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Dairy Sector Page-7

Data on Dairy  
Sector15% of the National  
GDP140 Million Tonnes  
of Total Milk  
ProductionIndia Ranks Second  
in World Farm  
OutputGrowth Rate of  
Agriculture and  
Allied Sector-4.43%Total Production of  
Agriculture Sector-  
\$366.92 Billion  
(2014)53% of Rural  
Households Depend  
on AgricultureIndia has More than  
550 Dairy Plants

## Role and Importance of Primary Sector

-Vagdevi H. S. &amp; Kiranbabu P.

Theodore Schultz in his Noble (Economics) acceptance speech in 1979 observed, "Most of the people in the world are poor... Most of the world's poor people earn their living from agriculture, so if we knew the economics of agriculture we would know much of the economics of being poor" (Shultz, 1979). This throws light on the importance of primary sector in economies of the world. Understanding the structure of the economy is critical for both the

economic planners and the government of that country to plan, to govern and consistently take the economy towards a growing path. A steady and reliable economic growth is vital for any country because it helps its citizens to have a better standard of living and create enough surpluses that help in facing the adversities.

To understand the economy better scholars like Colin Clark (1940) and Fisher (1935) have divided the economy into three sectors - primary sector, secondary sector and tertiary sector. The primary sector is an economic description, concerned with the extraction of raw materials. It includes fishing, farming and mining. Amongst the primary sector, agriculture is the predominant occupation and has the largest share in national income. Despite employing 51% of the workforce, agriculture and allied activities produces just 15% of the national GDP, indicating a poor usage of the available workforce and a failure of modernisation of agriculture and other activities allied to it.



Although, India ranks second in worldwide farm output, it falls short in crop yield per unit area of farms. States of India that lie on the Indo-Gangetic plain and the ones near to any river are among the important agricultural regions of the country. India mainly exports agricultural produce like rice, wheat, spices, and cereals. 10% of her trade income comes from the export of these products.

In the long run sustainable growth and development of a national or regional economy depends on the volume of output produced by all sectors – agriculture, industry and the service sectors. Keeping this in mind, it becomes pivotal that the Indian economy, more so Indian primary sector, needs to be modernised. Modernising agriculture will lead to increase in more yield of crop per unit area and increase share of its GDP. This creates a chain of actions where, rural families will have an increased income, increasing their purchasing power, which in turn expands the existing market for manufactured

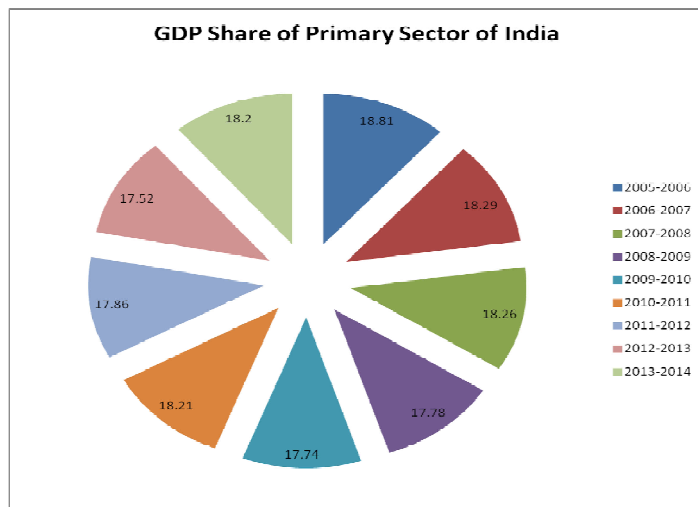
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# Primary Sector Contributes 18.20% of GDP

- Shivprasad B. M.

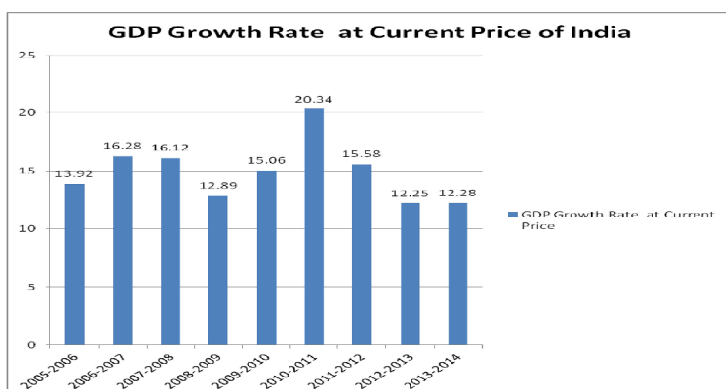
The economic contribution of agriculture to India's Gross Domestic Product is steadily declining with the country's broad-based economic growth. Still, agriculture is demographically the broadest economic sector and plays a significant role in the overall socio-economic fabric of India. Agriculture plays a vital role in the Indian economy. Over 53% of the rural households depend on agriculture as their principal means of livelihood. Agriculture, along with fisheries and forestry, accounts for one-third of the nation's Gross Domestic Product and is its single largest contributor.



Source: Data book, Planning Commission of India, GOI.

It is seen from the above pie chart that the GDP of India in primary sector has been constantly declining since 2005-2006. In 2005-2006 primary sector accounted for 18.81 % of our GDP and over the span of a decade it has been reduced to 18.20 % in the year 2013 – 14.

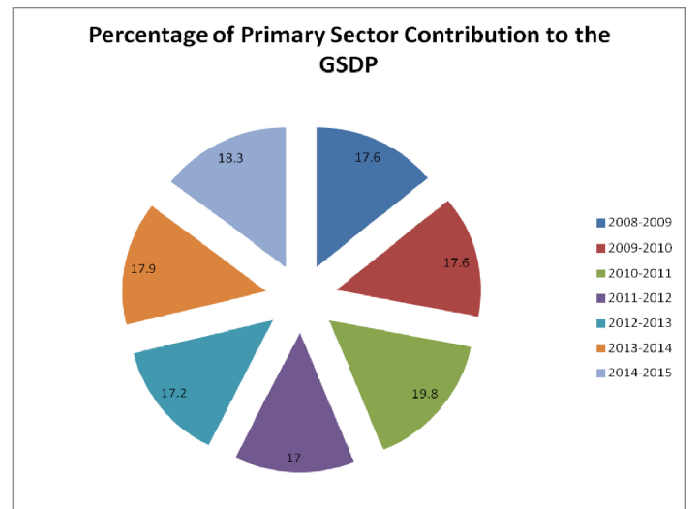
## GSDP Annual Growth Rate of Primary Sector of Karnataka



Source: Data book, Planning Commission of India, GOI.

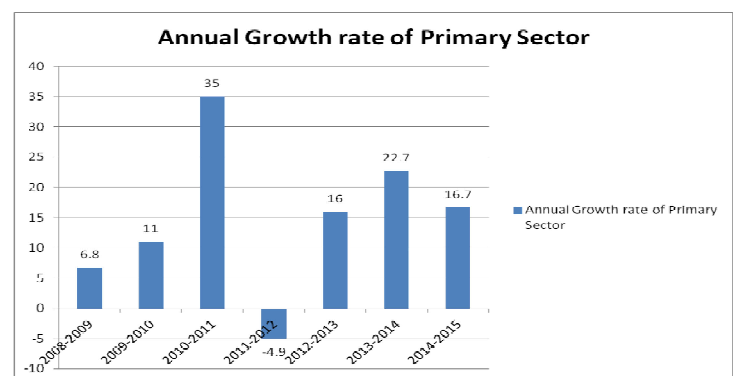
GDP growth rate from 2005-2006 to 2013-2014 is shown in the above graph where, GDP growth rate at current price saw a increase from 2005-2006 upto 2007-2008 with

13.92% and 16.12 % respectively. Though it declined between 2010 -11, it saw a positive growth with 20.34 % . But, after that there is a constant decline in the growth rate in 2013 -14 at 12.28 %.



Source: Data book, Planning Commission of India, GOI.

The contribution of Primary sector to Gross State Domestic Product of Karnataka from 2008-2009 to 2014-2015 is mentioned in the above graph. In 2008-2009 primary sector contribution was 17.6 % and in 2009-2010 it was 17.6%. We can see small variations in 2011-2012, 2012-2013 and 2013-14 with 17 %, 17.2 % and 17.9 % respectively but in 2014-2015 we can see a optimistic leap to 18.3%.



Source: Data book, Planning Commission of India, GOI.

Annual growth rate of primary sector in Karnataka shows that, in 2008-2009 growth rate was 6.8 % and since then it has steadily grown until 2011 -12 where there was a negative growth due to economic variations. Since 2012-2013 again a positive growth is recorded with 16% in 2012 -13 and 22.7 % in 2013 -14. The year 2014 -15 saw a decline in growth rate with 16.7 % with 6 % lesser growth rate.

Source: Karnataka Economic Survey 2014-2015, Karnataka State Budget 2015-2016, Data book for PC: 22<sup>nd</sup> December 2014, Planning Commission of India, GOI.



# Bills and Schemes in Relation to Primary sector

-Srinivasa .D

From steps to check the rising price of pulses to ensuring smooth supply of urea and other fertilizers the government has approved a slew of measures to boost agriculture and allied activities. Markets have been affected by macro-economic disturbances, disease outbreaks and adverse weather events such as floods and droughts. Risk management in agriculture is now an essential tool for farmers to anticipate, avoid and react to shocks.

Experts feel that in this scenario, the government, both the national and the states, can increase the funds being spent for improvement of irrigation facilities and also provide loans for purchasing high quality fertilisers and seeds. The storage and transport facilities can also be bettered –local banks can also play a critical role in this regard by providing loans at more convenient rates. Indian government has taken some constructive steps to address these problems. A report by the Planning Commission, however, states that employment may recede thanks to better productivity.

## Few bills and schemes are;

**The Agricultural Bio Security Bill, 2013:** provides for establishment of an authority for prevention, control, eradication and management of pests and diseases of plants and animals and unwanted organisms for ensuring agricultural biosecurity. And also to meet international obligations of India for facilitating imports and exports of plants, plant products, animals, animal products, aquatic organisms and regulation of agriculturally important micro organisms and for matters connected therewith or incidental thereto.

**The Minimum Support Prices (MSP):** This was announced for the first time in the year 1966- 67 by the Government of India. Since then, the MSP regime has been expanded to many crops. As per government report 2013, the MSP covers 25 crops.

## Activities Undertaken for Betterment of this sector

• Division wise programmes and schemes
• Agriculture census
• Agricultural marketing
• Cooperation
• Credit
• Crops
• Drought management
• Economic administration
• Extension
• Horticulture
• Information technology
• Integrated nutrient management
• Macro management
• Mechanisation and technology
• Natural resource management
• Oilseeds
• Plan coordination
• Policy
• Plant protection
• Rastriya krishi vikas yojana
• Rainfed farming system
• Seeds
• Technology mission on oilseeds, pulses and maize

## National Food Security Mission (NFSM): is a Central

Scheme launched in 2007 to increase production and productivity of wheat, rice and pulses on a sustainable basis so as to ensure food security of the country.

**Seed Village Programme:** aims at upgrading the quality of farm seeds. The government has covered about 64,000 villages under this component since inception in 2005-06. Under this, a **Seed Bank** will be setup in every village starting from 1999-2000. The core idea is to meet the demand of seeds in the country.

**Integrated Dairy Development Project' (IDDP):** There were some areas in the country, which remained untouched by the Operation Flood and its effects. This programme was launched in 1993-94 on 100% grant-in-aid basis.

## National Project for Cattle

**and Buffalo Breeding (NPCBB'):** Genetic improvement in bovines is a long-term activity and Government initiated a major programme in October 2000. The Project envisages genetic up-gradation on priority basis. The project also has its focus on the development and conservation of important indigenous breeds. Apart from these there are many other programmes, schemes and bills like National Mission on Sustainable Agriculture, National Dairy Plan, Nutrient Based Subsidy Scheme, Command Area Development Programme, Drought Prone Area Programme, Price stabilisation and Fund Scheme, High Yielding Variety Programme, Agro –Economic Research Scheme, Major, Medium and Minor Irrigation Schemes, Seed Crop Insurance, Central Herd Registration Scheme etc.

**Source:** <http://business.mapsofindia.com/sectors/#sthash.8CzO71Ii.dpuf> , <https://www.cbd.int/undb/media/factsheets/undb-factsheets-en-web.pdf>



# Difference Between Three Sectors in India

**-Punithkumar L. M.**

Indian economy is classified into three sectors viz, Primary sector, Secondary sector and Tertiary sector. Agriculture, forestry, pasturing, mining, fishing encompasses primary activities as their products are essential or vital for human beings. The following table shows the difference between primary, secondary and tertiary sector in India.

