73                            | 94.16                              | 1.98                            |
| 95.68             | 3.14                            | 97.59                              | 2.97                            | 97.49                              | 3.54                            |
| 97.80             | 2.22                            | 98.42                              | 0.85                            | 98.29                              | 0.82                            |
| 100.00            | 2.25                            | 100.00                             | 1.61                            | 100.00                             | 1.74                            |
| 101.46            | 1.46                            | 102.00                             | 2.00                            | 99.97                              | -0.03                           |
| 102.41            | 0.93                            | 103.57                             | 1.54                            | 99.54                              | -0.43                           |
| 102.35            | -0.06                           | 104.49                             | 0.89                            | 97.62                              | -1.93                           |
| 104.15            | 1.76                            | 106.71                             | 2.12                            | 97.72                              | 0.10                            |

Note : The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

表9 工業及服務業部門資本、勞動總投入指數(TORNQVIST) (續)

基期：民國95年=100

| 年 別<br>Year | 住宿及餐飲業<br>Accommodation & food services |                                 | 資訊及通訊傳播業<br>Information & communication |                                 |
|-------------|-----------------------------------------|---------------------------------|-----------------------------------------|---------------------------------|
|             | 指數<br>Index                             | 年增率<br>Annual rate<br>of change | 指數<br>Index                             | 年增率<br>Annual rate<br>of change |
| 90年 2001    | 86.89                                   | -                               | 86.35                                   | -                               |
| 91年 2002    | 91.34                                   | 5.13                            | 92.00                                   | 6.54                            |
| 92年 2003    | 93.03                                   | 1.85                            | 94.30                                   | 2.51                            |
| 93年 2004    | 92.06                                   | -1.04                           | 97.56                                   | 3.46                            |
| 94年 2005    | 96.49                                   | 4.81                            | 98.60                                   | 1.06                            |
| 95年 2006    | 100.00                                  | 3.63                            | 100.00                                  | 1.42                            |
| 96年 2007    | 101.18                                  | 1.18                            | 99.35                                   | -0.65                           |
| 97年 2008    | 102.44                                  | 1.25                            | 98.77                                   | -0.59                           |
| 98年 2009    | 102.87                                  | 0.42                            | 98.86                                   | 0.09                            |
| 99年 2010    | 106.30                                  | 3.34                            | 97.84                                   | -1.03                           |

| 年 別<br>Year | 支援服務業<br>Support services |                                 | 醫療保健服務業<br>Human health services |                                 |
|-------------|---------------------------|---------------------------------|----------------------------------|---------------------------------|
|             | 指數<br>Index               | 年增率<br>Annual rate<br>of change | 指數<br>Index                      | 年增率<br>Annual rate<br>of change |
| 90年 2001    | 79.15                     | -                               | 82.17                            | -                               |
| 91年 2002    | 81.18                     | 2.56                            | 85.32                            | 3.84                            |
| 92年 2003    | 88.69                     | 9.26                            | 86.84                            | 1.79                            |
| 93年 2004    | 90.44                     | 1.97                            | 89.33                            | 2.86                            |
| 94年 2005    | 94.10                     | 4.05                            | 93.32                            | 4.46                            |
| 95年 2006    | 100.00                    | 6.27                            | 100.00                           | 7.16                            |
| 96年 2007    | 103.35                    | 3.35                            | 101.75                           | 1.75                            |
| 97年 2008    | 109.64                    | 6.09                            | 100.79                           | -0.94                           |
| 98年 2009    | 109.87                    | 0.21                            | 103.93                           | 3.11                            |
| 99年 2010    | 114.58                    | 4.28                            | 108.86                           | 4.74                            |

註：本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

**TABLE 9 INDEXES OF COMBINED UNITS OF CAPITAL AND LABOR INPUT  
OF INDUSTRIAL & SERVICE SECTORS(CONT.)**

Base : 2006=100

| 金融及保險業<br>Finance & insurance |                                 | 不動產業<br>Real estate |                                 | 專業、科學及技術服務業<br>Professional , scientific & technical services |                                 |
|-------------------------------|---------------------------------|---------------------|---------------------------------|---------------------------------------------------------------|---------------------------------|
| 指數<br>Index                   | 年增率<br>Annual rate<br>of change | 指數<br>Index         | 年增率<br>Annual rate<br>of change | 指數<br>Index                                                   | 年增率<br>Annual rate<br>of change |
| 85.09                         | -                               | 73.53               | -                               | 81.02                                                         | -                               |
| 88.89                         | 4.47                            | 75.60               | 2.82                            | 85.68                                                         | 5.75                            |
| 91.03                         | 2.41                            | 80.58               | 6.60                            | 87.78                                                         | 2.45                            |
| 94.69                         | 4.02                            | 90.89               | 12.79                           | 91.75                                                         | 4.52                            |
| 98.06                         | 3.56                            | 96.47               | 6.14                            | 97.56                                                         | 6.34                            |
| 100.00                        | 1.98                            | 100.00              | 3.66                            | 100.00                                                        | 2.50                            |
| 100.05                        | 0.05                            | 104.73              | 4.73                            | 109.08                                                        | 9.08                            |
| 100.94                        | 0.89                            | 107.60              | 2.74                            | 113.65                                                        | 4.19                            |
| 101.33                        | 0.39                            | 107.68              | 0.07                            | 113.79                                                        | 0.12                            |
| 102.59                        | 1.25                            | 113.14              | 5.07                            | 118.06                                                        | 3.75                            |

| 藝術、娛樂及休閒服務業<br>Art , entertainment & recreational services |                                 | 其他服務業<br>Other services |                                 |
|------------------------------------------------------------|---------------------------------|-------------------------|---------------------------------|
| 指數<br>Index                                                | 年增率<br>Annual rate<br>of change | 指數<br>Index             | 年增率<br>Annual rate<br>of change |
| 88.67                                                      | -                               | 91.56                   | -                               |
| 97.31                                                      | 9.75                            | 92.29                   | 0.79                            |
| 99.97                                                      | 2.73                            | 91.98                   | -0.33                           |
| 102.61                                                     | 2.64                            | 97.19                   | 5.67                            |
| 103.50                                                     | 0.87                            | 98.44                   | 1.28                            |
| 100.00                                                     | -3.38                           | 100.00                  | 1.58                            |
| 93.15                                                      | -6.85                           | 100.50                  | 0.50                            |
| 89.07                                                      | -4.37                           | 101.51                  | 1.01                            |
| 85.85                                                      | -3.61                           | 99.90                   | -1.59                           |
| 86.29                                                      | 0.51                            | 101.09                  | 1.19                            |

Note : The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

表 1 0 工業及服務業部門多因素生產力指數

基期：民國95年=100

| 年 別<br>Year | 工業及服務業<br>Industry & Services |                                 | 工業部門<br>Industry |                                 |
|-------------|-------------------------------|---------------------------------|------------------|---------------------------------|
|             | 指數<br>Index                   | 年增率<br>Annual rate<br>of change | 指數<br>Index      | 年增率<br>Annual rate<br>of change |
| 90年 2001    | 87.38                         | -                               | 81.46            | -                               |
| 91年 2002    | 90.40                         | 3.45                            | 87.89            | 7.89                            |
| 92年 2003    | 92.17                         | 1.95                            | 91.99            | 4.67                            |
| 93年 2004    | 95.07                         | 3.15                            | 95.27            | 3.56                            |
| 94年 2005    | 97.08                         | 2.12                            | 96.87            | 1.68                            |
| 95年 2006    | 100.00                        | 3.01                            | 100.00           | 3.23                            |
| 96年 2007    | 103.87                        | 3.87                            | 104.09           | 4.09                            |
| 97年 2008    | 102.75                        | -1.08                           | 101.66           | -2.34                           |
| 98年 2009    | 101.34                        | -1.37                           | 100.26           | -1.38                           |
| 99年 2010    | 111.33                        | 9.86                            | 118.49           | 18.19                           |

| 年 別<br>Year | 用水供應及污染整治業<br>Water supply & remediation service |                                 | 營造業<br>Construction |                                 |
|-------------|--------------------------------------------------|---------------------------------|---------------------|---------------------------------|
|             | 指數<br>Index                                      | 年增率<br>Annual rate<br>of change | 指數<br>Index         | 年增率<br>Annual rate<br>of change |
| 90年 2001    | 65.87                                            | -                               | 98.44               | -                               |
| 91年 2002    | 72.44                                            | 9.98                            | 105.63              | 7.31                            |
| 92年 2003    | 77.97                                            | 7.63                            | 104.36              | -1.21                           |
| 93年 2004    | 83.29                                            | 6.82                            | 106.98              | 2.51                            |
| 94年 2005    | 91.01                                            | 9.27                            | 101.33              | -5.28                           |
| 95年 2006    | 100.00                                           | 9.88                            | 100.00              | -1.31                           |
| 96年 2007    | 106.33                                           | 6.33                            | 100.21              | 0.21                            |
| 97年 2008    | 105.74                                           | -0.56                           | 95.00               | -5.20                           |
| 98年 2009    | 104.45                                           | -1.22                           | 93.44               | -1.64                           |
| 99年 2010    | 104.09                                           | -0.34                           | 101.91              | 9.05                            |