Primary Sector	Secondary Sector	Tertiary Sector/Service Sector
Primary sector includes those activities which lead to the production of goods by utilisation of natural resources	Secondary sector includes those activities, which result in transformation of natural products into other forms by manufacturing	Tertiary sector includes those activities that help in the development of the primary & secondary sectors by supporting the production process
Primary sector includes Agriculture, forestry, pasturing, mining, fisheries	Secondary sector includes Manufacturing industries, trade and commerce, transport and communication	In the Tertiary / Service sector, all types of services are included. These are trade, repair, hotels and restaurants, transport, storage, communication & services related to broadcasting, Financial, real estate etc.
Employment generation in 2009-10 was 52.9, but it was decreased compared to 2004-05 (59.9%).	Employment generation in 2009-10 was 22.7, it increased from 2004-05 (16.4%)	Employment generation in 2009-10 was 24.4...more than 2004-05 (23.7%).
Total production of agriculture sector is \$366.92 billion in 2014.	In Industry sector is \$495.62 billion in 2014.	In Tertiary sector \$1185.79 billion in 2014.
At 2011-12 prices, GDP composition of Agriculture & allied sector was 16.11%*.	At 2011-12 prices, GDP composition of Industry sector was 31.37%*.	At 2011-12 prices, GDP composition of Tertiary Sector was 52.52%*.
Contribution of Agriculture sector in Indian economy is much higher than world's average (6.1%) in 2014.	Contribution of Industry sector is lower than world's average 30.5% for Industry sector in 2014.	Contribution of Services sector is lower than world's average 63.5% for Services sector in 2014.
At 2011-12 prices GVA (Gross Value Added) growth rates of Agriculture & allied sector are 0.23% in 2014.	At 2011-12 prices GVA (Gross Value Added) growth rates of Industry sector 6.12% in 2014.	At 2011-12 prices GVA (Gross Value Added) growth rates of Tertiary sector 10.16% in 2014.
At current prices, growth rate of Agriculture & allied sector was (4.43%),	At current prices, growth rate of Industrial sector was (7.67%)	At current prices, growth rate of Service sector was (13.81%).

\*According to CIA Facebook, sector wise Indian GDP composition in 2014

**Sources:** NSSO 61st and 66th Round Survey (2009-10); Working Group on Twelfth Plan - Employment, Planning & Policy Databook for PC; 22nd December, 2014



# Theories Explaining the Shift of Services Between Sectors

-Gayathri .R

Allan Fisher (1935) and Colin Clark (1940) independent of each other proposed the three-sector hypothesis according to which, in the course of economic progress, employment will first shift from agriculture to manufacturing, and then to services sector. In his work 'The Conditions of Economic Progress', Clark opines that consumer demand will shift to services because the demand for manufacturing goods will be saturated and labor will subsequently move to the service sector. While emphasising the importance of demand shifts to services, Clark recognises that differences in productivity growth is the other major force behind employment shifts. His argument is that labor will be reallocated from manufacturing industries, which experience high rates of productivity growth but stagnating demand, to services, which experience lower rates of productivity growth but rising demand. Clark's assumption is based on detailed empirical data from a large number of countries that include not only employment but also

aggregate expenditure figures.

Jean Fourastié also predicted that the low rate of productivity growth in services, combined with a shift in demand to services, would be the great hope for 20th century employment. Like Fisher and Clark, Fourastié argued that, in the process of economic development, employment would first shift from agricultural production to manufacturing and then to services.

According to Baumol's model, the share of service sector employment is larger in high-income countries, and grows with rising income, because of the low productivity level of the service sector (in the cross section), combined with its low productivity growth from a longitudinal perspective. In other words, Baumol explains the expansion of service employment in terms of a productivity differential, a constant share of services in real output, and rising income (higher income in crosscountry studies).

Fuchs analyses causes of the slower productivity growth in services as

compared to manufacturing. He estimates that service sector productivity growth lags behind manufacturing

productivity growth mainly because skill-upgrading has been less pronounced in services, although this cannot fully explain the productivity growth differential between services and manufacturing. Fuchs' study confirms Baumol's claim that the shift to services is largely the result of productivity differentials, and that demand shifts are insufficient to explain the phenomenon of growing employment in service industries.

In short, the analysis of the five classics gives an idea towards the expansion of service industry employment which may be the result of:

- ◆. A shift in the structure of final demand from goods to services;
- ◆. Changes in the inter-industry division of labor, favoring specialised service activities rising;
- ◆. Inter-industry productivity differentials.

*Source: The Shift to Services by Ronald Schettkat and Lara Yocarini, December 2003.*

## Revolutions in Primary Sectors

- Deepa T.M

India has always been an agro-based economy. The primary sector in India contributes to 16.95% of our GDP. India is world leader in production of milk and is the second largest producer of wheat, sugar, freshwater fishes and groundnuts. It is a major producer of tea, cashew, sugar, ginger, turmeric and black pepper. The Indian agricultural sector achieved this remarkable feat because of several simultaneous revolutions that were initiated by the government of India.

**Green Revolution :** This increased the agriculture yields due to the use of high-yielding varieties of seeds, modifying farm equipment, and substantially increase in use of chemical fertilisers. The revolution in India is traced to 1967/68 with major focus on Wheat, which was later extended to other crops. This took India towards fuelling wheat self-sufficiency.

**White Revolution:** Operation Flood (1970)

popularly known as white revolution was aimed at increasing milk production. This made India a leader in milk production surpassing USA. National Dairy Development Board (NDDB) realised this by organising dairy development through co-operative societies.

**Blue Revolution:** Blue Revolution aimed at increase in the production of fish and marine products. The Blue Revolution in India was started in 1970 during the Fifth Five-Year Plan when the Central Government sponsored the Fish Farmers Development Agency (FFDA). Subsequently, the Brakish Water Fish Farms Development Agency was set up to develop aquaculture. The Blue Revolution has brought improvement in aquaculture by adopting new techniques of fish breeding, fish rearing, fish marketing, and fish export.

(continued page-8)







# Karnataka 2<sup>nd</sup> Largest Milk Producer in the Country

- Venugopal Gowda M.K.

Indian milk producers have transformed dairying from stagnation to one of world's leader. Milk Production in India has increased manifold and in the last financial year, the total milk production in the country crossed the mark of 140 Million Tonnes.

Karnataka State is the second largest producer of milk in the cooperative sector after Gujarat, and the daily procurement by the Karnataka Milk Federation is about 46 lakh litres. It is estimated that the total daily milk production, including private dairies', cooperative sector and federation is around 1.2 crore litres a day, and further investments in the sector could boost milk production in Karnataka.

Dairy sector is the largest contributor to the national agriculture Gross Domestic Product (GDP). In terms of output, milk is at present the single largest GDP contributor among primary sector. Around 46 % of the milk is consumed in the form of liquid milk, 47% as traditional dairy products like ghee, butter, yogurt and *paneer* and 7% as Western dairy products cheese, along with a cornucopia of flavoured milks, ice creams, Ultra High Temperature ( UHT ) processed milk and shredded and liquid cheese is making the sector an attractive sector for growth.

The table reveals that Uttar Pradesh holds first place in the production of buffalo milk and Tamil Nadu has been the biggest contributor in the generation of per capita in production of cow's milk. Gujarat, Andhra Pradesh, Maharashtra and Karnataka are also among the major contributors to the per capita of milk production. However, seven sister states of eastern India, union territories and other states are very poor contributors of both cow and buffalo milk.

The dairy industry in India at present is estimated to be about 130 million tonnes and is expected to grow at 4-5% per annum. The projected value of the industry as per the Open Government Data (OGD) Platform is about Rs. 500,000 crore. The leading dairies in country are Gujarat Cooperative (*Amul*), Karnataka Milk Federation (KMF- *Nandini*), *Mahanand* Dairy (*Mahanand*), Tamil Nadu Co-operative Milk Producers' Federation Limited (*Aavin*), Heritage, *Nilgiri* Dairy Farm Pvt Ltd, Hatsun with *Arokya* brand, *Cavinkare* Dairy, GRB Dairy, Cream Line Dairy and *Parag* Milk Foods, *Tirumala* Milk Products, *Gokul* and *Sridevi* Milk Products. There are more than 550 plants in the country with about 175 in the north, about 50 in east about 120 in south and west, accounting for more than 200. *Mulkanoor* Women's Mutually Aided Milk Producers

## Per capita availability of milk during 2008-09 to 2012-13

Sl. No.	States/UTs	Cow Milk	Buffalo Milk
1	Andhra Pradesh	3377	8710
2	Arunachal Pradesh	22	NA
3	Assam	658	117
4	Bihar	3661	2805
5	Chhattisgarh	701	368
6	Goa	42	18
7	Gujarat	3848	5727
8	Haryana	998	5596
9	Himachal Pradesh	680	390
10	Jammu and Kashmir	1204	317
11	Jharkhand	1017	648
12	Karnataka	3715	1675
13	Kerala	2582	27
14	Madhya Pradesh	3589	4041
15	Maharashtra	4605	3571
16	Manipur	67	12
17	Meghalaya	78	2
18	Mizoram	14	0.01
19	Nagaland	74	4
20	Odisha	1477	241
21	Punjab	3074	6417
22	Rajasthan	4972	6901
23	Sikkim #	45	0.2
24	Tamil Nadu	6189	779
25	Tripura	106	2
26	Uttar Pradesh	5837	15549
27	Uttarakhand	638	779
28	West Bengal	4303	223
29	Andaman and Nicobar Islands	19	4
30	Chandigarh	14	31
31	D.and N. Haveli	9	2
32	Daman and Diu	1	1
33	Delhi	109	393
34	Lakshadweep	1.7	0
35	Puducherry	44	2
India	All India	57770	65352

Cooperative Union in *Bheemdevarapally mandal* of *Karimnagar district*, Andhra Pradesh is the first women's co-operative in the country.

Source: Open Government Data (OGD) Platform India



## Revolutions in ...

Continued from page-5

**Silver Revolution:** The silver revolution refers to the period in which the production of eggs was tremendously increased; it was done by the help of medical science and more protein rich food for the hens. At present, more than three million people are directly or indirectly employed in poultry farming.

**Yellow Revolution:** The yellow revolution refers to increased output in oil seeds. The growth, development and adoption of new varieties of oilseeds and complementary technologies nearly doubled oilseeds production from 12.6 mt in 1987-88 to 24.4 mt in 1996-97, catalysed by technology brought about the Yellow Revolution.

**Red Revolution:** Red Revolution is a term used to denote the technological revolutions in meat and tomato Production.

**Pink Revolution:** Refers to increased production in onion, prawn and pharmaceuticals. The pink revolution in recent times also refers to the meat and poultry-processing sector of India.

Other important revolutions related to primary sector in India are;

- ◆.Black Revolution - Petroleum Production
- ◆.Brown Revolution - Leather/non-conventional/Cocoa production
- ◆.Golden Fiber Revolution - Jute Production
- ◆.Golden Revolution - Fruits/Overall Horticulture development/Honey Production
- ◆.Grey Revolution - Fertiliser
- ◆.Round Revolution – Potato
- ◆.Silver Fiber Revolution – Cotton

**Source:** <http://www.viis.in/sites/default/files/files/Hanna%20Nathanson%20The%20GRI.pdf>, <http://www.vajiramandravi.in/blue-revolution-in-india.html>

## Role and Importance...

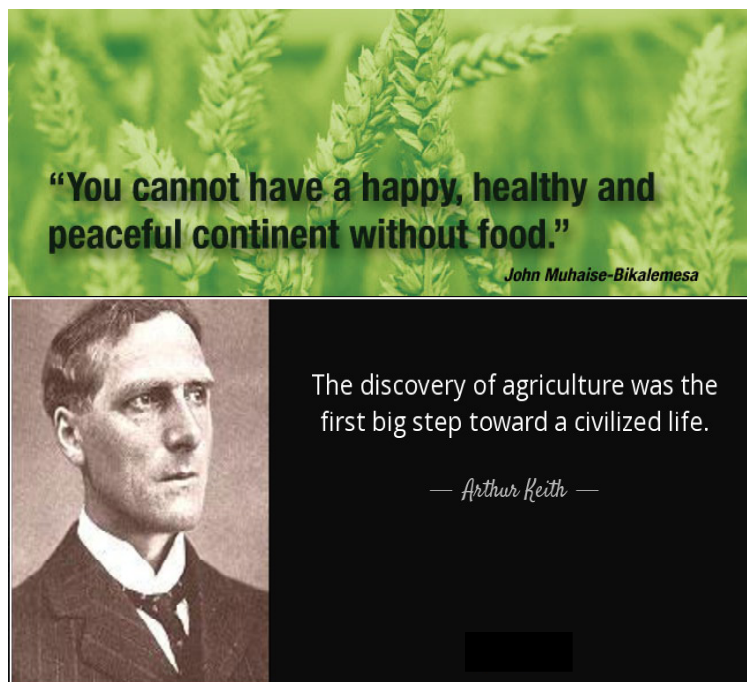
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goods, and total expansion of the economy.

According to India Skills Report 2015, only 34% of the population were employable which decreased from the year 2013 which was at 37.5 %. If India seeks to attain holistic development and come out of vicious circle of poverty then, it must take effective steps to convert unskilled labourers to skilled labourers and train farmers about modern techniques of farming.

Since, it is important for all sectors to function healthy it becomes crucial to enhance the capacity of the primary sector to generate sustainable quality and wherever need be, suitable changes to enhance potential should be introduced.

**Source:** Kamat, Sameer (2015), *Indian Economy in a nutshell – History, Present and Future* retrieved from <http://www.mbacrystalball.com/>, India Skill Report, 2015



**University with Potential for Excellence** of University Grants Commission was awarded to the University of Mysore in the disciplines of Science and Social Science. In Social Science, the focus area of study is '**Media and Social Development: A Case Study of Karnataka**'. The **Newsletter ABHYUDAYA** is an initiative to create awareness in the area of media and social development by encouraging Project Fellows to submit contributions in interdisciplinary areas of social sciences.

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## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 INTRODUCTION**

The three sectors constituting an economy are the Agricultural or Primary sector, the Industry or Secondary sector and the Services or Tertiary sector. The primary sector is directly concerned with natural resources of the country. Agricultural, forestry, fishing and mining constitute the primary sector. The primary sector utilizes the natural resources and produces raw materials and basic goods which may be used by the industries or by the end-users. Hence, it can be said that the primary sector serves as a basic sector assisting the growth of the secondary and tertiary sectors. The Secondary sector consists of the industrial sector, engaged in construction activities and manufacturing of finished goods and tangible products. The secondary sector performs the vital role of catering to the needs of potential consumers of the nation. The Tertiary sector is intangible in nature, concentrating on the services sector. This sector consists of provision of services such as education, medical, hotel and finance needed by the consumers.

Early civilization started with excessive reliance on the primary sector. However, with extreme spurt in food production, people started to turn to industries. This led to the industrial revolution during the 19<sup>th</sup> century. Rapid industrialization saw the development of the support system in the form of the services sector. Thus, the economy evolved from the primary sector to the tertiary sector gradually in phases.

The level of development achieved by any nation is indicated by the position of these three sectors. Any nation in which majority of its GDP is contributed by the Agricultural sector is an “Under-developed nation”, while a country whose GDP is largely accounted for by the Industrial sector may be termed as a “Developing nation”. In case a nation’s GDP is largely contributed by the Tertiary sector, the nation may be categorized as a “Developed Nation”.

#### **1.2 INDIAN ECONOMY**

The Indian economy has witnessed rapid development since independence through its well executed five year plans and formulation of effective Government policies, both fiscal and monetary. India is currently the eleventh largest economy in the world (IMF 2011). India’s total GDP is about \$1.676 trillion and GDP growth rate was



5.5%. India is currently growing at a rapid pace next only to China. India is one of the very few countries which has accomplished a positive growth rate despite the global recession. Agriculture is the important sector of India as the country is still an agro-based economy. Agriculture feeds almost 52% of the country's population. Almost 17.2% of India's GDP is contributed by Agriculture, while the Secondary sector contributes almost 26.4% of GDP and provides employment to about 14% of the population. The tertiary sector contributes almost 57.2% of the nation's GDP, employing about 34% of the population. The Tertiary sector consists of transport, distribution of goods, wholesaling, retailing, after sales service, maintenances etc. The Tertiary sector has witnessed a rapid development in the past two decades. This has significantly contributed to the boosting of the Indian economy.

### **1.3 THE THREE SECTORS OF INDIAN ECONOMY**

#### **1.3.1 Agriculture and Allied sector (the primary sector)**

Agriculture is the most important sector of India, providing employment to majority of our population. The primary sector witnessed a reasonable rate of growth during the eleventh five year plan when compared to the tenth plan. This has been attributed to the fact that government spending in this sector has almost doubled, though private spending has not witnessed such a sharp growth. The food processing sector is growing at a whopping 13% and it shall be the engine for the growth of this sector. The Agri-Biotech sector has tremendous scope for growth in India with the growing of transgenic rice and genetically engineered vegetables offering tremendous growth opportunities. A RBI bank report quotes that this sector has witnessed an enormous growth of 30% during the preceding half decade.

The manufacturing sector of India has also witnessed a reasonable growth during the recent past. The lengthy past record of manufacturing coupled with higher education system has positively contributed to the enormous growth of this sector, giving India an international recognition in this field. Availability of desired skilled manpower, necessary products and processes, and capital engineering has immensely contributed to India becoming a manufacturing hub in the global level. Many multi-national companies are attracted to venture into India to exploit these favorable conditions, enabling India to become a force to reckon with in the manufacturing sector. The International Yearbook



of Industrial Statistics 2009 has highlighted the following remarkable achievements of India in the manufacturing sector:

- a. Our country occupies twelfth position in Manufacturing Value Added (MVA).
- b. India is ranked fourth in Textiles, next only to China, the US and Italy.
- c. India occupies position five in electrical machinery and apparatus.
- d. India occupies the sixth rank in basic metals industry.
- e. India occupies the seventh position in chemicals and chemical products.
- f. Our country occupies the tenth rank in leather, leather products, refined petroleum products and nuclear fuel.
- g. India occupies the twelfth position in the manufacturing of machinery and equipment and motor vehicles.

### **1.3.2 Services**

The services sector is the engine for India's growth during the past decade. The sector has contributed more than half of the country's GDP. This trend has persisted over the past decade, and is expected to continue in the future also. The components of the Services sector namely, hotels, insurance, Trade, transport and communication, real estate, financing and business services are all growing strength to strength year after year. Lead indicators also show favorable trends for high growth of the services sector. The spurt in arrival of foreign tourists into our country, Railway Freight Traffic, quantum of cargo handled by major ports and the number of mobile and telephone connections are all indicators of the robust growth of services sector in the country and excellent future prospects.

KPMG Survey 2009 has revealed that 31.3% of Indian companies engaged in the services sector shall witness a spurt in their activities level, 37% are anticipating fresh orders while 16% are anticipating a decline, 43% planning for enhancement of capital expenditure in the form of increased spending in fixed assets, and an anticipated spurt in revenues of these firms by 31.1%. These statistics indicate the healthy state of the Indian services sector.

### **1.3.3 Manufacturing**

Manufacturing is the process consisting of activities concerned with the conversion of basic raw materials in to finished or semi-finished products by utilizing the



available resources. In short, it is the process of conferring form utility to the raw inputs. For instance, when a raw leather is turned in to shoes, form utility is provided to the raw leather converted it in to shoes, which constitutes the actual manufacturing process. This manufacturing process undergoes various stages before yielding the final product for consumption or industrial use. The three stages involved in the process of manufacturing are input-process-output. Firms engaged in the production of food, chemicals, textiles, machine tools and equipment's, etc. are said to constitute the manufacturing sector. Manufacturing units constitute the secondary sector of an economy. This secondary sector plays a vital role in the growth and prosperity of any economy.

### **1.4 IMPORTANCE OF THE SECONDARY SECTOR**

The secondary sector plays a significant role in shaping the Indian economy. It is the second largest contributor to the nation's GDP next to the Services sector. It contributes to almost 26.5% of India's GDP. Manufacturing units constitute the major part of the secondary sector. They provide employment opportunities to innumerable youth in the country. Manufacturing units play a vital role in improving the health of the economy, as they have a direct impact on the country's inflation and employment pattern. They play a significant role in reducing the inequalities of distribution of wealth and income in the country, enhancement of the country's National Income and Per capita income, and thereby eradicating poverty among the people. Studies reveal that a 1% increase in GDP shall result in a 0.8% reduction in poverty, whereas, in India 1% increase in GDP has yielded only a negligible 0.3% reduction in poverty. The reason for this dismal situation is that Indian economy has grown largely due to the services sector rather than the manufacturing sector. Had India's GDP grown due to the right share of the manufacturing sector, poverty rates will drastically decline.

### **1.5 DEFINITION OF MANUFACTURING INDUSTRY**

*“The branch of manufacture and trade based on the fabrication, processing or preparation of products from raw materials and commodities. This includes all foods, chemicals, textiles, machines, and equipment. This includes all refined metals and minerals derived from extracted ores. This includes all lumber, wood, and pulp products”* {Source: Standard Industrial Classification (SIC) established in the United States in 1937}.



## **1.6 CLASSIFICATION OF MANUFACTURING INDUSTRIES**

1. Classification Based on Possibility of dismantling the finished goods: Based on the possibility of dismantling of the finished goods yielded by the manufacturing units, the manufacturing process may be broadly classified into two types of Process Manufacturing and Discrete manufacturing (product).
  - a. Process manufacturing: Under Process manufacturing, the production takes place in huge bulk and the goods produced cannot be dismantled into the original component. Thermal or chemical reactions such as heating, applying pressure, processing time etc, are used in the Process manufacturing process to convert the inputs and raw materials into finished or semi-finished goods. Some illustrations of process manufacturing industries are chemicals, food and beverage, cement, paint, etc.
  - b. Discrete Manufacturing: Also known as Product manufacturing, under discrete manufacturing, each product is paid unique care and attention by the craftsman at the time of production. The goods are manufactured in discrete units under this Manufacturing process by the workers engaged in fitting or assembling activities to produce finished or semi-finished products. Under this production process, the products produced can be disassembled to their original form if desired. Importantly, the individual products are easily identifiable. Some illustrations of products manufactured using the Discrete Manufacturing process are bicycles, washing machines, cars etc.
2. Classification based on investment: The Micro, Small and Medium Enterprises (MSME) Development Act, 2006 classifies manufacturing enterprises into Micro, Small, Medium and Large scale based on the quantum of investment in plant and machinery. The classification of undertakings based on investment is explained as under:
  - a. Micro Enterprise: A manufacturing enterprise shall be categorized as a micro enterprise if its investment in plant and machinery is not more than Rs. 25,00,000 (this ceiling is Rs. 10,00,000 in case the unit is engaged in providing service).
  - b. Small Enterprise: A manufacturing enterprise shall be categorized as Small Industry if the amount of investment in plant and machinery ranges from Rs.



25,00,000 to 5,00,00,000 (this range is Rs. 10,00,000-2,00,00,000 in case the enterprise is engaged in providing service).

- c. Medium Enterprise: A manufacturing enterprise shall be labeled as medium enterprise if the quantum of investment in plant and machinery ranges from Rs. 5,00,00,000 to 10,00,00,000 (this range is Rs.2,00,00,000 to 5,00,00,000 in case the enterprise is engaged in providing service).
- d. Large Enterprise: A manufacturing enterprise shall be categorized as “Large Enterprise” if the quantum of investment in plant and machinery exceeds Rs. 10,00,00,000 (in case of service firms, it is Rs. 5,00,00,000).

### **1.7 INITIATIVES FOR ENCOURAGING THE MANUFACTURING SECTOR**

Manufacturing is the engine for industrialization of a country, which alone shall lead to development and prosperity of the nation. Abundant availability of human and natural resources in India needs to be rationally utilized for the prosperity of the country, and it is the manufacturing sector which will facilitate such utilization.

The four factors of production are to be properly utilized to bring about a balanced industrial growth. The pace of industrialization shall be largely influenced by a variety of factors such as sound infrastructure, power, timely and adequate availability of finance and inputs, and proactive entrepreneurs. Service sector has a direct bearing on the Indian economy as it is the largest contributor to the country’s GDP. However, the secondary sector forms the base for the growth of both the primary and tertiary sectors. Any issue in the secondary sector will have its impact on both the primary and tertiary sectors, and hence on the economy at large. Hence, secondary sector is of immense importance for the overall development of any economy and the prosperity of the nation. Recognising the importance of the manufacturing sector, the Government of India announced the New National Manufacturing Policy.

#### **1.7.1 Goals of the New National Manufacturing Policy**

The New National Manufacturing Policy envisages the following goals:

- a. Enhance the share of manufacturing sector to 25% of the nation’s GDP by 2025.  
This can be accomplished by a 12-14% growth in the sector.
- b. Creation of 100 million additional jobs in the manufacturing sector by 2025.



- c. Strive for domestic value addition. This will increase the “depth” of the manufacturing sector.
- d. Provision of adequate policy support to enhance the global competitiveness of Indian manufacturing sector.
- e. Provide for growth of the manufacturing sector giving due consideration to the environmental conditions.

### **1.8 ACTION PLAN FOR ACCOMPLISHING THE GOALS OF THE NEW NATIONAL MANUFACTURING POLICY**

The manufacturing policy has mapped out a wide portrait of intent. The action plans contained in the policy include:

- a. Establishment of “National Manufacturing and Investment Zones”.
- b. Reduction of legal conformity saddle on the manufacturing industry by effecting Simplification of regulating mechanisms.
- c. Providing for effective way-out machinery for sick units. This will enable them to compensate labour for loss of jobs and close down the unfeasible business.
- d. Vocational education shall be given due emphasis. Work force with minimum qualifications should be engulfed into the labour force through the provision of “farm to work” and “school to work” programmes.