註：1.本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

2.多因素生產力表示每單位勞動與資本組合之總投入所創造的附加價值。

**TABLE 10 INDEXES OF MULTIFACTOR PRODUCTIVITY OF INDUSTRIAL  
& SERVICE SECTORS**

Base : 2006=100

| 礦業及土石採取業<br>Mining & quarrying |                                 | 製造業<br>Manufacturing |                                 | 電力及燃氣供應業<br>Electricity & gas supply |                                 |
|--------------------------------|---------------------------------|----------------------|---------------------------------|--------------------------------------|---------------------------------|
| 指數<br>Index                    | 年增率<br>Annual rate<br>of change | 指數<br>Index          | 年增率<br>Annual rate<br>of change | 指數<br>Index                          | 年增率<br>Annual rate<br>of change |
| 95.57                          | -                               | 80.37                | -                               | 90.88                                | -                               |
| 106.35                         | 11.28                           | 86.67                | 7.84                            | 92.27                                | 1.52                            |
| 94.99                          | -10.68                          | 91.69                | 5.80                            | 94.37                                | 2.28                            |
| 106.43                         | 12.05                           | 94.77                | 3.35                            | 96.16                                | 1.90                            |
| 113.15                         | 6.31                            | 96.53                | 1.86                            | 98.87                                | 2.82                            |
| 100.00                         | -11.62                          | 100.00               | 3.60                            | 100.00                               | 1.14                            |
| 132.55                         | 32.55                           | 103.66               | 3.66                            | 101.82                               | 1.82                            |
| 131.64                         | -0.68                           | 101.05               | -2.52                           | 97.04                                | -4.70                           |
| 163.78                         | 24.41                           | 98.89                | -2.13                           | 94.32                                | -2.80                           |
| 220.50                         | 34.63                           | 118.78               | 20.11                           | 99.22                                | 5.20                            |

| 服務業部門<br>Services |                                 | 批發及零售業<br>Wholesale & retail trade |                                 | 運輸及倉儲業<br>Transportation & storage |                                 |
|-------------------|---------------------------------|------------------------------------|---------------------------------|------------------------------------|---------------------------------|
| 指數<br>Index       | 年增率<br>Annual rate<br>of change | 指數<br>Index                        | 年增率<br>Annual rate<br>of change | 指數<br>Index                        | 年增率<br>Annual rate<br>of change |
| 90.57             | -                               | 86.00                              | -                               | 93.76                              | -                               |
| 91.46             | 0.99                            | 87.63                              | 1.89                            | 97.14                              | 3.60                            |
| 91.80             | 0.37                            | 88.79                              | 1.33                            | 95.78                              | -1.39                           |
| 94.55             | 3.00                            | 91.82                              | 3.41                            | 97.46                              | 1.75                            |
| 97.00             | 2.58                            | 96.71                              | 5.33                            | 98.75                              | 1.33                            |
| 100.00            | 3.10                            | 100.00                             | 3.40                            | 100.00                             | 1.27                            |
| 104.05            | 4.05                            | 103.95                             | 3.95                            | 104.59                             | 4.59                            |
| 104.32            | 0.26                            | 104.65                             | 0.67                            | 105.56                             | 0.92                            |
| 103.22            | -1.06                           | 102.66                             | -1.90                           | 103.93                             | -1.54                           |
| 107.47            | 4.12                            | 105.38                             | 2.65                            | 111.79                             | 7.56                            |

Note : 1.The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

2.Multifactor productivity is defined as output per combined unit of labor and capital input.

表 10 工業及服務業部門多因素生產力指數（續）

基期：民國95年=100

| 年 別<br>Year | 住宿及餐飲業<br>Accommodation & food services |                              | 資訊及通訊傳播業<br>Information & communication |                              |
|-------------|-----------------------------------------|------------------------------|-----------------------------------------|------------------------------|
|             | 指數<br>Index                             | 年增率<br>Annual rate of change | 指數<br>Index                             | 年增率<br>Annual rate of change |
| 90年 2001    | 100.71                                  | -                            | 91.77                                   | -                            |
| 91年 2002    | 96.04                                   | -4.64                        | 92.48                                   | 0.77                         |
| 92年 2003    | 92.71                                   | -3.47                        | 94.36                                   | 2.03                         |
| 93年 2004    | 97.58                                   | 5.25                         | 96.83                                   | 2.62                         |
| 94年 2005    | 98.68                                   | 1.13                         | 98.24                                   | 1.45                         |
| 95年 2006    | 100.00                                  | 1.34                         | 100.00                                  | 1.80                         |
| 96年 2007    | 102.87                                  | 2.87                         | 104.29                                  | 4.29                         |
| 97年 2008    | 99.91                                   | -2.87                        | 110.09                                  | 5.56                         |
| 98年 2009    | 98.14                                   | -1.77                        | 114.66                                  | 4.15                         |
| 99年 2010    | 104.09                                  | 6.06                         | 125.41                                  | 9.37                         |

| 年 別<br>Year | 支援服務業<br>Support services |                              | 醫療保健服務業<br>Human health services |                              |
|-------------|---------------------------|------------------------------|----------------------------------|------------------------------|
|             | 指數<br>Index               | 年增率<br>Annual rate of change | 指數<br>Index                      | 年增率<br>Annual rate of change |
| 90年 2001    | 78.73                     | -                            | 114.53                           | -                            |
| 91年 2002    | 84.90                     | 7.84                         | 116.81                           | 1.99                         |
| 92年 2003    | 79.36                     | -6.52                        | 115.64                           | -1.00                        |
| 93年 2004    | 86.23                     | 8.65                         | 114.84                           | -0.69                        |
| 94年 2005    | 92.32                     | 7.06                         | 107.81                           | -6.12                        |
| 95年 2006    | 100.00                    | 8.32                         | 100.00                           | -7.25                        |
| 96年 2007    | 105.34                    | 5.34                         | 103.17                           | 3.17                         |
| 97年 2008    | 106.55                    | 1.15                         | 107.22                           | 3.92                         |
| 98年 2009    | 104.36                    | -2.06                        | 109.02                           | 1.69                         |
| 99年 2010    | 108.23                    | 3.70                         | 105.79                           | -2.97                        |

註：1.本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

2.多因素生產力表示每單位勞動與資本組合之總投入所創造的附加價值。

**TABLE 10 INDEXES OF MULTIFACTOR PRODUCTIVITY OF INDUSTRIAL  
& SERVICE SECTORS (CONT.)**

Base : 2006=100

| 金融及保險業<br>Finance & insurance |                                 | 不動產業<br>Real estate |                                 | 專業、科學及技術服務業<br>Professional , scientific & technical services |                                 |
|-------------------------------|---------------------------------|---------------------|---------------------------------|---------------------------------------------------------------|---------------------------------|
| 指數<br>Index                   | 年增率<br>Annual rate<br>of change | 指數<br>Index         | 年增率<br>Annual rate<br>of change | 指數<br>Index                                                   | 年增率<br>Annual rate<br>of change |
| 99.07                         | -                               | 64.10               | -                               | 92.36                                                         | -                               |
| 96.96                         | -2.13                           | 53.55               | -16.46                          | 90.80                                                         | -1.69                           |
| 95.22                         | -1.79                           | 64.05               | 19.60                           | 93.00                                                         | 2.43                            |
| 98.72                         | 3.68                            | 70.10               | 9.46                            | 94.64                                                         | 1.76                            |
| 99.47                         | 0.75                            | 74.57               | 6.38                            | 91.70                                                         | -3.10                           |
| 100.00                        | 0.54                            | 100.00              | 34.10                           | 100.00                                                        | 9.05                            |
| 106.08                        | 6.08                            | 98.17               | -1.83                           | 99.50                                                         | -0.50                           |
| 102.82                        | -3.08                           | 85.92               | -12.48                          | 94.91                                                         | -4.62                           |
| 94.48                         | -8.11                           | 82.67               | -3.78                           | 97.47                                                         | 2.71                            |
| 99.24                         | 5.04                            | 89.03               | 7.69                            | 100.65                                                        | 3.25                            |

| 藝術、娛樂及休閒服務業<br>Art , entertainment & recreational services |                                 | 其他服務業<br>Other services |                                 |
|------------------------------------------------------------|---------------------------------|-------------------------|---------------------------------|
| 指數<br>Index                                                | 年增率<br>Annual rate<br>of change | 指數<br>Index             | 年增率<br>Annual rate<br>of change |
| 91.06                                                      | -                               | 88.43                   | -                               |
| 88.91                                                      | -2.36                           | 93.56                   | 5.80                            |
| 89.51                                                      | 0.68                            | 95.28                   | 1.83                            |
| 89.02                                                      | -0.55                           | 91.87                   | -3.57                           |
| 91.64                                                      | 2.94                            | 96.24                   | 4.76                            |
| 100.00                                                     | 9.12                            | 100.00                  | 3.90                            |
| 110.89                                                     | 10.89                           | 103.63                  | 3.63                            |
| 118.31                                                     | 6.69                            | 106.14                  | 2.42                            |
| 126.22                                                     | 6.68                            | 110.23                  | 3.86                            |
| 131.26                                                     | 4.00                            | 114.03                  | 3.45                            |

Note : 1.The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

2.Multifactor productivity is defined as output per combined unit of labor and capital input.

表 1 1 工業及服務業部門K.L.E.M.S.總合投入指數(TORNQVIST)

基期：民國95年=100

| 年 別<br>Year | 工業及服務業<br>Industry & Services |                                 | 工業部門<br>Industry |                                 |
|-------------|-------------------------------|---------------------------------|------------------|---------------------------------|
|             | 指數<br>Index                   | 年增率<br>Annual rate<br>of change | 指數<br>Index      | 年增率<br>Annual rate<br>of change |
| 90年 2001    | 80.28                         | -                               | 77.05            | -                               |
| 91年 2002    | 83.96                         | 4.58                            | 81.50            | 5.78                            |
| 92年 2003    | 87.24                         | 3.91                            | 85.62            | 5.06                            |
| 93年 2004    | 93.57                         | 7.26                            | 93.08            | 8.71                            |
| 94年 2005    | 96.63                         | 3.27                            | 96.25            | 3.41                            |
| 95年 2006    | 100.00                        | 3.49                            | 100.00           | 3.90                            |
| 96年 2007    | 104.28                        | 4.28                            | 105.24           | 5.24                            |
| 97年 2008    | 102.60                        | -1.61                           | 102.30           | -2.79                           |
| 98年 2009    | 97.71                         | -4.77                           | 95.14            | -7.00                           |
| 99年 2010    | 110.21                        | 12.79                           | 111.97           | 17.69                           |

| 年 別<br>Year | 用水供應及污染整治業<br>Water supply & remediation service |                                 | 營造業<br>Construction |                                 |
|-------------|--------------------------------------------------|---------------------------------|---------------------|---------------------------------|
|             | 指數<br>Index                                      | 年增率<br>Annual rate<br>of change | 指數<br>Index         | 年增率<br>Annual rate<br>of change |
| 90年 2001    | 69.22                                            | -                               | 92.11               | -                               |
| 91年 2002    | 76.18                                            | 10.05                           | 92.99               | 0.96                            |
| 92年 2003    | 82.35                                            | 8.10                            | 89.90               | -3.32                           |
| 93年 2004    | 87.01                                            | 5.66                            | 95.44               | 6.16                            |
| 94年 2005    | 94.22                                            | 8.29                            | 97.22               | 1.87                            |
| 95年 2006    | 100.00                                           | 6.13                            | 100.00              | 2.86                            |
| 96年 2007    | 111.17                                           | 11.17                           | 99.80               | -0.20                           |
| 97年 2008    | 112.37                                           | 1.08                            | 95.07               | -4.74                           |
| 98年 2009    | 114.04                                           | 1.49                            | 88.04               | -7.39                           |
| 99年 2010    | 116.48                                           | 2.14                            | 96.06               | 9.11                            |

註：1.本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

2.本表K.L.E.M.S總合投入指數，係資本(K)、勞動(L)、能源(E)、原材料(M)及企業服務(S)五要素投入之加權組合投入指數。

**TABLE 11 INDEXES OF COMBINED UNITS OF CAPITAL、LABOR、ENERGY、MATERIALS  
AND BUSINESS SERVICES INPUT OF INDUSTRIAL & SERVICE SECTORS**

Base : 2006=100

| 礦業及土石採取業<br>Mining & quarrying |                                 | 製造業<br>Manufacturing |                                 | 電力及燃氣供應業<br>Electricity & gas supply |                                 |
|--------------------------------|---------------------------------|----------------------|---------------------------------|--------------------------------------|---------------------------------|
| 指數<br>Index                    | 年增率<br>Annual rate<br>of change | 指數<br>Index          | 年增率<br>Annual rate<br>of change | 指數<br>Index                          | 年增率<br>Annual rate<br>of change |
| 110.68                         | -                               | 75.17                | -                               | 79.87                                | -                               |
| 115.39                         | 4.26                            | 79.99                | 6.41                            | 83.18                                | 4.14                            |
| 113.93                         | -1.27                           | 84.85                | 6.08                            | 85.25                                | 2.49                            |
| 115.39                         | 1.28                            | 92.64                | 9.18                            | 90.13                                | 5.72                            |
| 108.00                         | -6.40                           | 96.01                | 3.64                            | 95.85                                | 6.35                            |
| 100.00                         | -7.41                           | 100.00               | 4.16                            | 100.00                               | 4.33                            |
| 121.51                         | 21.51                           | 105.80               | 5.80                            | 101.87                               | 1.87                            |
| 112.02                         | -7.81                           | 102.90               | -2.74                           | 105.46                               | 3.52                            |
| 96.01                          | -14.29                          | 95.59                | -7.10                           | 101.87                               | -3.40                           |
| 95.08                          | -0.97                           | 113.82               | 19.07                           | 110.15                               | 8.13                            |

| 服務業部門<br>Services |                                 | 批發及零售業<br>Wholesale & retail trade |                                 | 運輸及倉儲業<br>Transportation & storage |                                 |
|-------------------|---------------------------------|------------------------------------|---------------------------------|------------------------------------|---------------------------------|
| 指數<br>Index       | 年增率<br>Annual rate<br>of change | 指數<br>Index                        | 年增率<br>Annual rate<br>of change | 指數<br>Index                        | 年增率<br>Annual rate<br>of change |
| 85.95             | -                               | 87.39                              | -                               | 82.53                              | -                               |
| 88.37             | 2.82                            | 88.92                              | 1.75                            | 85.05                              | 3.05                            |
| 90.23             | 2.10                            | 90.65                              | 1.95                            | 87.19                              | 2.52                            |
| 94.54             | 4.78                            | 95.11                              | 4.92                            | 94.21                              | 8.05                            |
| 97.42             | 3.05                            | 97.37                              | 2.38                            | 97.54                              | 3.53                            |
| 100.00            | 2.65                            | 100.00                             | 2.70                            | 100.00                             | 2.52                            |
| 102.29            | 2.29                            | 102.59                             | 2.59                            | 100.71                             | 0.71                            |
| 102.73            | 0.43                            | 104.74                             | 2.10                            | 97.41                              | -3.28                           |
| 101.98            | -0.73                           | 104.19                             | -0.53                           | 92.83                              | -4.70                           |
| 106.11            | 4.05                            | 109.29                             | 4.89                            | 99.40                              | 7.08                            |

Note : The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

表 1 1 工業及服務業部門K.L.E.M.S.總合投入指數(TORNQVIST) (續)

基期：民國95年=100

| 年 別<br>Year | 住宿及餐飲業<br>Accommodation & food services |                       | 資訊及通訊傳播業<br>Information & communication |                       |
|-------------|-----------------------------------------|-----------------------|-----------------------------------------|-----------------------|
|             | 指數                                      | 年增率                   | 指數                                      | 年增率                   |
|             | Index                                   | Annual rate of change | Index                                   | Annual rate of change |
| 90年 2001    | 86.04                                   | -                     | 88.98                                   | -                     |
| 91年 2002    | 87.20                                   | 1.35                  | 92.57                                   | 4.03                  |
| 92年 2003    | 86.78                                   | -0.48                 | 94.63                                   | 2.23                  |
| 93年 2004    | 89.08                                   | 2.65                  | 97.70                                   | 3.24                  |
| 94年 2005    | 94.95                                   | 6.59                  | 98.53                                   | 0.85                  |
| 95年 2006    | 100.00                                  | 5.32                  | 100.00                                  | 1.49                  |
| 96年 2007    | 102.92                                  | 2.92                  | 100.96                                  | 0.96                  |
| 97年 2008    | 102.39                                  | -0.51                 | 102.23                                  | 1.26                  |
| 98年 2009    | 102.68                                  | 0.28                  | 104.07                                  | 1.80                  |
| 99年 2010    | 107.86                                  | 5.04                  | 104.26                                  | 0.18                  |

| 年 別<br>Year | 支援服務業<br>Support services |                       | 醫療保健服務業<br>Human health services |                       |
|-------------|---------------------------|-----------------------|----------------------------------|-----------------------|
|             | 指數                        | 年增率                   | 指數                               | 年增率                   |
|             | Index                     | Annual rate of change | Index                            | Annual rate of change |
| 90年 2001    | 79.71                     | -                     | 84.46                            | -                     |
| 91年 2002    | 82.32                     | 3.27                  | 87.36                            | 3.43                  |
| 92年 2003    | 87.19                     | 5.92                  | 88.57                            | 1.39                  |
| 93年 2004    | 89.63                     | 2.80                  | 91.19                            | 2.96                  |
| 94年 2005    | 94.03                     | 4.91                  | 95.09                            | 4.28                  |
| 95年 2006    | 100.00                    | 6.35                  | 100.00                           | 5.16                  |
| 96年 2007    | 104.39                    | 4.39                  | 102.41                           | 2.41                  |
| 97年 2008    | 109.96                    | 5.34                  | 102.61                           | 0.20                  |
| 98年 2009    | 110.09                    | 0.12                  | 105.99                           | 3.29                  |
| 99年 2010    | 116.39                    | 5.72                  | 110.04                           | 3.82                  |

註：1.本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

2.本表K.L.E.M.S總合投入指數，係資本(K)、勞動(L)、能源(E)、原材料(M)及企業服務(S)五要素投入之加權組合投入指數。

**TABLE 11 INDEXES OF COMBINED UNITS OF CAPITAL、LABOR、ENERGY、MATERIALS  
AND BUSINESS SERVICES INPUT OF INDUSTRIAL & SERVICE SECTORS (CONT.)**

Base : 2006=100

| 金融及保險業<br>Finance & insurance |                                 | 不動產業<br>Real estate |                                 | 專業、科學及技術服務業<br>Professional , scientific & technical services |                                 |
|-------------------------------|---------------------------------|---------------------|---------------------------------|---------------------------------------------------------------|---------------------------------|
| 指數<br>Index                   | 年增率<br>Annual rate<br>of change | 指數<br>Index         | 年增率<br>Annual rate<br>of change | 指數<br>Index                                                   | 年增率<br>Annual rate<br>of change |
| 82.08                         | -                               | 66.84               | -                               | 82.56                                                         | -                               |
| 87.26                         | 6.31                            | 64.64               | -3.29                           | 85.14                                                         | 3.13                            |
| 90.36                         | 3.55                            | 66.86               | 3.43                            | 88.42                                                         | 3.85                            |
| 94.35                         | 4.42                            | 75.74               | 13.28                           | 94.09                                                         | 6.41                            |
| 97.46                         | 3.30                            | 93.21               | 23.07                           | 99.02                                                         | 5.24                            |
| 100.00                        | 2.61                            | 100.00              | 7.28                            | 100.00                                                        | 0.99                            |
| 103.01                        | 3.01                            | 108.19              | 8.19                            | 106.92                                                        | 6.92                            |
| 101.63                        | -1.34                           | 110.80              | 2.41                            | 109.48                                                        | 2.39                            |
| 100.04                        | -1.56                           | 113.24              | 2.20                            | 111.06                                                        | 1.44                            |
| 102.69                        | 2.65                            | 121.20              | 7.03                            | 117.68                                                        | 5.96                            |

| 藝術、娛樂及休閒服務業<br>Art , entertainment & recreational services |                                 | 其他服務業<br>Other services |                                 |
|------------------------------------------------------------|---------------------------------|-------------------------|---------------------------------|
| 指數<br>Index                                                | 年增率<br>Annual rate<br>of change | 指數<br>Index             | 年增率<br>Annual rate<br>of change |
| 90.55                                                      | -                               | 91.47                   | -                               |
| 94.80                                                      | 4.69                            | 93.78                   | 2.53                            |
| 95.52                                                      | 0.76                            | 92.78                   | -1.07                           |
| 98.76                                                      | 3.39                            | 97.05                   | 4.60                            |
| 100.42                                                     | 1.68                            | 98.79                   | 1.79                            |
| 100.00                                                     | -0.42                           | 100.00                  | 1.22                            |
| 96.31                                                      | -3.69                           | 100.23                  | 0.23                            |
| 93.58                                                      | -2.83                           | 101.74                  | 1.51                            |
| 94.71                                                      | 1.21                            | 101.56                  | -0.18                           |
| 95.27                                                      | 0.59                            | 104.85                  | 3.24                            |