### **1.9 CHALLENGES CONFRONTING THE MANUFACTURING SECTOR**

Prior to the liberalization era of the early 1990s, the major problem which was impeding the manufacturing sector was high and rigid regulations. This has been overcome through economic and structural reforms. However, the current scenario presents a different and complicated picture. The constraints which the manufacturing sectors in our country are subject to are briefed as under:

- a. **Land acquisition:** Land is a natural resource, supply of which is highly scarce. Land is absolutely inevitable for the manufacturing sector, and many ventures have to be stopped or shifted because of problems associated with land acquisition.
- b. **Industrial Relations:** Strained relations between the management and workers pose a severe threat to the development of the manufacturing sector. Cases of



violence involving the massacre of Human Resources officials will be a severe impediment to the expansion of the manufacturing sector.

- c. **Environmental clearances:** the most important problem confronting any manufacturing unit is the requirement to obtain environmental clearances for projects. The situations wherein the sanction of environmental clearances by the ministry can be challenged and squashed by the court of law make it very difficult for manufacturing enterprises to have a settled approach to their business venture.

These challenges can be overcome only through fruitful negotiations and consultations with all the concerned stakeholders and not being aggressive or oppressive. All of them should be convinced that their interests shall be protected and preserved by the proposed initiatives.

### **1.10 A BRIEF OVERVIEW OF THE MANUFACTURING SECTOR IN PUDUCHERRY**

Manufacturing industry plays a vital role in the economy of Puducherry. The industry sector is the highest contributor to the GSDP of the Union Territory, pushing back the other two sectors. Manufacturing industries create more employment opportunities to young people in Puducherry. The successful manufacturing industry helps in creating new jobs, increasing trade and thereby increasing the GSDP of the Union Territory. It can therefore be said that the manufacturing industry immensely contributes to the social development and economic prosperity of the Union Territory.

Considering the tremendous impact that manufacturing sector exerts on the overall prosperity of Union Territory of Puducherry, it becomes absolutely essential to understand the factors which contribute to the success of the manufacturing sector in the region.

Some studies have highlighted that the success of the manufacturing industries depends on the external and internal environmental factors such as political condition of the state, Government policy, availability of financial support and infrastructure, etc. Similarly, the success of any firm largely depends upon its ability to adapt to the business characteristics of the external environment, its capacity to adopt advanced manufacturing technologies (AMT), its competence to select appropriate competitive priorities and its aptitude towards accomplishing efficient and effective business performance.



In order to be capacitated to adapt to external environmental conditions and take advantage of latest innovative practices, it is inevitable for the manufacturing firms to be well equipped to adapt to the changing environment. They have to tirelessly work and strive for “Continuous Improvement”, which is the most important philosophy of Operations Management. To gain “continuous improvement”, manufacturing firms should be well updated in the latest technologies and adopt all possible new, advanced, innovative and sophisticated manufacturing technologies. This will enable the manufacturing firms to enhance their manufacturing efficiency and reduce their operational cost. This will help them to gain immense comparative advantage, which will positively contribute to them to expand their market beyond the frontiers of the nation and conquer the global markets.

Furthermore, it is inevitable for the manufacturing firms to be strong in formulation of effective and efficient strategies. Today’s market is characterized by cut throat competition and the companies have to formulate suitable strategies to face this competition and survive in the market. They have to formulate strategies which will enable them to gain comparative advantage over their competitors. In general, competitive priority is used to study the manufacturing strategy that improves the business performance of the manufacturing units. This will enable them to take right decisions at the right time. Manufacturing enterprises perennially face competition in both the domestic and international markets. This can be overcome only by the successful formulation of effective manufacturing strategies, whereby the enterprises can advance from their present competitive position to a new advanced height.

More importantly, globalization, strict corporate regulations in the field of environment and other requirements, emerging new markets, constant and rapid change in consumer tastes and fashions, evolution of innovative technologies almost every day and compulsion to adopt new strategies in production and marketing make the life of manufacturing enterprises highly challenging.

It is well established that manufacturing sector plays a crucial role in the economic development of a country and it is highly imperative for the sector to perform absolutely well. This research endeavors to study the four important constructs of Business Environment Characteristics, Advanced Manufacturing Technology,



Competitive Priorities and Business Performance, which contribute to the efficient functioning of any manufacturing unit and the relationships that exist among these four constructs.

### **1.11 FACTORS INFLUENCING EFFICIENCY OF MANUFACTURING FIRMS**

Thousands of firms are in existence in the market, each competing with one another in an unrestricted manner. Not all firms succeed in their business endeavours. Similarly, the success rates of the successful firms also vary drastically. The success of a firm largely depends on its capacity to project its superiority over its rivals among the customers. Those firms which are able to adjust to the dynamic business environmental conditions utilize the latest technology and turn high quality products at cheap rates, shall gain comparative advantage over their competitors, which shall go a long way in making the firm successful.

The various factors which may contribute to success of manufacturing firms are discussed in the forthcoming sections.

### **1.12 BUSINESS ENVIRONMENT CHARACTERISTICS**

Any business is affected by numerous factors, some of which may be controllable while others are uncontrollable. Invariably, the uncontrollable factors remain out of control of the business managers in the short run whereas in the long run, these factors can be countered by framing and executing suitable strategies in accordance to the changing business environment scenario. However, the strategies may differ according to the nature and characteristics of the business firms. The most important factor determining the efficiency of any manufacturing firm is the cost of its operations. The cost sustained by the manufacturing firms in the form of cost of labour, transportation, health care, utilities, raw materials, rent and telecommunications constitute the firm's business cost of operation.

The next important factor determining the success of any firm is the availability of adequate and efficient human resources in the form of skilled labour. Shortage of local and skilled labour force, managerial and administrative staff, technicians and suitable workers in the clerical and production cadres have a bad impact on the efficiency of any manufacturing firm. It becomes urgently important to overcome these hindrances in case the firm wants to project itself as a successful one.



The other important factor affecting the performance efficiency of any manufacturing firms is the Competitive hostility factor. Cut throat competition leading to reduction of profit margins, declining demand in the local and international markets, compulsion to adhere to necessary quality standards of production though the quality of raw material supplies may not be reliable put a sword on the neck of manufacturing firms.

To add fuel to the above mentioned factors, government rules and regulations act as a major impediment for the efficient performance of any firm. Complexities of government rules, regulations and procedures, red tapism and delays involved in government finalizing business transactions and government's unwarranted protectionism policies adversely affect the operational efficiency of business firms. Dornier et al. (1998) indicates that government regulations always have a significant influence on the operational activities of a manufacturing firm.

Political environment exert a significant influence on the efficiency of any firm. Country's balance of payment situation, Bilateral and multi-lateral agreements entered by the government with other governments, stability of political system in the nation, laws and regulations regarding investment protection and type of military alliances with other countries all may have a significant impact on the operational efficiency of any manufacturing firm. Finally, the highly dynamic conditions prevalent in the market also play a significant role in shaping the efficiency of any manufacturing firm. This domain consists of the rate at which innovation creeps into operations processes, change in customer needs, new challenges from competitors and information diffusion. According to Dess and Beard (1984), Environmental dynamism means unimaginable activities accrued in business environment which is very difficult to face by the manufacturing firms.

### **1.13    ADVANCED MANUFACTURING TECHNOLOGY (AMT)**

While the Business Environment Characteristics is concerned at the macro level, The Advanced Manufacturing Technology measures deal with the micro-level construct. This consists of the investments to be made to create a supportive infrastructure for the firm to execute its business strategies. Advanced Manufacturing Technology plays a vital role in enhancing the operational efficiency of the firm, improving the quality of products



and reducing the operational cost by installing the latest and sophisticated technology. Advanced Manufacturing Technology helps the firm to gain competitive advantage (Pagell et al. 2000). Advanced Manufacturing Technologies help the manufacturing firms to produce high volume at low cost and thus rationally utilize the scarce resources available at its disposal (Goldhar and Jelinek, 1983).

The Advanced Manufacturing Technology consists of the hardware technologies, which is termed as ‘Direct Advanced Manufacturing Technology’, while the software technologies are categorized as “Indirect Advanced Manufacturing Technology”. The level of implementation process is categorized as “Implementation Advanced Manufacturing Technology”.

Technology utilized by the factory to cut, transport, store or modify materials join, reshape using Robotics (Ro), Automated material handling systems (AMHS), Computer numerical control (CNC) machines, Automated guided vehicles (AGV), Flexible manufacturing system (FMS) and Rapid prototyping (RP) come under the Direct Advanced Manufacturing Technology, while the technology used to design products and schedule production using Computer aided design (CAD), Material requirement planning (MRP), Material resource planning (MRPII), Bar coding (BC) and Statistical process control (SPC) fall under the Indirect Advanced Manufacturing Technology. The Implementation Advanced Manufacturing Technology Consists of Training Planning, Requirement Analysis, Technology assessment, Cost/Benefit Analysis, and Development and Implementation.

#### **1.14 COMPETITIVE PRIORITIES**

Globalisation has been the order of the day, resulting in enormous changes in the technology arena. This implies that manufacturing firms have to enhance their level of concentration on Competitive priority domain, which are highly dynamic and subject to frequent changes from time to time. Competitive priorities are defined as “*the dimensions that a firm’s production system must possess to support the demands of the markets that the firm wishes to venture in*” (Krajewski and Ritzman, 1993). According to Kim and Arnold, (1996) the competitive priorities is a holistic set of tasks, assisting in the formulation of business strategy based on market conditions. Competitive priorities



domains traditionally have been considered to be incompatible with one another (Wheelwright, 1984).

The four main variables constituting the competitive priorities are flexibility, quality, cost and dependability (Ferdows and De Meyer, 1990; Ward and Duray, 2000; Vickey et al., 1993; Li, 2000; Kathuria, 2000; Hayes and Wheelwright, 1984). However, new variables such as innovation and human resources have been included to measure the competitiveness of manufacturing industries, hence modifying the multi-dimensional structure of competitive priority (Wood et al. 1990).

Competitiveness of manufacturing enterprises in general, depends up on their ability to adapt to difficult environmental conditions by adjusting their priorities like cost, quality, delivery, dependability and speed, innovation and flexibility, and thereby cater to the expectations (Carpinetti et al. 2000).

Phusavat and Kanchana (2007) used six domains of competitive priorities namely, delivery, cost, flexibility, customer focus, quality, and know-how. The components of Competitive Priorities may be explained as under:

- a. **Quality:** Quality of products enormously contributes to manufacturing firms gaining competitive advantage over their rivals. Instances such as Zero Defect Rate of the products supplied, performance quality, durability, environmental friendliness, standardization and reliability of the products contribute vastly to the concerns gaining immense competitive advantage over their rivals.
- b. **Cost:** Cost is another important factor which shall enable manufacturing firms to gain great comparative advantage over their rivals. Undertakings which are able to minimize their cost of operations can offer their products at low price in the market, thereby displaying a distinct portrait of their products. Customers get attracted to low priced products which do not compromise with quality, which can be achieved by the manufacturing firms by effective cost management. Manufacturing firms can gain comparative cost advantage over their rivals by controlling the variable cost and planning their operational leverage efficiently to effect low risky ventures as well as maximize profits. The aspects which manufacturing firms can concentrate to gain comparative cost advantage shall be



Low operational and administration costs, value additions, continuous improvement, activity based measurement and quality costs.

- c. **Delivery:** Provision of timely services is most important in business, for that matter, in all walks of life. Firms which are able to meet their commitments well within the stipulated period shall enjoy great comparative advantage over their rivals. Hence, firms should concentrate on fast and on-time delivery of quality products at the agreed price to gain reliability among its customers about honouring commitments.
- d. **Flexibility:** Manufacturing firms which are highly flexible to adjust their product mix, marketing mix, product design, lines of operations and those capable of modifying their scale of operations and volume of production and output according to the environment shall gain great comparative advantage over their competitors.
- e. **Customer-focus:** those manufacturing firms which are highly customer-oriented and customer-friendly will gain huge comparative advantage over their rivals. Firms can serve their customers better through great After-sales services, better product support, fulfillment of promises made at any level and product customization. Excellent data-base shall be maintained about customers to have access to any information about customers so that close contact may be maintained with them. These factors will enable the manufacturing firms to gain immense comparative advantage over their rivals.
- f. **Know-how:** Manufacturing firms which have their own R&D cell always enjoy comparative advantage over their rivals. Their products shall be distinct when compared with their competitors, which shall be liked by the customers. Creativity and novelty of products are results of continuous R&D efforts of manufacturing firms. Gaining a thorough knowledge about the product dealt through effective knowledge management, continuous learning and training and education, and problem solving skills will contribute to the manufacturing firms gaining tremendous comparative advantage over their rivals.