Note : The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

表 1 2 工業及服務業部門總要素生產力指數

基期：民國95年=100

| 年 別<br>Year | 工業及服務業<br>Industry & Services |                                 | 工業部門<br>Industry |                                 |
|-------------|-------------------------------|---------------------------------|------------------|---------------------------------|
|             | 指數<br>Index                   | 年增率<br>Annual rate<br>of change | 指數<br>Index      | 年增率<br>Annual rate<br>of change |
| 90年 2001    | 94.75                         | -                               | 95.53            | -                               |
| 91年 2002    | 96.16                         | 1.49                            | 97.27            | 1.83                            |
| 92年 2003    | 96.99                         | 0.86                            | 98.32            | 1.07                            |
| 93年 2004    | 98.25                         | 1.30                            | 99.15            | 0.85                            |
| 94年 2005    | 98.95                         | 0.71                            | 99.38            | 0.23                            |
| 95年 2006    | 100.00                        | 1.06                            | 100.00           | 0.63                            |
| 96年 2007    | 101.35                        | 1.35                            | 100.83           | 0.83                            |
| 97年 2008    | 101.03                        | -0.32                           | 100.36           | -0.46                           |
| 98年 2009    | 100.58                        | -0.44                           | 100.06           | -0.30                           |
| 99年 2010    | 104.02                        | 3.41                            | 104.18           | 4.12                            |

| 年 別<br>Year | 用水供應及污染整治業<br>Water supply & remediation service |                                 | 營造業<br>Construction |                                 |
|-------------|--------------------------------------------------|---------------------------------|---------------------|---------------------------------|
|             | 指數<br>Index                                      | 年增率<br>Annual rate<br>of change | 指數<br>Index         | 年增率<br>Annual rate<br>of change |
| 90年 2001    | 85.00                                            | -                               | 99.57               | -                               |
| 91年 2002    | 88.00                                            | 3.53                            | 101.60              | 2.04                            |
| 92年 2003    | 90.50                                            | 2.85                            | 101.23              | -0.37                           |
| 93年 2004    | 92.85                                            | 2.59                            | 101.86              | 0.62                            |
| 94年 2005    | 96.23                                            | 3.65                            | 100.42              | -1.41                           |
| 95年 2006    | 100.00                                           | 3.91                            | 100.00              | -0.42                           |
| 96年 2007    | 96.68                                            | -3.32                           | 99.86               | -0.14                           |
| 97年 2008    | 96.51                                            | -0.18                           | 98.41               | -1.45                           |
| 98年 2009    | 95.91                                            | -0.62                           | 97.92               | -0.50                           |
| 99年 2010    | 95.87                                            | -0.04                           | 100.48              | 2.61                            |

註：1.本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

2.衡量總要素生產力，產出為實質生產總額，投入則包含勞動、資本、能源、原材料及企業服務五項。

**TABLE 12 INDEXES OF TOTAL FACTOR PRODUCTIVITY OF INDUSTRIAL  
& SERVICE SECTORS**

Base : 2006=100

| 礦業及土石採取業<br>Mining & quarrying |                                 | 製造業<br>Manufacturing |                                 | 電力及燃氣供應業<br>Electricity & gas supply |                                 |
|--------------------------------|---------------------------------|----------------------|---------------------------------|--------------------------------------|---------------------------------|
| 指數<br>Index                    | 年增率<br>Annual rate<br>of change | 指數<br>Index          | 年增率<br>Annual rate<br>of change | 指數<br>Index                          | 年增率<br>Annual rate<br>of change |
| 101.62                         | -                               | 95.45                | -                               | 101.69                               | -                               |
| 107.32                         | 5.61                            | 97.08                | 1.70                            | 102.31                               | 0.61                            |
| 100.02                         | -6.81                           | 98.31                | 1.27                            | 102.68                               | 0.36                            |
| 104.88                         | 4.86                            | 99.06                | 0.77                            | 103.92                               | 1.20                            |
| 106.67                         | 1.71                            | 99.31                | 0.24                            | 101.62                               | -2.21                           |
| 100.00                         | -6.25                           | 100.00               | 0.70                            | 100.00                               | -1.60                           |
| 112.19                         | 12.19                           | 100.76               | 0.76                            | 99.14                                | -0.86                           |
| 110.81                         | -1.24                           | 100.37               | -0.39                           | 95.97                                | -3.20                           |
| 119.00                         | 7.39                            | 100.03               | -0.34                           | 94.98                                | -1.03                           |
| 134.00                         | 12.61                           | 104.29               | 4.26                            | 94.89                                | -0.10                           |

| 服務業部門<br>Services |                                 | 批發及零售業<br>Wholesale & retail trade |                                 | 運輸及倉儲業<br>Transportation & storage |                                 |
|-------------------|---------------------------------|------------------------------------|---------------------------------|------------------------------------|---------------------------------|
| 指數<br>Index       | 年增率<br>Annual rate<br>of change | 指數<br>Index                        | 年增率<br>Annual rate<br>of change | 指數<br>Index                        | 年增率<br>Annual rate<br>of change |
| 93.92             | -                               | 89.85                              | -                               | 96.36                              | -                               |
| 94.52             | 0.64                            | 91.07                              | 1.35                            | 98.38                              | 2.10                            |
| 94.74             | 0.24                            | 91.91                              | 0.92                            | 97.88                              | -0.51                           |
| 96.54             | 1.90                            | 94.11                              | 2.40                            | 98.96                              | 1.10                            |
| 98.10             | 1.62                            | 97.66                              | 3.77                            | 99.57                              | 0.62                            |
| 100.00            | 1.94                            | 100.00                             | 2.40                            | 100.00                             | 0.43                            |
| 102.51            | 2.51                            | 102.80                             | 2.80                            | 101.69                             | 1.69                            |
| 102.69            | 0.18                            | 103.27                             | 0.46                            | 102.08                             | 0.38                            |
| 102.03            | -0.65                           | 101.91                             | -1.31                           | 101.49                             | -0.57                           |
| 104.61            | 2.53                            | 103.67                             | 1.72                            | 104.30                             | 2.77                            |

Note : 1.The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

2.Total Factor Productivity is defined as output per combined unit of capital, labor, energy, nonenergy materials, and business service input.

表 1 2 工業及服務業部門總要素生產力指數（續）

基期：民國95年=100

| 年 別<br>Year | 住宿及餐飲業<br>Accommodation & food services |                              | 資訊及通訊傳播業<br>Information & communication |                              |
|-------------|-----------------------------------------|------------------------------|-----------------------------------------|------------------------------|
|             | 指數<br>Index                             | 年增率<br>Annual rate of change | 指數<br>Index                             | 年增率<br>Annual rate of change |
| 90年 2001    | 104.39                                  | -                            | 96.20                                   | -                            |
| 91年 2002    | 101.82                                  | -2.46                        | 96.24                                   | 0.04                         |
| 92年 2003    | 99.93                                   | -1.86                        | 97.19                                   | 0.99                         |
| 93年 2004    | 102.71                                  | 2.79                         | 98.47                                   | 1.32                         |
| 94年 2005    | 101.16                                  | -1.51                        | 99.15                                   | 0.69                         |
| 95年 2006    | 100.00                                  | -1.14                        | 100.00                                  | 0.86                         |
| 96年 2007    | 99.97                                   | -0.03                        | 102.05                                  | 2.05                         |
| 97年 2008    | 98.26                                   | -1.71                        | 105.08                                  | 2.97                         |
| 98年 2009    | 97.11                                   | -1.17                        | 107.40                                  | 2.20                         |
| 99年 2010    | 99.95                                   | 2.92                         | 112.85                                  | 5.07                         |

| 年 別<br>Year | 支援服務業<br>Support services |                              | 醫療保健服務業<br>Human health services |                              |
|-------------|---------------------------|------------------------------|----------------------------------|------------------------------|
|             | 指數<br>Index               | 年增率<br>Annual rate of change | 指數<br>Index                      | 年增率<br>Annual rate of change |
| 90年 2001    | 84.92                     | -                            | 109.37                           | -                            |
| 91年 2002    | 89.25                     | 5.09                         | 110.74                           | 1.25                         |
| 92年 2003    | 85.38                     | -4.33                        | 109.97                           | -0.70                        |
| 93年 2004    | 90.33                     | 5.79                         | 109.36                           | -0.55                        |
| 94年 2005    | 94.62                     | 4.76                         | 104.88                           | -4.10                        |
| 95年 2006    | 100.00                    | 5.68                         | 100.00                           | -4.65                        |
| 96年 2007    | 103.70                    | 3.70                         | 101.81                           | 1.81                         |
| 97年 2008    | 104.51                    | 0.78                         | 104.26                           | 2.40                         |
| 98年 2009    | 102.93                    | -1.52                        | 105.30                           | 1.00                         |
| 99年 2010    | 105.54                    | 2.54                         | 103.20                           | -1.99                        |

註：1.本表係依第8次修訂之中華民國行業標準分類，及93SNA國民所得統計資料編算。

2.衡量總要素生產力，產出為實質生產總額，投入則包含勞動、資本、能源、原材料及企業服務五項。

**TABLE 12 INDEXES OF TOTAL FACTOR PRODUCTIVITY OF INDUSTRIAL  
& SERVICE SECTORS (CONT.)**

Base : 2006=100

| 金融及保險業<br>Finance & insurance |                                 | 不動產業<br>Real estate |                                 | 專業、科學及技術服務業<br>Professional , scientific & technical services |                                 |
|-------------------------------|---------------------------------|---------------------|---------------------------------|---------------------------------------------------------------|---------------------------------|
| 指數<br>Index                   | 年增率<br>Annual rate<br>of change | 指數<br>Index         | 年增率<br>Annual rate<br>of change | 指數<br>Index                                                   | 年增率<br>Annual rate<br>of change |
| 99.43                         | -                               | 89.43               | -                               | 95.91                                                         | -                               |
| 97.89                         | -1.54                           | 82.20               | -8.08                           | 95.10                                                         | -0.84                           |
| 96.64                         | -1.28                           | 89.93               | 9.39                            | 96.35                                                         | 1.31                            |
| 99.16                         | 2.61                            | 94.55               | 5.14                            | 97.21                                                         | 0.90                            |
| 99.65                         | 0.50                            | 85.36               | -9.72                           | 95.38                                                         | -1.89                           |
| 100.00                        | 0.35                            | 100.00              | 17.16                           | 100.00                                                        | 4.85                            |
| 104.18                        | 4.18                            | 97.52               | -2.48                           | 99.52                                                         | -0.48                           |
| 101.97                        | -2.12                           | 89.33               | -8.40                           | 96.61                                                         | -2.92                           |
| 96.19                         | -5.67                           | 86.52               | -3.14                           | 97.96                                                         | 1.40                            |
| 99.52                         | 3.46                            | 89.45               | 3.38                            | 99.59                                                         | 1.66                            |

| 藝術、娛樂及休閒服務業<br>Art , entertainment & recreational services |                                 | 其他服務業<br>Other services |                                 |
|------------------------------------------------------------|---------------------------------|-------------------------|---------------------------------|
| 指數<br>Index                                                | 年增率<br>Annual rate<br>of change | 指數<br>Index             | 年增率<br>Annual rate<br>of change |
| 94.47                                                      | -                               | 92.77                   | -                               |
| 92.86                                                      | -1.70                           | 96.24                   | 3.74                            |
| 93.22                                                      | 0.38                            | 97.37                   | 1.17                            |
| 92.88                                                      | -0.36                           | 95.07                   | -2.36                           |
| 94.58                                                      | 1.83                            | 97.74                   | 2.81                            |
| 100.00                                                     | 5.73                            | 100.00                  | 2.31                            |
| 106.92                                                     | 6.92                            | 102.19                  | 2.19                            |
| 111.50                                                     | 4.29                            | 103.60                  | 1.38                            |
| 116.16                                                     | 4.18                            | 106.02                  | 2.33                            |
| 119.09                                                     | 2.52                            | 108.10                  | 1.96                            |

Note : 1.The data in this table are based on the eighth revised edition of standard industrial classification system in R.O.C. and 93SNA national income statistics.

2.Total Factor Productivity is defined as output per combined unit of capital, labor, energy, nonenergy materials, and business service input.



# 參、多因素生產力統計編製 及改編方法說明

III、METHODOLOGY AND EXPLANATION ON  
STATISTICS OF MULTIFACTOR PRODUCTIVITY

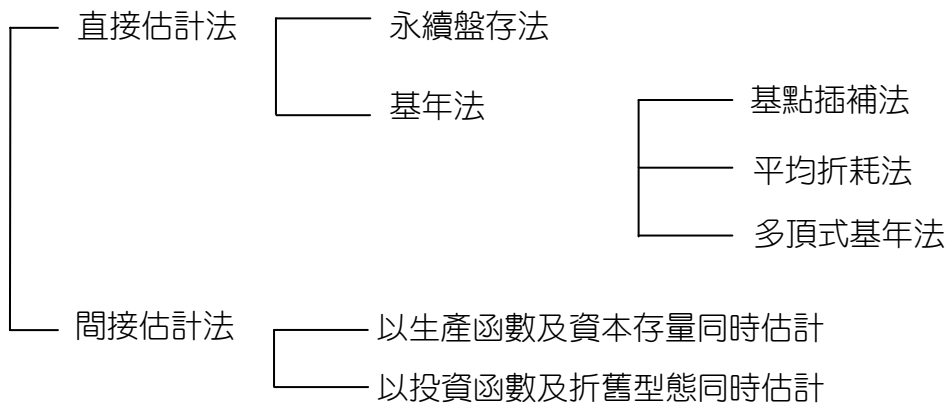
# 多因素生產力統計編製及改編方法說明

## 一、編製方法說明

### (一)資本生產力統計之編算

#### 1.資本存量之估計：

資本存量之估計方法，可以如下列方式表示：



本報告採用基點插補法推估資本存量，各基點年是應用歷次工商普查及七十七年國富調查資料，其估計方法詳見本總處編印之「臺灣地區資本生產力統計衡量之研究」報告，茲將重點摘述如后：

#### (1) 固定資本存量毛額之推估：

$$GK(t) = GK(t-1) + I(t)$$

其中  $GK(t)$  表  $t$  期固定資本存量毛額

#### (2) 固定資本存量淨額之推估：

$$NK(t) = NK(t-1) + I(t) - D(t)$$

其中  $NK(t)$  表  $t$  期固定資本存量淨額

$I(t)$  表  $t$  期實質固定資本形成毛額

$D(t)$  表  $t$  期實質固定資本消耗

#### 2. 實際利用固定資本流量：

$$FGK(t) = f * GK(t)$$

$$FNK(t) = f * NK(t)$$

其中  $FGK(t)$  表  $t$  期實際利用固定資本毛額

FNK ( t ) 表 t 期實際利用固定資本淨額

f 表設備利用率

3.年中實質固定資本存量：

$$gK ( t ) = \frac{GK ( t ) + GK ( t - 1 )}{2}$$

$$nK ( t ) = \frac{NK ( t ) + NK ( t - 1 )}{2}$$

其中 gK ( t ) 表 t 期年中實質固定資本存量毛額

nK ( t ) 表 t 期年中實質固定資本存量淨額

4.固定資本生產力：

(1)固定資本毛生產力：

$$GKP = \frac{GDP_R}{gK ( t )}$$

$$GKPI = \frac{GDPI_R}{gK ( t )I}$$

其中 GKP 表固定資本毛生產力

GKPI 表固定資本毛生產力指數

GDP<sub>R</sub> 表實質國內生產毛額

GDPI<sub>R</sub> 表實質國內生產毛額指數

gK ( t )I 表 t 期年中實質固定資本存量毛額指數

(2) 固定資本淨生產力：

$$NKP = \frac{NDP_R}{nK ( t )}$$

$$NKPI = \frac{NDPI_R}{nK ( t )I}$$

其中 NKP 表固定資本淨生產力

NKPI 表固定資本淨生產力指數

NDP<sub>R</sub> 表實質國內生產淨額

NDPI<sub>R</sub> 表實質國內生產淨額指數

nK ( t )I 表 t 期年中實質固定資本存量淨額指數

## (二) 多因素生產力之編算

### 1. 生產函數模型之設立：

本報告之生產函數模型，係採用較具一般化，且被廣泛使用之超越對數生產函數 (Translog production function) 為基礎，此模型之特性為其替代彈性並非固定，所以其限制條件較一般對數線型模型為少，亦即此一生產函數模型較能廣為適用。

### 2. 生產要素投入量之估計：

本報告計算多因素生產力所採用生產要素，主要為實質資本存量淨額與就業投入總工時資料，係採本總處所編布之「臺灣地區資本生產力統計衡量之研究」及「產值勞動生產力趨勢分析報告」資料。

### 3. 投入要素份額之設算：

其中包括勞動報酬 (Labor Compensation) 與資本設算成本 (Capital Compute Cost) 之計算，由於資本份額與勞動份額總和為一，故只需計算勞動份額，再以一減即得資本份額。

依據前述理論架構，將總成本採如下定義：

總成本 (TC) = 名目產出 (PQ) = 國內生產毛額 (GDP) - 間接稅 + 補貼

關於勞動報酬 (Labor Compensation) 之編算，原則上採用就業者報酬定義而略予調整，即以受僱人員報酬，加上每人平均報酬乘上就業人數與受僱員工人數之差。運算列述於后：

$$LC_3(t) = LC_1(t) + \frac{LC_2(t)}{\sum N_n(t)} * (\sum N_n(t) - \sum L_n(t))$$

$$LC_2(t) = \sum \left( \frac{\tilde{W}(t)}{W(t)} \right) W_n(t) N_n(t)$$

其中  $LC_1(t)$ ：國民所得帳下受僱人員報酬

$LC_2(t)$ ：就業者勞動報酬

$LC_3(t)$ ：調整後之就業者勞動報酬

$L_n(t)$ ：各月受僱員工人數

$\tilde{W}(t)$ ：某月(年)每人平均報酬

$W(t)$ ：某月每人平均薪資

$W_n(t)$ ：各月每人薪資

$N_n(t)$ ：各月就業者人數

勞動份額即以勞動報酬除以總成本（名目產出）後即得，部分產業則因各種資料涵蓋範圍差異較大，故作適當調整，如製造業、營造業及服務業部門之勞動報酬則採取國民所得統計中，要素帳項下受僱人員報酬之資料。關於勞動份額  $S_L$  與資本份額  $S_K$  之運算式列述於后：

$$S_{Lt} = \frac{LC_3(t)}{TC(t)}$$

$$S_{kt} = 1 - S_{Lt}$$

#### 4. 實質產出之衡量：

此產出係指編算多因素生產力指數時，所使用之實質國內生產毛額資料，本報告所採實質產出指數資料，係取自行政院主計總處所編布「產值勞動生產力趨勢分析報告」。

#### 5. 總合要素投入指數之編算：

東奎斯特（Tornqvist）投入指數即

$I(t)$ : Tornqvist 總合投入指數

以連續函數形式，可表示為：

$$\ln(I(t)/I(t-1)) = \bar{S}_{kt} \cdot \ln(K(t)/K(t-1)) + \bar{S}_{Lt} \cdot \ln(L(t)/L(t-1))$$

若以離散函數型式，則可表示為：

$$\Delta I(t) = \bar{S}_{kt} \cdot \Delta K(t) + \bar{S}_{Lt} \cdot \Delta L(t)$$

其中  $L, K$  分別表示勞動與資本投入； $S_L, S_K$  分別表示勞動與資本投入份額； $t$  表示時間， $\Delta K(t), \Delta L(t)$  表資本與勞動投入當期與前期的變量，且

$$\bar{S}_{kt} = \frac{S_{kt} + S_{kt-1}}{2}$$

$$\bar{S}_{Lt} = \frac{S_{Lt} + S_{Lt-1}}{2}$$

先定基期年為 100，再將二、三項資料代入東奎斯特指數公式後即得。

#### 6. 多因素生產力指數之編算：

由實質國內生產毛額指數除以總合要素投入指數後，再經基期年之指數調整後即得。

## 二、基期價格調整與行業改編方法說明

為配合 97 年國民所得統計中，工業及服務業部門 GDP 與固定資本形成毛額之固定價格基期由民國 90 年改編為民國 95 年，多因素生產力統計之實質固定資本存量毛額與淨額資料，亦同步進行基期改編調整，同時依據該項統計所採行第 8 次修訂之行業標準分類，多因素生產力統計亦進行行業調整，自 90 年起工業及服務業部門由 13 大行業調整為 16 大行業(不含農林漁牧業、公共行政、國防、強制性社會安全服務業、教育服務業及社會工作服務業)。而受限於 90 年以前各基點年資本存量無法按新行業分類，及新行業就業人數僅銜接至 90 年等因素，70 年至 90 年僅陳示工業及服務業資料。

以下分別就 70 年至 90 年與 90 年至 99 年多因素生產力基期價格調整與行業編製方法進行說明。

### (一) 70 年至 90 年實質固定資本存量資料：

#### 1. 資本形成基期價格調整

轉換方法係利用 95 年分別有 90 年為 100 及 95 年為 100 之各類固定資產(非住宅房屋、營建與工程、運輸工具、機械與其他設備)資本形成平減指數之比值進行轉換，並據以將實質資本形成毛額由 90 年為固定價格轉為 95 年為固定價格。

#### 2. 資本存量基期價格調整

##### (1) 資本存量平減指數基期價格調整

假設資本設備之耐用年限為 25 年，利用衡量年前 25 年之各年各類固定資產(非住宅房屋、營建與工程、運輸工具、機械與其他設備)之資本形成平減指數計算該期資本存量平減指數。

##### (2) 實質固定資本存量之固定價格調整

由於現有之實質固定資本存量資料係以 90 年價格衡量，利用前 1 之方法亦可計算出以 90 年為基期之資本存量價格，可將 90 年價格衡量之實質固定資本存量轉為名目值，再利用 95 年為基期之資本存量平減指數調整為 95 年固定價格。