### **1.15 BUSINESS PERFORMANCE**

It is quite natural that high performing firms are bound to succeed. Though performance measurement system plays an essential role in the efficient and effective management of organizations, yet it remains critical and much debatable issues (Kennerly and Neely, 2002). Measuring the firm performance has been one of the major challenges to the researchers as there is no universally accepted parameter to indicate the operational efficiency of manufacturing firms. However, the general indicators of performance of a firm can be enumerated as under:

- a. Market share: Firms with reasonable market share and those which are able to sustain their share in the market and penetrate into new market shall be considered as successful firms.
- b. Sales growth: firms which are able to maintain a steady growth in their sales turnover shall be considered as quite successful.
- c. Profit margin: Profit is the indicator of the operational efficiency of any firm. It is profits which show the overall results of the operations of a firm. Firms which are able to manage profit margin in par with the industry norms and those which are able to sustain this margin and able to increase this margin steadily shall be termed as successful firms.
- d. Return on assets (ROA): Percentage returns on the assets of a firm are another indicator of its operational efficiency. Firms which are able to maintain a good percentage return on assets in par with the industry levels shall be labeled as successful firms.
- e. Return on investment (ROI): ROI is the most important parameter indicating the operational efficiency of firms. Industry norms are available in respect of ROI and all those firms which are able to match these standards can be said to be successful.

### **1.16 STATEMENT OF THE PROBLEM**

Many business units are started with full vigour in Union Territory of Puducherry. However, these units are not able to survive in the market for longer period of time and they stop their business very early. This research endeavours to study the factors which



are responsible for forcing the manufacturing units to shut down very early and the problems encountered by such units which are forcing them to wind up soon.

This study also tries to find the factors which are helping the enterprises to perform successfully in this region from operational perspective.

Despite exemplary support offered to the business firms by the Government of Puducherry by formulating innovative strategies to promote the industry, it is disheartening to note that many firms fail to have a perpetual survival. Some researchers suggested the success of a firm depends upon its ability to adapt to business environment characteristics, adoption of advanced manufacturing technologies, selection of its appropriate competitive priorities and its business performance. Various studies reveal that a significant positive relationship exist among business environment characteristics, advanced manufacturing technologies, competitive priorities and business performance. All these four factors are vital for the efficient performance of any business firm.

#### **1.17 SIGNIFICANCE OF THE STUDY**

This study shall contribute to the rich literature on the impact of Business Environment Characteristics, Advanced Manufacturing Technologies and competitive priorities on the Business Performance of manufacturing firms.

This study shall provide valuable information about the factors which affect the efficiency of manufacturing undertakings in general, and the positive and negative impact of such factors on the efficiency of the manufacturing units located in Puducherry.

This study also aims to measure a viable multi-dimensional operational construct by using data to empirically validate the factors which might influence the performance of manufacturing units. This endeavour will largely help the manufacturing enterprises to take rational decision on such factors.

This study focuses on assessing important factors which influence the efficiency of business performance of manufacturing firms. This will enable the managerial staff of manufacturing firms to formulate and implement suitable and effective operational strategies and to make rational and timely decisions.

This study proposes to arrive at valuable suggestions for improving the operational efficiency of manufacturing firms, which will be of immense utility to the



managerial staff of low performing manufacturing firms to enhance their operational efficiency.

Suggestions provided by the researcher will be of great help to the government and policy-makers to formulate effective industrial policy which will further boost the industrial development of Union Territory of Puducherry.

The study will also be of immense utility to new and budding entrepreneurs to start their ventures in Union Territory of Puducherry.

### **1.18 OBJECTIVES OF THE STUDY**

Objectives of the proposed research are given below:

1. To study the business environment characteristics of the manufacturing enterprises located in Union Territory of Puducherry.
2. To assess the impact of advanced manufacturing technologies on business performance of manufacturing units in Puducherry.
3. To study the competitive priorities influencing the operating competence of manufacturing units in Puducherry.
4. To study the business performance of manufacturing enterprises located in Union Territory of Puducherry.
5. To study the relationship between business environment characteristics, advance manufacturing technologies, competitive priorities and overall business performance of manufacturing enterprises located in Union Territory of Puducherry.

### **1.19 HYPOTHESES**

Nine null hypotheses formulated for this study are given below:

Hypothesis 1: There is no significant association between demographic characteristics of manufacturing firms (profile of the firms) and their business environment characteristics.

The demographic characteristics used for the purpose of testing the above null Hypothesis are the period for which the manufacturing firms are engaged in business, type of ownership, type of production system, targeted customers, type of industry, kind of manufacturing industry, type of



product, number of employees working in the organisation, location of production plant and percent of exports on total sales.

Hypothesis 2: There is no significant association between demographic characteristics of manufacturing firms and various dimensions of their advanced manufacturing technologies.

The demographic characteristics used for the purpose of testing the above null Hypothesis are the period for which the manufacturing firms are engaged in business, type of ownership, type of production system, targeted customers, type of industry, kind of manufacturing industry, type of product, number of employees working in the organisation, location of production plant and percent of exports on total sales.

Hypothesis 3: There is no significant association between demographic characteristics of manufacturing firms and their competitive priorities.

The demographic characteristics used for the purpose of testing the above null Hypothesis are the period for which the manufacturing firms are engaged in business, type of ownership, type of production system, targeted customers, type of industry, kind of manufacturing industry, type of product, number of employees working in the organisation, location of production plant and percent of exports on total sales.

Hypothesis 4: There is no significant association between demographic characteristics of manufacturing firms and their business performance.

The demographic characteristics used for the purpose of testing the above null Hypothesis are as follows: the period for which the manufacturing firms are engaged in business, type of ownership, type of production system, targeted customers, type of industry, kind of manufacturing industry, type of product, number of employees working in the organisation, location of production plant and percent of exports on total sales.

Hypothesis 5: There is no significant relationship between the business environment characteristics and competitive priorities of manufacturing firms.



Hypothesis 6: There is no significant relationship between the business environment characteristics and advanced manufacturing technologies of manufacturing firms.

Hypothesis 7: There is no significant relationship between the business environment characteristics and business performance of manufacturing firms.

Hypothesis 8: There is no significant relationship between the advanced manufacturing technologies and business performance of manufacturing firms.

Hypothesis 9: There is no significant relationship between the competitive priorities and business Performance of manufacturing firms.

## **1.20 SCOPE OF THE STUDY**

The study shall focus on assessing the business performance of small, medium and large scale manufacturing units in Union Territory of Puducherry. An attempt has been made to study the performance of the manufacturing units in Union Territory of Puducherry in the light of the important factors of Business Environment Characteristics, avenue for Advanced Manufacturing Technologies, Competitive Priorities of existing industries and Business Performance Characteristics. These basic factors have been studied in depth using separate domains. The factors of “business environment characteristics” have been studied using six domains of competitive hostility, dynamism, business cost, labour availability, political environment and Government Laws and Regulations.

The second factor of “advanced manufacturing technologies” have been evaluated thoroughly based on three domains , namely implementation of AMT, direct AMT and indirect AMT, while the third factor of “competitive priorities” has been assessed using six important domains of quality, cost, delivery, flexibility, customer focus and know how.

Finally, the business performance of manufacturing firms have been studied considering five variables of market share, sales growth, profit margin, return on assets and return on investment. Careful effort has been made to ensure that all domains which are likely to affect the efficiency of business performance of manufacturing undertakings are included in the study.



### **1.21 LIMITATIONS OF THE STUDY**

Limitations relating to the scope of study, selection of respondents, choice of research design, sampling procedure, etc. are inevitable in any research work and this study is no exception. This study is subject to the following limitations:

- a. To begin with, one of the most important limitations of this study is that this survey is purely based on the perceptive answers given to the sample questions by the managers of the industrial units selected for the study. The opinion expressed by the managers to the survey instrument is seldom a reflection of the confidential data pertaining to the manufacturing units.
- b. This research has made an analysis of the impact of business environment characteristics, advanced manufacturing technologies and competitive priorities on the business performance of manufacturing firms at a single point of time. However, these factors are constantly changing in nature, and a longitudinal follow up research should be conducted to identify these changes and re-examine the variation of the relationships.
- c. This research endeavours to collect data relating to the Business Environment Characteristics, Advance Manufacturing Technologies and Competitive Priorities of manufacturing firms and their impact on the firm's efficiency. Data relating to all these aspects have been collected from a single respondent occupying the top most position in the firm such as the head of purchasing, operations, finance or marketing department of the firm. It is absolutely difficult to expect a single manager to be thorough in information relating to all the functional areas as he may be able to provide reliable information relating to his functional area only. For instance, a Purchase manager is solely responsible for firm's activities relating to purchasing and allied activities. He may not be in a position to provide information relating to the financial aspects of the firm or Advance Manufacturing Technology related questions. Hence, the use of a single respondent to provide information about the firm's various aspects may result in generation of data with some element of inaccuracy.
- d. The scope of this research work is limited to Union Territory of Puducherry. Hence the findings cannot be generalized at the macro level.



- e. The study focuses on small scale, medium scale and large scale industries. The researcher has not given any special weightage to specific industries. Majority of the findings are general in nature.

## **1.22 CHAPTERISATION OF THE THESIS**

This thesis consists of eleven Chapters. The first chapter entitled, “Introduction”, gives an overview of the Indian economy and about the manufacturing industries located in Union Territory of Puducherry. The chapter also consists of the statement of problem, significance of the study, objectives of the study, hypotheses for the study, scope of the study and limitations of the study. The second chapter entitled “Review of Literature”, covers the operational definitions of terms used in the study and the vast literature reviewed for the conduct of this study.

The third chapter entitled “Methodology” throws light on the research methodology adopted for the conduct of this study. This chapter provides an elaborate description of the research design, Nature and source of data collected for the study, Data collection instrument used for the survey and, explanation about the various tools used for generating the items needed to be included in the schedule, Qualitative Inquiry and Face Validity and Content Analysis to test the validity and reliability of the components of the schedule. The chapter further discusses details about the pilot study conducted, the data collection procedure adopted in the form of sampling method, the data analysis tools used in the study and data examination and preparation.

The fourth chapter entitled “Profile of the Manufacturing Sector” contains details about the manufacturing units operating in Union Territory of Puducherry and a detailed representation of the demographic details of the manufacturing units selected for the study.

The fifth chapter entitled “Business Environment Characteristics” endeavours to throw light on the present status of the Business Environment Characteristics of the manufacturing undertakings in Union Territory of Puducherry.

The sixth chapter entitled “Advanced Manufacturing Technologies” contains details about the present status of the Advanced Manufacturing Technologies utilized by the manufacturing firms in Union Territory of Puducherry, while the seventh chapter



entitled “Competitive Priorities” evaluates the present status of competitive priorities among the manufacturing units in Union Territory of Puducherry.

The eighth chapter entitled “Business performance Characteristics” tries to evaluate the efficiency and effectiveness of business performance of the manufacturing undertakings in Union Territory of Puducherry.

The ninth chapter entitled “Structural Equation Model” contains details about the valid and reliable measurement model arrived at, to measure the relationship between the business environment characteristics, the advanced manufacturing technologies and the competitive priorities of the manufacturing firms and their consequential impact on the firm’s business performance using the SEM.

The tenth chapter presents the summary of findings and inferences made from the study in the light of objectives of the study and gives a detailed account of the implications of the study to operational decision makers, Manufacturers, Government regulators and policy makers, and provides some valuable suggestions to improve the competencies of manufacturing firms. The chapter concludes with information about possibilities for future research.

### **1.23 CONCLUSION**

The present study endeavours to analyse the performance of manufacturing enterprises in Union Territory of Puducherry. The performance of manufacturing enterprises shall be assessed in the light of the environmental, technological and competitive factors influencing their operations. The study shall bring to light, the impact exerted by these factors on the firms’s performance. Suitable hypotheses have been formulated to accomplish this endeavour and scientific tools have been used to analyse the data and test the hypotheses. The conceptual framework based on which these hypotheses have been formulated shall be discussed elaborately in the forthcoming chapter on review of literature.



## THE PRIMARY, SECONDARY, TERTIARY AND QUATERNARY SECTORS OF THE ECONOMY

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The recognition of differences among the major sectors of the economy, such as agriculture, commerce, or manufacturing, has a considerable tradition in economic thinking. Also, there is evidence that important national and international predicaments of our time are closely related to sectoral-structural developments. Yet economists in the developed countries are often disinclined to study the shifts among the megasectors.

This paper suggests that an intensified study of the topic may be profitable. In order to support this proposition it first reflects on the traditions of sectoral emphasis in literature. Second, it considers the evidence for the ascendancy of the quaternary activities. Third, it deals with the input-output relations among the four megasectors of the economy. Thereafter it points to the emergence of potential inefficiencies among quaternary activities and raises the possibility of a megasector misequilibrium. Finally it outlines certain connections to the thoughts of Leontief and Sraffa; considers services in the neoclassical framework; explores the relationships to institutional thought; and ponders the extension of its basic hypothesis to the developing nations, the socialist countries, and to historical analysis.

### INTRODUCTION

The ascendancy of service output for the 20th century and its growing share in total activity is as important an economic development as the industrial revolution and the growing share of manufacturing were for the preceding two centuries. The transition from preponderantly agricultural to industrial economies involved much economic, social and cultural stress within and among nations; it would be naive for our age to expect a smooth transition to the service economies in this and the next century. Many economic problems of our times are apparently related to the sectoral structural shifts in modern economies and therefore this topic deserves intensified study.

In particular we should understand better the input-output relationships of the key sectors; the economic inefficiencies that may be related to sectoral-structural adjustment problems; and the challenges to economic thinking posed by this major transformation of the world economy.

### I. THE TRADITIONS OF SECTORAL EMPHASIS

Unfortunately economists in the developed countries today are often disinclined to research the major sectoral-structural characteristics of production and even to accept the existence of analytically useful industrial distinctions among the main sectors of the economy.<sup>1</sup> Yet, making industrial distinctions among

\*The views expressed in this paper are those of the author and do not necessarily represent those of the Board or the staff of the Federal Reserve System.

<sup>1</sup>In the developing countries, and in the socialist economies, the sectoral structure of their economies is more often analyzed mainly because of the needs felt for industrialization and the often backward state of agriculture.



sectors has a considerable tradition in economic thinking. Such thoughts may have been flawed, but nevertheless may have contained certain kernels of truth. A search for these may be profitable.

The relative characteristics of major economic sectors, such as agriculture, commerce and manufacturing, have been pondered by the mercantilists and the physiocrats and since Sir William Petty's time eminent economists have often devoted effort to evaluating the impact of shifts among major economic sectors. The relative neglect of the subject in the last two decades is almost unprecedented.

The notion that different major economic sectors and activities may be of varying importance for overall economic activity and well-being goes back to preceding millenia. For example in ancient China usually four basic classes or categories of people were recognized, and among these, persons involved in agriculture were ranked higher than agents of commerce.<sup>2</sup>

In ancient Greece one finds similar distinctions in Aristotle, who accepted agriculture and household management as honorable, but frowned upon certain other activities such as trade and deplored moneylending because it involved usury. Scholastic tradition in Medieval Europe followed in the footsteps of Aristotle and canon law outlawed usury and denounced trade as a sinful occupation. "The scholastic Doctors extolled agriculture as an occupation leading to virtue, but shared all the prejudices of Aristotle and of the Church Fathers against trade."<sup>3</sup> In later times Francois Quesnay in the famous *Tableaux Economiques* (about 1756) suggested that the net product of society was produced by the productive class (engaged in agriculture, fishing and mining), while the proprietary class (such as landowners) and the sterile or artisan class could serve public purposes and at best would recover its outlay. In his scheme "the expansion of the economy and the population therefore depended upon expansion of the expenditure of the productive class and the resultant expansion of the net product."<sup>4</sup>

In England, well before Quesnay, already in 1691 Sir William Petty concluded that "There is much more to be gained by *Manufacture* than *Husbandry*; and by *Merchandise* than *Manufacture* . . ."<sup>5</sup> But in 1951, some 260 years later, Colin Clark correctly lamented "that most of the world still remains quite unaware of the significance of Petty's brilliant and entirely correct generalization made from

<sup>2</sup>"Among those who performed physical labor, farmers were held to be the most productive and therefore their status came next to that of scholars. Artisans and merchants, whose efforts were considered less productive, had an unfavorable position and were looked down upon by society, especially by the intellectuals." Slaves, prostitutes, entertainers, music players—depending on regional definitions—"were considered non-productive and as making the least contribution to society." T'ung-Tsu Ch'u "Chinese Class Structure and Its Ideology," in John K. Fairbank, *Chinese Thought and Institutions*, the University of Chicago Press, 1973, p. 247 and p. 249. We also know of the Edict of Emperor Wen on the Primacy of Agriculture in 163 B.C. and of other references regarding the encouragement of agriculture. See *Introduction to Oriental Civilizations*, Sources of Chinese Tradition, Vol. I. Chapter IX, The Economic Order, Columbia University Press (New York, 1960).

<sup>3</sup>Raymond de Roover, Ancient and Medieval Thought in *International Encyclopedia of the Social Sciences*, Volume 4, p. 432.

<sup>4</sup>Joseph J. Spengler, Physiocratic Thought in *International Encyclopedia of the Social Sciences*, Volume 4, p. 444.

<sup>5</sup>In Colin Clark, *The Conditions of Economic Progress*, London, MacMillan and Co., Ltd., 1951, p. 395.



the scanty facts at his disposal in 1691; and that many concerned with economic policy still act as if they too were entirely unaware of what might be called, in all fairness, Petty's law."<sup>6</sup>

Differences felt regarding the overall contribution of various types of economic activities (or sectors) one way or another influenced the teachings of the classical 19th century economists. Adam Smith, David Ricardo, Karl Marx, John Stuart Mill, and others essentially accepted the doctrine of "material production" which distinguished productive and non-productive activities on the basis of their proximity (direct involvement) in the creation of physically tangible output. The so-called historical school in Germany, on the other hand, took a broader stance. Friedrich List, for example, "considered education, administration and communication to be historically important productive forces" as well.<sup>7</sup> It is interesting that the work of List intellectually lead to the stages-of-growth thinking of later times. Katouzian suggests that "List's descriptive scheme of Agricultural, Agricultural-and-Manufacturing and Agricultural-Manufacturing-and-Commercial stages of economic development can now be explained in terms of the Primary, Secondary, Tertiary stages associated with the names of Allan G. Fisher, Colin Clark and Simon Kuznets."<sup>8</sup>

The comprehensive concept of production became the prevailing one, especially after Alfred Marshall's *Economics of Industry* was published in 1879. And modern national accounting in the Western world has been based on the comprehensive concept, except in the work of the Hungarian statistician Frederic Fellner (1869-1944); and, of course, the national income calculations of the U.S.S.R. and other socialist countries were based on the Marxian concept.

In the middle of the twentieth century the importance of the growth of primary, secondary and tertiary industries, and of the shifts among them, were given prominence by Colin Clark in his famous work *The Conditions of Economic Progress*. Regarding the terminology itself Clark informs that

"the term tertiary industries was originated by Professor A. G. B. Fisher in New Zealand, and became widely known through the publication of his book, *The Clash of Progress and Security*, in 1935. It took its origin from the titles current in Australia and New Zealand of 'primary industry' for agriculture, grazing, trapping, forestry, fishing and mining, and 'secondary industry' for manufacture. In Australia and New Zealand these terms are not only used in statistical reference books but are widely current in popular discussion. The phrase 'tertiary industries' therefore immediately carries, in these countries, a suggestion of those excluded by the official definition of 'secondary industries.'"<sup>9</sup>

<sup>6</sup>Clark, *op. cit.*, pp. 395-396. In the third edition in 1957 Clark, though extensively praising Petty's contribution on the subject, did not use the term "Petty's Law."

<sup>7</sup>Theo Suranyi-Unger, *The Historical School in International Encyclopedia of the Social Sciences*, Volume 4, p. 455.

<sup>8</sup>Homa Katouzian, *Ideology and Method in Economics* (New York University Press, New York and London, 1980), p. 37.

<sup>9</sup>Colin Clark, *The Conditions of Economic Progress*, Third Edition (MacMillan, London, 1957), p. 490.



Among 20th century researchers Simon Kuznets has been recognized as a foremost authority in this field of study. Kuznets, in his study "Toward a Theory of Economic Growth" summarized certain findings, based on the review of long-term changes in the structure of production in the U.S. and abroad. The first was, of course, the shift away from agriculture, as economic growth accelerated. Beyond that, he wrote in the early 1950s "For the more advanced countries. . . we should also note some significant trends in the distribution of the non-agricultural sectors proper. The shares of mining and manufacturing in the total labor force grew significantly, but the increases have ceased or slowed down during the recent decades. The shares of the transportation and communications industries in the labor force also grew but became stable after World War I or even before; . . . The shares of trade and other service industries, a miscellaneous group including business, personal, professional, and government services, have grown steadily and have continued to grow in recent decades."<sup>10</sup> The basic thrust of Kuznets' finding apparently remained relevant for the 1960s and the 1970s as well and the many analytical points made by Kuznets continue to deserve close attention.

However here our aim is not to review the existing literature, which includes several seminal works by Leontieff, Fuchs and others. Rather we only recall the sometimes neglected fact that earlier economists, for several generation, paid considerable attention to sectoral-industrial problems. The earlier contributions usually focussed on: (a) the importance of key sectors in various historical epochs, (b) the delineation of productive from nonproductive labor, and (c) the identification of stages of economic growth. Intellectual efforts in these areas were not unrelated to each other, but these broad topics were usually dealt with in somewhat separate settings. Sectoral emphasis was mostly found in studies of economic development and planning; the lines between productive and nonproductive activities were usually elucidated by national accountants; and the stages of economic development were discussed in the framework of economic growth theories.

The existence of a wide range of earlier literature relevant to the sectoral-structural issues reflects the existence of underlying real economic problems. It would be difficult to imagine that the earlier thinkers' efforts were purely academic in nature, with no connections to practical problems. On the broadest plane an argument can be made that the emphasis first placed by early thinkers on agriculture, then by economists of the first half of the nineteenth century on materials production which also covered manufacturing and finally by most representatives of the economics profession since the second half of the last century on the comprehensive concept of production (which extended the scope of production to services as well) corresponds to the successive expansion of the nonagricultural activities in the Western economies.

It is a loss that the sensitivity of the earlier economists to the overall significance of the differences in the major production sectors of the economy is

<sup>10</sup>Kuznets (1968), p. 25 (W. W. Norton, New York, 1968). First published in 1965 in his *Economic Growth and Structure* (W. W. Norton, 1965), and written in the 1950s.



a trait that has mostly vanished from contemporary economics. Rather we should relearn some of their sensitivity in order to understand better the economic shifts of our own century and the structural perspective of the 21st.

## II. THE ASCENDANCY OF QUATERNARY ACTIVITIES

Two general propositions basic to the study of sectoral problems are: First, that the primary, secondary, tertiary, and quaternary activities of the economy are sufficiently different from each other to permit their separation and comparative analysis; and second, that the overall growth rate and the efficiency performance of the economy are influenced by changes in the relative importance, contribution, and input-output relationships of these four main sectors. In the setting of the U.S. economy and statistics the four major activities and sectors of the economy are postulated as follows:

<i>Name</i>	<i>SIC Major Group</i> <sup>11</sup>
<b>PRIMARY ACTIVITIES</b>	
Agriculture, forestry and fishing	01, 02, 07, 08, 09
Mining	10, 11, 12, 13, 14
<b>SECONDARY ACTIVITIES</b>	
Construction	15, 16, 17
Manufacturing	20 through 39
<b>TERTIARY ACTIVITIES</b>	
Transportation, electric, gas and sanitary services	40 through 49
Wholesale trade	50, 51
Retail trade	52 through 59
<b>QUATERNARY ACTIVITIES</b>	
Finance, insurance, and real estate	60 through 67
Services	70, 72, 73, 75, 76, and 78 through 89
Public administration	91 through 97

Simon Kuznets, in terms of broadest groupings, focused on only three key sectors: agriculture, industry, and services. However what he said about these three sectors we can apply as criteria for the selection of broad groupings in general: "The three major sectors do differ significantly from each other—in the use of natural resources, in the scale of operation of the productive units common to each, in the production process in which they engage, in the final products that they contribute, and in the trends in their shares in total output and resources used."<sup>12</sup>

<sup>11</sup>For the coverage of each category see *Standard Industrial Classification Manual* 1972, Executive Office of the President, Office of Management and Budget (U.S. GPO, Washington, D.C., 1972).

<sup>12</sup>Simon Kuznets, *Modern Economic Growth* (Yale University Press, New Haven, 1973), p. 87.



While adhering to the six main criteria emphasized by Kuznets here we return to schemes which suggest somewhat a “stage of processing” classification. Thus the terms primary, secondary, tertiary and quaternary<sup>13</sup> are applied, the fourth of which is not common in earlier literature.<sup>14</sup>

The available data for the U.S. suggests that the most outstanding feature of the sectoral shifts in the 20th century was the ascendancy of the quaternary sector of the economy. The distribution of output by the four main sectors of the U.S. economy, in 1947, 1969, 1979 and 1982 is shown below in terms of the Gross National Product by industry:

SECTORAL SHARES IN U.S. GNP  
(PERCENTAGE, CALCULATED FROM DATA IN 1982 DOLLARS)

Sector	1947	1969	1979	1985
Primary	11.5	8.0	6.6	6.2
Secondary	28.4	29.8	27.7	26.6
Tertiary	24.2	23.2	25.6	26.5
Quaternary	36.0	39.0	40.2	40.8

Source: Survey of Current Business, April 1986, p. 25. Because of rounding the components do not aggregate to 100.