## (二) 90 年至 99 年實質固定資本存量資料：

### 1. 產生 95 年新基點年實質固定資本存量淨額

95 年新基點年實質固定資本存量淨額係利用 95 年工商及服務業普查 16 大行業之實際運用固定資產淨額(房屋建築及其他營建+運輸設備+機械及什項設備+未完工程及預付購置設備+無形資產淨額+租用及借用固定資產-出租及出借固定資產)資料進行調整，由於 95 年工商及服務業普查實際運用固定資產淨額資料未經資產重估，必需經過價格調整，價格調整方法如下：

利用國民所得 70 年至 95 年新行業各類資產實質固定資本形成、資本形成平減指數(95 年=100)計算固定資本存量平減指數，再平減 95 年工商及服務業普查實際運用固定資產淨額而得。

其中各類資產中未完工程及預付購置設備存量平減指數係以 95 年工商及服務業普查房屋建築及其他營建、運輸設備、機械及什項設備三項資產各占比例為權數，將三項資產之資本存量平減指數加權而得；租用及借用、出租及出借固定資產平減指數，以各類資產加權計算後之整體資本存量平減指數為其平減指數。

### 2. 95 年新基點年實質資本存量毛額資料：

95 年 16 大行業以 95 年價格衡量之實際運用固定資產毛額=95 年工商及服務業普查 16 大行業以 95 年價格衡量之實際運用固定資產淨額+國民所得生產總表 16 大業 70 至 95 年以 95 年價格衡量之資本累積消耗而得。

### 3. 90 年至 99 年實質固定資本存量淨額、毛額

由前述計算出之基點(95)年實質固定資本存量毛額、淨額，與國民所得之實質資本形成毛額、實質資本消耗進行運算而得。

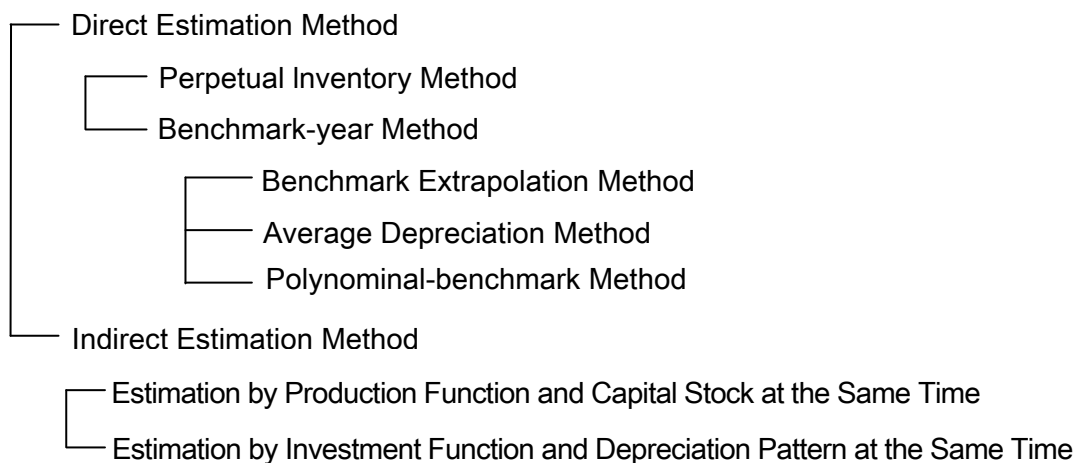
# Methodology And Explanation On Statistics Of Multifactor Productivity

## 1、Methodology for Compilation

### I .Compilation of Capital Productivity Statistics

#### 1.Estimation of Capital Stock :

The approaches used to estimate capital stock are listed as follows :



In this report, the benchmark extrapolation method is adopted to estimate the capital stock, with the benchmark-year being designated as those when each industrial and commercial census took place and 1988 when the national wealth census was conducted. Please see the “Study on Statistical Measurement of Capital Productivity in Taiwan Area” , published by the DGBAS, for details of the estimation method. Key points of the method are briefly introduced as follows :

#### (1)Estimation of Gross Fixed Capital Stock :

$$GK(t) = GK(t-1) + I(t)$$

Where  $GK(t)$  refers to the amount of fixed capital stock in  $t$  period.

#### (2)Estimation of Net Fixed Capital Stock :

$$NK(t) = NK(t-1) + I(t) - D(t)$$

Where  $NK(t)$  refers to the amount of net fixed capital stock in  $t$  period,

$I(t)$  refers to the amount of real gross fixed capital formation in  $t$  period,

$D(t)$  refers to real fixed capital depreciation in  $t$  period.

## 2.Amount of Fixed Capital in Actual Utilization :

$$FGK(t) = f * GK(t)$$

$$FNK(t) = f * NK(t)$$

Where  $FGK(t)$  refers to the amount of gross fixed capital actually utilized in  $t$  period,

$FNK(t)$  refers to the amount of net fixed capital actually utilized in  $t$  period, and

$f$  refers to the utilization rate of equipment.

## 3.Mid-Year Real Fixed Capital Stock :

$$gK(t) = \frac{GK(t) + GK(t-1)}{2}$$

$$nK(t) = \frac{NK(t) + NK(t-1)}{2}$$

Where  $gK(t)$  refers to mid-year real gross fixed capital stock in  $t$  period, and

$nK(t)$  refers to mid-year real net fixed capital stock in  $t$  period.

## 4.Fixed Capital Productivity :

(1)Gross Fixed Capital Productivity :

$$GKP = \frac{GDP_R}{gK(t)}$$

$$GKPI = \frac{GDPI_R}{gK(t)I}$$

where  $GKP$  refers to gross fixed capital productivity

$GKPI$  refers to index for gross fixed capital productivity

$GDP_R$  refers to real gross domestic product

$GDPI_R$  refers to index for real gross domestic product, and

$gK(t)I$  refers to index for mid-year real gross fixed capital stock in  $t$  period.

(2)Net Fixed Capital Productivity :

$$NKP = \frac{NDP_R}{nK(t)}$$

$$NKPI = \frac{NDPI_R}{nK(t)I}$$

Where  $NKP$  refers to net fixed capital productivity,  
 $NKPI$  refers to index for net fixed capital productivity,  
 $NDP_R$  refers to real net domestic product,  
 $NDPI_R$  refers to index for real net domestic product, and  
 $nK(t)$  refers to index for mid-year real net fixed capital stock.

## II. Compilation of Multifactor productivity

### 1. Establishment of Production Function Model :

In this report, the production function model is built on the base of a general, widely used translog production function which is characterized by non-fixed substitute elasticity and which is, therefore, subject to less constraints than a general logarithm linear model. For the reason, this production function model could be used in a wide range of applications.

### 2. Estimation for Input Amount of Each Production Factor :

In this report, the production factors are mainly real net capital stock excluded land and total work hours of the employment for which data are obtained from the “Study on Statistical Measurement of Capital Productivity in Taiwan Area” and “The Trend in Labor Productivity” both publications are published by the DGBAS.

### 3. Computation of Percentage Share for Each Input Factor :

This involves calculation of the labor compensation and the capital compute cost. As the total of the capital's percentage share and the labor's percentage share equals to one, the only job is to calculate the percentage share for labor. The percentage share for capital can be derived by deducting one by the percentage share for labor,

Based on the above-mentioned theoretical framework, the total cost can be defined as follows :

$$\begin{aligned} \text{Total Factor Cost} &= \text{Nominal Output ( PQ )} \\ &= \text{Gross Domestic Product ( GDP )} - \text{Indirect Tax} + \text{Subsidy} \end{aligned}$$

In principle the labor compensation is defined as the adjusted compensation for employment population, i.e., compensation for employees plus the average compensation per person multiplied by the difference between the number of employment population and the number of employees.

The equation are listed below :

$$LC_3(t) = LC_1(t) + \frac{LC_2(t)}{\sum N_n(t)} * (\sum N_n(t) - \sum L_n(t))$$

$$LC_2(t) = \sum \left( \frac{\tilde{W}(t)}{W(t)} \right) W_n(t) N_n(t)$$

Where  $LC_1(t)$  refers to compensation for employment as shown in national income accounts,

$LC_2(t)$  refers to compensation for employment population,

$LC_3(t)$  refers to the adjusted compensation employment population,

$L_n(t)$  refers to the number of employees each month,

$\tilde{W}(t)$  refers to the average compensation per person in a certain month ( year ),

$W(t)$  refers to the average wage per person in a certain month,

$W_n(t)$  refers to the wage per person in each month, and

$N_n(t)$  refers to the employment population in each month.

The percentage share for labor is derived by dividing the labor compensation into the total cost (nominal output ). As some data vary in coverage for different industries, appropriate adjustment is needed. For instance, for the manufacturing, construction industries and service sector, the labor compensation is obtained from the compensation for employees as shown in the national income statistics.

$$\bar{S}_{Lt} = \frac{LC_3(t)}{TC(t)}$$

$$S_{kt} = 1 - S_{Lt}$$

#### 4.Measurement of Real Output :

The real output here refers to the real gross domestic product which is used in computation of the multifactor productivity index. In this report, data for real output index are obtained from the "The Trend in Labor Productivity" published by DGBAS.

#### 5.Computation of Total Factor Input Index :

The Tornqvist input index is

$I(t)$  : Tornqvist total input index

With continuous functions, it can be expressed as :

$$\ln(I(t)/I(t-1)) = \bar{S}_{kt} \cdot \ln(K(t)/K(t-1)) + \bar{S}_{Lt} \cdot \ln(L(t)/L(t-1))$$

With discrete functions, it can be expressed as :

$$\Delta I(t) = \bar{S}_{kt} \cdot \Delta K(t) + \bar{S}_{Lt} \cdot \Delta L(t)$$

Where L and K denotes labor and capital inputs, respectively ;  $\bar{S}_L$  and  $\bar{S}_K$  denotes the percentage shares for labor and capital, respectively ; t refers to time ,  $\Delta K(t)$ ,  $\Delta L(t)$  represents the variable of capital and labor inputs between the current and the previous stage, and

$$\bar{S}_{kt} = \frac{S_{kt} + S_{kt-1}}{2}$$

$$\bar{S}_{Lt} = \frac{S_{Lt} + S_{Lt-1}}{2}$$

The base year is first given a value of 100. Then the data derived from items 2 and 3 are fed into the Tornqvist input index formula.

## 6.Computation of Multifactor Productivity Index :

First, the real gross domestic product index is divided by the total factor input index. Second, the results are adjusted to become the desired indices by giving 100 as the value of the base year.