The very large, and still increasing, proportion of the quaternary sector is clearly visible in the table. It should be mentioned that the growth in the share of the quaternary sector is not due to an increased significance of government, which had a share of 14.6 percent in 1947, 14 percent in 1969, 11.9 percent in 1979 and 11.2 percent in 1985. Comparable data for 1929 are not available, but the share in national income without capital consumption adjustment (calculated in current, not in 1972 dollars) for the primary sector was about 12, the secondary sector 30, the tertiary sector 26 and the quaternary sector 31 percent.

The preponderance of the service sectors in the U.S. economy is perhaps most pronounced in terms of developments in employment. In a recent study, Thomas J. Plewes emphasized the “Since 1920, the service producing share of nonagricultural employment has gone from 53 percent to 72 percent . . . . Over the past two decades, some 86 percent of job growth in the economy has occurred in the service-producing sector.”<sup>15</sup> As a matter of fact the importance of “service type” activities—particularly of the quaternary sort—should not be considered only by the magnitude of the sectors that specialized in these lines of endeavor.

<sup>13</sup>The importance of subdividing the large service sector—which contains industries that vary widely by growth rates, capital intensity and productivity growth—into further groups can be seen from the article by R. E. Kutscher and J. A. Mark, “The Service-Producing Sector: Some Common Perceptions Reviewed” in *Monthly Labor Review*, April 1983, pp. 21–24.

<sup>14</sup>In more recent times Herman Kahn used such a category. Professor Daniel Bell called the attention of the author to a neglected earlier article by Nelson N. Foote and Paul K. Hatt, “Social Mobility and Economic Advancement”, *American Economic Review*, May 1953, pp. 364–377. In it the term quaternary and quinary are utilized for economic megasectors. However in their classification the tertiary sector covers personal and related services; the quaternary includes transport, commerce, communication, finance and administration; and the quinary sector extends to medical care, education, research, recreation (including the arts).

<sup>15</sup>*Monthly Labor Review*, November 1982, p. 8.



An important part of these activities can be found in the “non-service type” sectors such as manufacturing, mining and agriculture.

It will be remembered that the industrial classification of establishments is determined on the basis of their main line of activity. If their main line of activity happens to be manufacturing, outputs related to their other lines of activities are still shown under manufacturing. There may be exceptions regarding large and separate headquarter facilities of corporations, etc.—but as a rule the main line of a given establishment determines its place in the statistics on industrial structure. At the same time manufacturing data suggest that the distribution of blue collar and white collar employment in this sector has shifted towards the latter.

#### EMPLOYMENT IN U.S. MANUFACTURING

Year	Million Persons	Percent of	
		Production Workers	Other Employees
1909	7.7	81.9	18.1
1919	10.7	80.5	19.5
1929	10.7	80.0	20.0
1939	10.3	80.9	19.1
1947	15.5	83.6	16.4
1959	16.7	75.6	24.4
1969	20.2	73.2	26.8
1979	21.0	71.6	28.4
1981	20.2	70.1	29.9
1986 December	19.2	68.0	32.0

Source: Historical Statistics of the U.S., Colonial Times to 1970, Part I, pp. 137-138<sup>13</sup> and NIH, Labor Statistics Data Base. BLS employment release, January 1987.

One can see major changes in this respect in the total economy as well. For the economy as a whole between 1900 and 1980 the total number of occupied persons grew about 3.5 times, while in white collar workers there was about a tenfold increase.

#### MAJOR OCCUPATION GROUPS IN THE U.S.

	1900		1960		1970		1980	
	Million	%	Million	%	Million	%	Million	%
White collar workers	5.1	17.6	28.5	43.3	38.0	48.3	51.9	52.3
Manual workers	10.4	35.9	24.1	36.6	27.8	35.3	31.5	31.7
Service workers	2.6	9.0	8.0	12.2	9.7	12.3	13.2	13.3
Farm workers	10.9	37.6	5.2	7.9	3.1	3.9	2.7	2.7
Total	29.0	100.0	65.8	100.0	78.7	100.0	99.3	100.0

Source: Statistical Abstract of the United States, 1982-83, p. 386 for 1960, 1970 and 1980 and Historical Statistics of the U.S., from Colonial Times to 1970, Part 1, p. 139, for 1900. Due to rounding components do not necessarily add to total. Categories considered broadly informative but not strictly comparable over time.



## III. INPUT-OUTPUT RELATIONS AMONG THE FOUR SECTORS

Ideally the changes in the relationships among the four main sectors of the economy ought to be analyzed in terms of comparable input-output tables over longer periods. In the following preliminary results are shown for a comparison of three four-sector U.S. input-output tables pertaining to 1967, 1972 and 1977. While these tables are preliminary in nature, they indicate certain specific characteristics for the four sectors highlighted in them.

## INPUT-OUTPUT RELATIONSHIPS BY FOUR MEGASECTORS IN THE U.S. ECONOMY

Matrix of technical coefficients					Matrix of total requirements			
1967								
IO	SEC1	SEC2	SEC3	SEC4	SEC1	SEC2	SEC3	SEC4
SEC1	0.23240	0.06844	0.01314	0.00802	—	—	—	—
SEC2	0.13963	0.39496	0.07921	0.10828	1.33953	0.15979	0.03868	0.03412
SEC3	0.06573	0.07900	0.12758	0.05333	0.36216	1.74009	0.19017	0.22829
SEC4	0.09866	0.05703	0.10216	0.11751	0.14533	0.17883	1.17571	0.09432
IMPT5	0.03558	0.02393	0.01005	0.00694	0.18999	0.15101	0.15271	1.16264
					0.05911	0.05017	0.01880	0.01569
1972								
SEC1	0.22866	0.06750	0.01584	0.00750	1.33053	0.15589	0.04250	0.03194
SEC2	0.13238	0.38765	0.07930	0.10189	0.33615	1.71860	0.19002	0.21320
SEC3	0.06325	0.08538	0.12899	0.05319	0.14069	0.18979	1.18010	0.09444
SEC4	0.09264	0.06322	0.11213	0.11942	0.18202	0.16394	0.16838	1.16631
IMPT5	0.04241	0.02980	0.01034	0.00795	0.06934	0.06108	0.02100	0.01795
1977								
SEC1	0.15162	0.08171	0.02849	0.00251	1.21471	0.16694	0.06336	0.02055
SEC2	0.15223	0.36455	0.11282	0.07239	0.32795	1.66227	0.24251	0.15059
SEC3	0.05572	0.09271	0.12215	0.04609	0.11902	0.19276	1.17723	0.07796
SEC4	0.07744	0.04651	0.10629	0.12128	0.13880	0.12601	0.16082	1.15723
IMPT5	0.16298	0.06833	0.01553	0.01001	0.22362	0.14505	0.04679	0.02643

The aggregation of the 85 sector U.S. input-output tables into the primary, secondary, tertiary and quaternary sectors selected for this paper was carried out by Sheldon Cheng, who also calculated the technological coefficients, inverse matrices and other comparative tables for these periods for the aggregated tables.

One of these is the considerably higher share of value added in the tertiary and quaternary sectors, in comparison with the similar shares for the primary and secondary sectors. Conversely, the shares of intermediate inputs (gross output minus value added) is highest in the secondary sector, followed by the primary sector. Both the tertiary and quaternary sectors show much lower shares for intermediate inputs than do the primary and secondary sectors.

## SHARES OF VALUE ADDED AND INTERMEDIATE INPUTS (PERCENT)

Sector	1967		1972		1977	
	V.A.	Interm. inputs	V.A.	Interm. inputs	V.A.	Interm. inputs
Primary	42.80	57.20	44.07	55.93	40.00	60.00
Secondary	37.67	62.33	36.65	63.35	34.62	65.38
Tertiary	66.79	33.21	65.34	34.66	61.47	38.53
Quaternary	70.59	20.41	71.00	29.00	74.44	25.77



The total requirement coefficients (based on both direct and indirect demands for inputs) are the highest, in the aggregate, for the secondary sector, followed closely by the primary sector. The tertiary and quaternary sectors both have markedly lower total requirement coefficients than the primary and the secondary sectors. Therefore the indirect (and thus the total) effects of identical amounts of output increases are different if they occur in the quaternary sector rather than in the secondary sector.

Other indicators, such as capital equipment per worker and energy use by employee, are also expected to show differences by these four broad sectors. One could even assume that the overall demand for credit, and other monetary magnitudes, may also be influenced by the changes in the composition of output by major sectors.

Studies of available U.S. and international data have consistently shown that in our century important sectoral shifts can be observed economies located on all continents. Indeed the relative size of the agricultural sector and the problems of industrialization became key issues in development economics. The seminal quantitative studies of Simon Kuznets threw much new light on the relationship between aggregate growth and production structures. Kuznets has shown that cross-section data across countries as well as experience with time series for individual nations show rather pronounced patterns of sectoral relationships in connection with economic development.

World Bank data are available on the average annual growth rates for the 1960-70 and 1970-79 periods for three key sectors (agriculture, industry and services) for large groups of countries classified as low income, middle income, and industrial market economies.<sup>16</sup> These data show the percentage shares of output originating in the three sectors for each grouping of countries for 1960 and for 1979. The high, and still growing, international importance of services is evident from these data, as is the slowdown in economic growth in the industrial market economies from the decade of the 1960s to the decade of the 1970s. Without going into the details, one can say that Kuznets' earlier findings regarding the pattern of production were broadly confirmed by the experience gathered in the last two decades and the data on new countries and longer time periods broadly support the earlier evidence on sectoral shifts along the path of economic development. The literature on the subject has grown considerably in the last two decades and the reader is referred to Chenery's works and the other sources of current economic literature on the subject.<sup>17</sup>

The preceding review of the three aggregative U.S. input-output tables suggests that the distinction between the primary, secondary, tertiary and quaternary areas of the economy is statistically feasible and analytically advantageous. These four main types and sectors of economic activity are apparently anchored to four major elements of the work process: *extraction, processing, delivery, and*

<sup>16</sup>For a listing of the countries involved, and other details, see *World Development Report 1981*. Published for the World Bank by Oxford University Press, 1981.

<sup>17</sup>Hollis Chenery, *Structural Change and Development Policy*, published for the World Bank by Oxford University Press, 1979, contains much valuable information on economic growth and structural change, the process of industrialization and other related topics. It also has a very useful list of references on pp. 497-514.



*information*. Production, even if specialized, usually is related to all four aspects of the process. Little economic output is conceivable without *extraction* since very few activities are completely “material-less,” even if their aim is to provide a predominantly non-material service: paper, electricity, and other material inputs are almost always present, even if their value within the total is small. Similarly production almost always need inputs from *processing*—not even the results of primary activities such as mining or agriculture lend themselves to final use without some amount of processing. *Delivery* involves both the delivery of goods and the delivery of persons: the combination of the factors of production requires a great deal of transportation and also the involvement of wholesale and retail trade to get the various items to their markets. Finally, *information* is the designation used for measurement, recordkeeping, accumulation, and dissemination of knowledge and of decisions.<sup>18</sup> Even simple acts within the production process will have relations to all four of these activities and in this sense all four have been in existence for ages. With increasing specialization in skills the division of labor has led to professions and establishments dedicated to the pursuit of predominantly extracting type of activities (such as in mining or agriculture); to establishments involved mainly in the processing (manufacture) of goods extracted in mining and agriculture; to entities specialized in delivery of the factors and the results of work (in trade and transportation of goods and persons); and finally to institutions of learning, healing and decision making which have information (in the broad sense of the word) of the center of their attention. Earlier ages have also seen specialized professions and even institutions devoted mainly to the cultivation of only one of these four major aspects of work. But in our age the division of labor has advanced much further than at any time before and in the 20th century particularly fast growth occurred in the information-related specialized activities, which was manifested in the spectacular growth of the service sectors of the modern economy.

#### IV. POTENTIAL INEFFICIENCIES IN QUATERNARY ACTIVITIES

In studying the apparently weaker overall performance of several Western economies during recent years, the quaternary sector and quaternary activities in general offer a legitimate target of inquiry. Given their very large share in the total, it would be unwise to overlook the potential—always present in every sector—for economic inefficiencies in the quaternary areas.

In simplest terms one could think about a comparison of the benefits, and the pitfalls, related to quaternary ascendancy and the accompanying spread of “white collar” jobs in the economy. This comparison would probably reveal how the increased share of white collar work contributed to the spread of modernized technological process, to higher management standards, to better recordkeeping and administration and to improvements in the work-place in general. At the same time it may also show the dangers and potential costs of growing bureaucratization.

<sup>18</sup>The word “information,” in information theory, is understood to reduce or eliminate uncertainty regarding an event; in this sense management, and the decisions taken in the management process, are components of information.