## **2. Base Year Price Adjustments and Reclassification of Industries**

To align with the 2008 national income statistics, the constant price for both GDP of industrial and service sectors and gross fixed capital stock have been adjusted to 2006. The base year for the data on gross and net fixed capital stocks in the multifactor productivity statistics have also been adjusted. In line with the eighth revision of standard industrial classification undertaken based on the 2008 national income statistics, industries were reclassified in multifactor productivity statistics. Starting 2001, there are 16 industrial section instead of the original 13 industrial section in the industrial and service sectors (excluding agriculture, forestry, fishing, and animal husbandry, public administration, defense, compulsory social security, education, and social work services). Due to the difficulties of categorizing the capital stocks of benchmark years before 2001 under the newly revised industrial classification and the fact that data on employment in new industries are available up to 2001, only the data on industrial and service sectors are presented for the period from 1981 to 2001.

The following is an explanation on the methods for adjusting base year prices of multifactor productivities and classification of industries from 1981 to 2001 and from 2001 to 2010.

### **I . Data on Real Fixed Capital Stocks from 1981 to 2001:**

#### **1. Base Year Price Adjustments on Capital Formation**

The real gross fixed capital formation with 2001 as constant price is converted to that with 2006 as constant price using the ratio of capital formation deflators for different categories of fixed assets (non-residential buildings, construction and engineering projects, transport equipment, machinery and other equipment) using 2001 as base year (2001=100) to capital formation deflators for the same categories of fixed assets using 2006 as base year (2006=100).

#### **2. Base Year Price Adjustments on Capital Stock**

##### **a. Base Year Price Adjustments on Capital Stock Deflator**

Assume that the service life of capital equipment is 25 years, the current year capital stock price deflator can be calculated using the capital formation deflators for different categories of fixed assets (non-residential buildings, construction and engineering projects,

transport equipment, machinery and other equipment) in the 25 years preceding the year of measurement.

#### b. Constant Price Adjustments on Real Fixed Capital Stock

Because currently available data on real fixed capital stock were measured with 2001 prices, we could calculate capital stock prices with 2001 as base year using the above-mentioned method and turn the real fixed capital stock measured with 2001 prices into nominal values, and then adjust the nominal values into 2006 constant prices using the capital stock price deflators using with 2006 as base year.

## II. Data on Real Fixed Capital Stocks from 2001 to 2010

### 1. Real Net Fixed Capital Stock Using 2006 as Benchmark Year

The real net fixed capital stocks with 2006 as the new benchmark year are obtained based on the net value of fixed assets used in operation (buildings and other constructions + transportation equipments + machinery and other equipments + constructions in progress and prepayments for equipments + net value of intangible assets + fixed assets inrented and borrowed - fixed assets outrented and lent) by the 16 industrial section recorded in the 2006 Industry, Commerce, and Service Census. Because the data on net value of fixed assets used in operation recorded in the 2006 Industry, Commerce, and Service Census do not contain data on asset revaluation, the data need to undergo price adjustment in the following manner:

The fixed capital stock deflators are calculated based on real fixed capital formation and capital formation deflators (2006 =100) for different categories of assets of new industries from 1981 to 2006, which are then used to deflate the net value of fixed assets used in operation recorded in the 2006 Industry, Commerce, and Service Census.

The stock deflator for constructions in progress and prepayments for equipments is the weighted average of the capital stock deflators for three categories of assets, namely building and other constructions, transportation equipments, and machinery and other equipments, where the weight of each is determined by their proportion in the net value of fixed assets recorded in the 2006 Industry, Commerce, and Service Census. The deflators for fixed assets inrented and borrowed and fixed assets outrented and lent are the overall capital stock deflator calculated based on the weighted average of different categories of assets.

## **2. Data on Real Gross Capital Stock Using 2006 as Benchmark Year**

The 2006 gross value of fixed assets used in operation by the 16 industrial section measured using the 2006 prices = net value of fixed assets used in operation by the 16 industrial section measured using the 2006 prices recorded in the 2006 Industry, Commerce, and Service Census + accumulated capital depreciation measured using the 2006 prices and presented in the Tables of National Income Statistics by the 16 industrial section between 1981 and 2006.

## **3. Real Net and Gross Fixed Capital Stocks from 2001 to 2010**

The real net and gross fixed capital stocks from 2001 to 2010 are obtained based on the real and gross fixed capital stocks using 2006 as base year calculated above as well as real gross capital formation and real capital depreciation.



# 肆、附 錄

IV、APPENDIX

## 附 錄

### 一、多因素生產力統計之意義

實質產出成長之因素中，除了透過要素投入增加所導致之直接貢獻外，尚有許多因素，如知識進步（包含技術與管理層面）、規模經濟、市場結構變動、產業結構改變、外部經濟、投入品質或組成改變等。這些因素可稱之為生產力成長因素，Abramovitz（1956）稱之為多因素生產力變動，Solow（1957）稱之為技術進步，而 Domar（1961）則建議以餘數或殘值稱之，即凡是實際產出變動無法藉由生產要素變動來解釋之部分，全部納入此一名詞之內涵。

以下就生產面進行多因素生產力之衡量，簡述如次：

假設有一生產函數：

$$Q = f(L, k; t) \quad (1)$$

代表 i 產業之產出投入關係，而所謂技術進步率，可視為隨時間變動，在生產要素投入數量固定不變時，由於投入品質改變，等產量曲線往上移動比率，亦即可定義為：

$$\dot{A} = \frac{\partial f / \partial t}{f} \quad (2)$$

由生產函數全微分得知：

$$\frac{dQ}{dt} = \frac{\partial f}{\partial L} \frac{dL}{dt} + \frac{\partial f}{\partial K} \frac{dK}{dt} + \frac{\partial f}{\partial t}$$

將上式遍除 Q 得：

$$\frac{dQ/dt}{Q} = \frac{\partial f}{\partial L} \frac{L}{Q} \frac{dL/dt}{L} + \frac{\partial f}{\partial K} \frac{K}{Q} \frac{dK/dt}{K} + \frac{\partial f / \partial t}{f} \quad (3)$$

假設生產者在維持成本最小之條件下生產，則由滿足成本最小之一階條件知：

$$\frac{\partial f}{\partial L} = \frac{W}{\partial C / \partial Q} ; \frac{\partial f}{\partial K} = \frac{R}{\partial C / \partial Q} \quad (4)$$

W，R 分別表示勞動、資本要素價格

$\partial C / \partial Q$ ：為產生之邊際成本，

將此條件代入（3）式知：

$$\frac{\dot{Q}}{Q} = \frac{WL}{(\partial C / \partial Q)Q} \frac{\dot{L}}{L} + \frac{RK}{(\partial C / \partial Q)Q} \frac{\dot{K}}{K} + \dot{A} \quad (5)$$

$$\text{由產出成本彈性知：} Ecq = \frac{\partial C}{\partial Q} \frac{Q}{C}$$

將此關係式代入（5）式知：

$$\frac{\dot{Q}}{Q} = (1/Ecq) \frac{WL}{C} \frac{\dot{L}}{L} + (1/Ecq) \frac{RK}{C} \frac{\dot{K}}{K} + \dot{A} \quad (6)$$

然而由傳統多因素生產力變動率之決定式：

$$\frac{\dot{MFP}}{MFP} = \frac{\dot{Q}}{Q} - S_L \left( \frac{\dot{L}}{L} \right) - S_K \left( \frac{\dot{K}}{K} \right) \quad (7)$$

知

$$\dot{A} = \frac{\dot{MFP}}{MFP} + [1 - (1/Ecq)] \left[ S_L \left( \frac{\dot{L}}{L} \right) + S_K \left( \frac{\dot{K}}{K} \right) \right]$$

或

$$\frac{\dot{MFP}}{MFP} = \dot{A} + [(1/Ecq) - 1] \left[ S_L \left( \frac{\dot{L}}{L} \right) + S_K \left( \frac{\dot{K}}{K} \right) \right] \quad (8)$$

$S_L$ ， $S_K$  分別表示勞動與資本投入份額

式中

$$[(1/Ecq) - 1] \left[ S_L \left( \frac{\dot{L}}{L} \right) + S_K \left( \frac{\dot{K}}{K} \right) \right]$$

為衡量生產規模變動對生產力之影響效果，顯然多因素生產力變動率與生產函數之移動所表示之技術進步率並不相一致，除非 $(1/E_{cq}) = 1$ （亦即生產規模為固定規模報酬形式），否則多因素生產力之變動將同時受技術進步及生產規模變動之影響，且當生產規模報酬遞增 $(1/E_{cq}) > 1$ ， $\dot{MFP}/MFP$  將大於由生產面所衡量之技術進步率 $\dot{A}$ ，反之，當生產規模報酬遞減，則 $\dot{MFP}/MFP$  將小於 $\dot{A}$ 。

由以上討論可知，理論上規模經濟與技術進步對於產出之成長比皆有所貢獻，因此忽略了規模經濟的效果，將誤估MFP成長率。但在實務上，為配合國民所得統計制度成本等於收入之概念，通常假設固定規模報酬，故：

$$\dot{A} = \frac{\dot{MFP}}{MFP} = \frac{\dot{Q}}{Q} - s_L \left( \frac{\dot{L}}{L} \right) - s_K \left( \frac{\dot{K}}{K} \right)$$

上式亦可修正為：

$$\frac{\dot{Q}}{Q} - \frac{\dot{L}}{L} = \dot{A} + s_K \left( \frac{\dot{K}}{K} - \frac{\dot{L}}{L} \right) \quad (9)$$

解釋成每人產出變動率為多因素生產力成長率與資本密集度成長率對每人產出成長率貢獻之和；或可修正為：

$$\dot{A} = s_K \left( \frac{\dot{Q}}{Q} - \frac{\dot{K}}{K} \right) + s_L \left( \frac{\dot{Q}}{Q} - \frac{\dot{L}}{L} \right) \quad (10)$$

即多因素生產力指標為要素投入生產力貢獻之和。

或為

$$\frac{\dot{Q}}{Q} = \dot{A} + s_L \left( \frac{\dot{L}}{L} \right) + s_K \left( \frac{\dot{K}}{K} \right) \quad (11)$$

可知實質 GDP 之成長，除了勞動、資本投入量增加之貢獻外，其餘凡屬投入品質增進、技術變遷、資源運用效率提升、研究發展等，均歸入多因素生產力貢獻之範疇。

## 二、生產函數及資料合理性之評估

生產力衡量頗受統計資料與估計公式之影響，而資料蒐集處理可能發生錯誤，因此任何有關這方面的研究，似宜先進行資料可信度之評估。然而可信度又拿什麼做為評判標準，基本上，若統計資料能適度解釋某些經濟現象，吾人認為此資料就有某種程度之可靠性。但用以評判的準則又如何選取呢？似很難有一致看法，由於本文重心在生產力衡量，因此吾人選用評估統計資料可信度的準則是：統計資料是否能配合出一條合乎經濟理論的生產函數，若是，則統計資料尚稱合理可信。

本文選用限制條件較少之超越對數（Translog）生產函數，應用 Seemingly Unrelated Regression Equations（SURE）方法，估計下列聯立方程式：

$$\begin{aligned} \text{生產函數：} \quad \ln Y(t) = & \alpha_0 + \alpha_t t + \sum_i \alpha_i \ln x_i(t) + \frac{1}{2} \beta_{tt} t^2 + \sum_i \beta_{it} \ln x_i(t) t \\ & + \frac{1}{2} \sum_i \sum_j \beta_{ij} \ln x_i(t) \ln x_j(t) + U(t) \end{aligned}$$

$$i, j = L, K$$

$$\text{份額函數：} \quad S_i(t) = \alpha_i + \beta_{it} t + \sum_j \beta_{ij} \ln x_j(t) + V_i(t),$$

$$i, j = L, K$$

$$\text{其中} \quad \sum_i \alpha_i = 1, \sum_i \beta_{it} = 0, \sum_i \beta_{ij} = \sum_j \beta_{ji} = 0,$$

$$i, j = L, K, \quad \beta_{ij} = \beta_{ji}, \quad i \neq j$$

$U(t)$ ， $V_i(t)$ ， $i = L, K$ ，皆為干擾項，反映統計誤差，以及決策未達完全效率等。

為衡量投入要素生產力與生產技術，生產投入與產出需適當的對應，茲分別選取實質國內生產毛額指數、就業總工時指數、實質資本存量指數、勞動報酬、要素成本份額等經濟變數，假設固定規模報酬，應用 SURE 方法估計其生產函數，並檢視其是否合乎單調性、準凹性、邊際報酬遞減原則、二階條件大於零等。

# Appendix

## 1. The meaning of MFP statistics

Among the factors of real output growth, besides the direct contributions resulting from the increase of factor input, there are a lot of other factors such as knowledge advancement (including technology and management), economy of scale, variation of market structure, change in the industrial structure, external economy, change in input quality or composition, and so forth. These factors may be called productivity growth elements. Abramowitz (1956) called them variation of multifactor productivity, Solow (1957) called them technological advancement, and Domar (1961) suggested that they should be called residue or residual value. In other words, it includes any part of the variation of real output that cannot be explained by change in the factors of production.

In the following are briefly explained the evaluation of multifactor production from the production point of view:

Suppose there is a production function:

$$Q = f(L, K, t) \quad (1)$$

It indicates the output-input relation of industry  $i$ . The so-called technological advancement rate may be regarded as the rate of upward movement of the isoquant curve over time due to change in the quality of input under fixed quantity of factor input. Also, it can be defined as:

$$\dot{A} = \frac{\partial f / \partial t}{f} \quad (2)$$

From the total differential of the production function we know:

$$\frac{dQ}{dt} = \frac{\partial f}{\partial L} \frac{dL}{dt} + \frac{\partial f}{\partial K} \frac{dK}{dt} + \frac{\partial f}{\partial t}$$

Divide the above equation by  $Q$  and we get:

$$\frac{dQ/dt}{Q} = \frac{\partial f}{\partial L} \frac{L}{Q} \frac{dL/dt}{L} + \frac{\partial f}{\partial K} \frac{K}{Q} \frac{dK/dt}{K} + \frac{\partial f / \partial t}{f} \quad (3)$$

Suppose the producer produces under the minimum cost, then from the first-order condition satisfying the minimum cost we know:

$$\frac{\partial f}{\partial L} = \frac{W}{\partial C / \partial Q} ; \frac{\partial f}{\partial K} = \frac{R}{\partial C / \partial Q} \quad (4)$$

$W$  and  $R$  stand for the prices of labor and capital respectively

$\partial C / \partial Q$  : marginal cost of production

Substitute this condition into Equation ( 3 ) and we get :

$$\frac{\dot{Q}}{Q} = \frac{WL}{(\partial C / \partial Q)Q} \frac{\dot{L}}{L} + \frac{RK}{(\partial C / \partial Q)Q} \frac{\dot{K}}{K} + \dot{A} \quad (5)$$

From the cost elasticity of output we know :  $Ecq = \frac{\partial C}{\partial Q} \frac{Q}{C}$

Substitute this expression into Equation:

$$\frac{\dot{Q}}{Q} = (1/Ecq) \frac{WL}{C} \frac{\dot{L}}{L} + (1/Ecq) \frac{RK}{C} \frac{\dot{K}}{K} + \dot{A} \quad (6)$$

From the deterministic expression of the variation rate of traditional multifactor productivity:

$$\frac{\dot{MFP}}{MFP} = \frac{\dot{Q}}{Q} - S_L \left( \frac{\dot{L}}{L} \right) - S_K \left( \frac{\dot{K}}{K} \right) \quad (7)$$

We can know:

$$\dot{A} = \frac{\dot{MFP}}{MFP} + [1 - (1/Ecq)] \left[ S_L \left( \frac{\dot{L}}{L} \right) + S_K \left( \frac{\dot{K}}{K} \right) \right]$$

or

$$\frac{\dot{MFP}}{MFP} = \dot{A} + [(1/Ecq) - 1] \left[ S_L \left( \frac{\dot{L}}{L} \right) + S_K \left( \frac{\dot{K}}{K} \right) \right] \quad (8)$$

$S_L$  and  $S_K$  stand for the shares of labor and capital inputs.

Where,

$$[(1/Ecq) - 1] \left[ S_L \left( \frac{\dot{L}}{L} \right) + S_K \left( \frac{\dot{K}}{K} \right) \right]$$

implies the influence of the variation of production scale on the productivity. Obviously, the variation rate of multifactor productivity is not consistent with the technological advancement rate expressed by the movement of production function. Except when  $(1/E_{cq}) = 1$  (i.e., when the return to scale is constant), the variation of multifactor productivity will be affected by both technological advancement and variation of production scale. In case of incremental return to scale  $((1/E_{cq}) > 1)$ ,  $\dot{MFP}/MFP$  will be bigger than the technological advancement rate  $\dot{A}$  evaluated from the aspect of production; contrarily in case of diminishing return to scale,  $\dot{MFP}/MFP$  will be smaller than  $\dot{A}$ .

From the above discussion we can know that, theoretically, both the economy of scale and technological advancement make some contributions to the growth of output. So the growth rate of **MFP** would be estimated incorrectly if the effect of economy of scale is neglected. However, a constant return to scale is usually supposed in the practice of national income statistics according to the conception that costs equal to incomes. Therefore,

$$\dot{A} = \frac{\dot{MFP}}{MFP} = \frac{\dot{Q}}{Q} - S_L \left( \frac{\dot{L}}{L} \right) - S_K \left( \frac{\dot{K}}{K} \right)$$

The above equation can be modified into:

$$\frac{\dot{Q}}{Q} - \frac{\dot{L}}{L} = \dot{A} + S_K \left( \frac{\dot{K}}{K} - \frac{\dot{L}}{L} \right) \quad (9)$$

It suggests that the variation rate of per capita output is the sum of the contributions made by the growth rate of **MFP** and the growth rate of capital intensity to the growth rate of per capita output; or it can be modified into:

$$\dot{A} = S_K \left( \frac{\dot{Q}}{Q} - \frac{\dot{K}}{K} \right) + S_L \left( \frac{\dot{Q}}{Q} - \frac{\dot{L}}{L} \right) \quad (10)$$

That is to say, the **MFP** index is the sum of the contributions made by the two factors to the productivity.

Or

$$\frac{\dot{Q}}{Q} = \dot{A} + S_L \left( \frac{\dot{L}}{L} \right) + S_K \left( \frac{\dot{K}}{K} \right) \quad (11)$$

From the above we can know that among the contribution factors of the real GDP growth, except the contributions made by the increase of labor and capital inputs, the other factors such as the enhancement of input quality, technical evolution, improvement of resource utilization efficiency, and R&D all can be included in the contributions of **MFP**.

## 2. Production function and assessment of data reliability

The evaluation of productivity is affected by the statistic data and the evaluation formula very much, and error may take place in data collection and processing. Therefore, assessment of data reliability should be made before making any research in this field. How to judge the reliability? Basically, if proper explanation of certain economic phenomenon can be made based on some statistic data, we think the data are reliable to some degree. However, what is the rule of judgment? There are different answers. As the emphasis of this article is placed on the evaluation of productivity, we can choose the following rule to assess the reliability of statistic data: ask whether the statistic data can match with a production function that meets economic theories; If yes, the data may be called reliable.

In this article, the Translog production function with fewer limitations and the Seemingly Unrelated Regression Equations ( SURE ) method are used to assess the following equations:

Production function:

$$\begin{aligned} \ln Y(t) = & \alpha_0 + \alpha_t t + \sum_i \alpha_i \ln x_i(t) + \frac{1}{2} \beta_{tt} t^2 + \sum_i \beta_{it} \ln x_i(t) t \\ & + \frac{1}{2} \sum_i \sum_j \beta_{ij} \ln x_i(t) \ln x_j(t) + U(t) \\ & i, j = L, K \end{aligned}$$

Share function:

$$\begin{aligned} S_i(t) = & \alpha_i + \beta_{it} t + \sum_j \beta_{ij} \ln x_j(t) + V_i(t), \\ & i, j = L, K \end{aligned}$$

Where,

$$\sum_i \alpha_i = 1, \sum_i \beta_{it} = 0, \sum_i \beta_{ij} = \sum_j \beta_{ij} = 0,$$

$$i, j = L, K, \beta_{ij} = \beta_{ji}, i \neq j$$

$U(t)$ ,  $V_i(t)$ ,  $i = L, K$ , all are disturbance terms, which reflect the statistic errors and the incomplete efficiency of decision.

To evaluate the relations between input factor productivity and production technology as well as between production input and output the economic variables such as gross real GDP, total working hours, real capital stock labor reward, factor cost share

are selected and the SURE method are used based on the supposition of constant return to scale, to estimate the production function and check whether it meets the requirements of monotonicity, quasi-concavity, the law of diminishing return, and second-order conditions bigger than zero.

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- 產值勞動生產力趨勢分析報告
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