Unfortunately the thorough investigation of costs and benefits is hampered by many data difficulties. These still exist despite governmental and private efforts for data improvement and notwithstanding long and extensive effort by the National Bureau of Economic Research to investigate a number of aspects of the sectoral shifts in the U.S. economy. Early postwar efforts involved eminent representatives of economics including Milton Friedman, Solomon Fabricant, George Stigler, John Kendrick, and others.<sup>19</sup> A major NBER step was the publication in 1968 of the previously mentioned book by Victor Fuchs on services. One of the important findings was the often inadequate statistical basis on which to perform satisfactory analysis of service activities.

Victor Fuchs, in the Preface of his 1968 book, underlined that "The Service sector, also known as the 'tertiary' or 'residual' sector, has long been the stepchild of economic research. This was unfortunate but tolerable during the 19th and early 20th centuries" but "the emergence of this country as the first 'service economy' has created a new set of priorities for economic research."<sup>20</sup> In the summary of his findings Fuchs stated that "The United States is now pioneering in a new stage of economic development. During the period following World War II this country became the world's first 'service economy'—that is, the first nation in which more than half of the employed population is not involved in the production of food, clothing, houses, automobiles, or other tangible goods."<sup>21</sup> In his book Fuchs explored three principal hypotheses: "(1) a more rapid growth of final demand for services; (2) a relative increase in the demand for services; and (3) a relatively slow increase in output per man in services."<sup>22</sup> He strongly urged the development of more statistical information for the service sector: "We need more analysis, but we also need the factual basis that will make the analysis more fruitful."<sup>23</sup> The need for further statistical work on the service sector is still pressing in the 1980s and is well understood by the U.S. statistical agencies. In a study published in November 1982, an Assistant Commissioner of the U.S. Bureau of Labor Statistics emphasized that "In view of both the increasing importance of the service-producing sector and the shortcomings in the current statistical measurement system, improvement in the data for this sector takes on a very high priority in the Bureau's plans for survey modernization."<sup>24</sup>

A project under the aegis of the National Research Council (whose members are drawn from the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine in the United States) recently led to a comprehensive report on the many statistical needs which still exist for various

<sup>19</sup>Milton Friedman and Simon Kuznets, *Income from Independent Professional Practice* (New York, NBER, 1945); Solomon Fabricant (assisted by Robert E. Lipsey), *The Trend of Government Activity in the United States Since 1900 Economy Since 1869* (Princeton University Press for NBER, 1955); George J. Stigler, *Trends in Employment in the Service Industries* (Princeton for NBER, 1956); *Employment and Compensation in Education* (New York, NBER, 1950); *Domestic Servants in the United States 1900-1940* (New York, NBER, 1946); John W. Kendrick, *Productivity Trends in the United States* (Princeton for NBER, 1961).

<sup>20</sup>Fuchs, *op. cit.*, p. xxiii.

<sup>21</sup>Fuchs, *op. cit.*, p. 1.

<sup>22</sup>Fuchs, *op. cit.*, p. 3.

<sup>23</sup>Fuchs, *op. cit.*, p. 13.

<sup>24</sup>Thomas J. Plewes, "Better Measures of Service Employment Goal of Bureau Survey Redesign," *Monthly Labor Review*, November 1982, p. 15.



service sectors.<sup>25</sup> This report quotes the statement of the Coalition of Service Industries, which maintains that the available statistical indicators “do not adequately reflect the dominant role of service in our economy. We do not gather data on services anywhere equivalent to the data we accumulate on other kinds of economic activity.”<sup>26</sup> And the detailed investigation of the authors confirmed the existence of numerous gaps and needs for improvements in the statistics of such industries.

It stands to reason that the statistical limitations for the service sectors are in and of themselves potential sources of inefficiencies. The organization, the goal-setting, the evaluation of service activities—whether by public or private organizations—are surely handicapped by our relative lack of measurements of the quantitative and qualitative performance of these industries. The measurement of gross product originating in the service sectors (Gross National Product or Gross Domestic Product by industrial origin) is also affected by the relative paucity of statistics for these fields.

In addition to simple lacunae in the industrial and aggregate sectoral data, which in themselves can be a cause of inefficiencies, there are major definitional-methodological issues which are of particular concern for the measurement of services. Economists, statisticians and national accountants, for example, have been struggling with the determination of the boundaries of production and the delineation of *final* use of goods and services from their intermediate use for over a century. Simon Kuznets suggested that “The possibility that conventional national economic accounting treats some outputs that are really the costs of production as final rather than as *intermediate* products required serious scrutiny.”<sup>27</sup> Kuznets’ explanation of this problem touches on a broad complex of issues. First “it must be recognized that urban life required more resources to satisfy the countryside level of wants for food, sanitation, recreation, transportation from home to job, and so on.”<sup>28</sup> A second factor is that “the greater complexity of industrial and other economic units may have required larger inputs into governmental regulation and adjudication.”<sup>29</sup> As a result of these two important trends—and some other factors—“many of these extra outlays, extra inputs of real resources, appear in national economic accounts under either household or government consumption, and are treated as *final* product, as a component of unduplicated aggregate output.”<sup>30</sup>

National accountants have been struggling with the problems of delineating final use (such as final consumption and capital formation) from intermediate use of goods and services (as inputs for the production of other goods and

<sup>25</sup>S. D. Helfand, V. Natrella and A. E. Pisarski, *Statistics for Transportation, Communication, and Finance and Insurance: Data Availability and Needs*. Prepared for the Committee on National Statistics (Executive Director: Edwin D. Goldfield), National Academy Press, Washington, D.C. 1984, pp. xi and 138.

<sup>26</sup>*Op. cit.*, p. 6.

<sup>27</sup>Simon Kuznets, *Economic Growth of Nations, Total Output and Production Structure* (Harvard University Press, 1976), p. 75. (Emphasis by Kuznets.)

<sup>28</sup>Kuznets (1976), p. 76.

<sup>29</sup>*Ibid.* In certain societies, however, for example in ancient Egypt, Mesopotamia and in the Inca empire, very complex governmental regulations were required for the maintenance of agricultural activities.

<sup>30</sup>*Ibid.* (Emphasis by Kuznets.)



services) for many decades.<sup>31</sup> Conceivably one could exclude some or all services from final production and treat them—irrespective of the actual purchaser of these services—as intermediate inputs to production in general. Under the current rules of accounting, services purchased by households or by governments constitute most of the services estimated to be put to final use. Often the government's use of services (and of products) as “final use” can be queried and one can point to the differences between personal consumption and certain components of government consumption in respect of the “finality” of such use of goods and services. And Kuznets makes the point that even a part of the personal consumption items are really not “final” uses of outputs, but could be considered as inputs to the production process: “To the extent that the outlays, either by households or by government, are current expenditures necessary for the adequate participation in or smooth operation of the modern production process, they are intermediate, not final product; their inclusion represents duplication, and if their proportion to total product rises over time, their inclusion exaggerates the growth rate of unduplicated economic product.”<sup>32</sup>

Certain government activities are in particular tempting targets for exclusion from the sphere of final production (and if production is defined to include only activities resulting in certain final outputs, these activities may be considered non-productive). From the point of view of economic calculations an argument can be made that services which are not directly utilized in either personal consumption or in capital formation are not directly economic in character and constitute parts of the overall costs associated with the management of large-scale societies. According to this reckoning police protection, economic regulatory activities or community development services are not final but intermediate in character and their beneficial impact lies in the better environment they provide for the production of final goods and services and should be considered as costs or intermediate inputs to those.

Indeed, the materials concept of production—dating back to Adam Smith, David Ricardo, and Karl Marx—excludes the non-material items, including most of the services, from the scope of production and thus “radically resolves” the problems mentioned about the intermediate and final use of services. However, this approach is hardly applicable to societies with large, and even predominant, service sectors and creates various problems for the national accounts of those countries which do adhere to this principle.<sup>33</sup>

There may be a middle ground between the extreme positions of, on the one hand, excluding all nonmaterial services from final output and, on the other hand, including them all, without discrimination, in the aggregate final product of an economy. However, the idea of a reasonable compromise usually founders on

<sup>31</sup>National accountants, and of course economists in general, will recognize that the question of what is—and what is not—“output” has extremely wide-ranging consequences for analysis and should not be viewed as a purely “academic” issue.

<sup>32</sup>Kuznets (1976), p. 76.

<sup>33</sup>There are also suggestions for extending the production boundary. For example, Nancy Ruggles and Richard Ruggles in their book, *The Design of Economic Accounts* (National Bureau of Economic Research, New York, 1970), have suggested that productive activity by households should be recognized as production. (They also proposed that household capital formation should be introduced as a category.)



the rocks of statistical difficulties: the delineation of some services (considered as inherently intermediate services) from other services (deemed final services), in practice, runs into rather unsurmountable statistical problems. Therefore, instead of a rethinking of the boundaries of production in general and of intermediate and final services in particular, it is preferable to focus on the analysis of the aggregate product in terms of the four major activities and sectors of the economy (primary, secondary, tertiary and quaternary), while retaining the existing definition of the national accounts.

The economic and statistical realities of our time support a predilection to the comprehensive concept of production, but with an emphasis on the inter-industry (inter-sectoral) constraints on optimal growth and a stress on overall economic efficiency.<sup>34</sup>

Statistical deficiencies are only one of the potential sources of inefficiencies suspected in the service industries.<sup>35</sup> For example the institutional arrangements often typical of service production can be suspected as a more general potential source of economic inefficiencies. The provision of important services (such as health and education) in many economies is carried out mostly in a not-for-profit, non-market oriented setting. Both the statistical point made earlier and the institutional issue seem to affect the feasibility, and the need for economic calculations concerning service activities. There are historical reasons, some of them excellent, why economic calculations were not in the foreground for several service areas. At the present stage, however, the potential inefficiencies emanating from the not-for-profit arrangements may require more emphasis on economic calculation and analysis in these areas.

Investigations have revealed that assessments of the scope of the not-for-profit activities are far from easy. In the United States the government sector (federal, state and local), and the nonprofit institutions (foundations, universities, etc.) are the most visible components carrying out these activities. However, the indirect involvements in not-for-profit activities are also very wide. And it is very important to remember that the connotation "private" is not necessarily synonymous with "for-profit." The private sector today is considerably wider than the "for-profit" sector. It is interesting that in their widely disseminated and thought-provoking review Ginzberg and Vojta underlined that "At first it is difficult to understand how the national political ethos, expounded by Republicans and Democrats alike, continues to maintain that five out of every six jobs are created by the private sector . . . . The misconception arises in part from the classification of such non-profit institutions as Columbia University, the Metropolitan Museum of Art and the Jet Propulsion Laboratory as private-sector enterprises and from

<sup>34</sup>George Jaszi, in his wideranging overview, entitled "An Economic Accountant's Ledger," *The Economic Accounts of the United States: Retrospect and Prospect* (Survey of Current Business, Anniversary Issue, July 1971, Vol. 51, Number 7, Part II), has warned against attempts to construct a measure of output that can be used as a measure of welfare: "I do not think that we should set out on a venture that would lead to all the frustration associated with imperceptible progress toward an unreachable goal" (p. 226). His advice, we believe, has a broad validity and is relevant to the view that an analytical preference for sectoral studies does not necessarily call for changes in the boundaries of production.

<sup>35</sup>Inefficiencies, of course, can be found in any type of economic activity. Here the discussion is about inefficiencies more likely in respect of services than in other sectors.



categorizing the production of military aircraft by the Lockheed Corporation and nuclear submarines by the General Dynamics Corporation as private-enterprise activity.” Ginzberg and Vojta estimate that in some sense “the not-for-profit sector accounts for more than a third of total employment and nearly a third of the gross national product.”<sup>36</sup> Even allowing for a considerable error in their estimate, the significance of the not-for-profit activities is clearly of such an order that the grand total of national effort will be influenced by the behavior of the economic agents engaged in not-for-profit activities. One can presume that economic calculations—as opposed to broader societal considerations—play a smaller role in the not-for-profit sector and economic efficiency is of less concern than in the areas where profits are considered more vital. Thus, to a surprising degree, the post-industrial posture of American society is also a not-for-profit posture. There may be many beneficiaries of the not-for-profit posture: welfare recipients and defense contractors, students and professors, Blue Cross people and the physicians paid by them, etc. Usually the argument can be made—and it is not our purpose to dispute this—that many, most or perhaps all of the beneficiaries need to be treated beyond the norms of what “for-profit” attitudes would allocate to them. Nevertheless, once traditional economic calculations are pushed into the background—and on the scale now seen in many modern societies—the growth of economic efficiency, the source of all possible largesse, may be neglected.<sup>37</sup> This writer believes that largesse, not-for-profit motives, and the like have a very legitimate place in social life. However, the efficient production of the goods and services, indispensable for the execution of all the needed and good deeds (be it production of weapons or provision of homes for the aged) may suffer from the neglect of careful economic calculations—which may be difficult or even impossible in not-for-profit activities. Of course, with the growth of the size of economic entities, economic calculation may become very difficult in individual parts of for-profit organizations as well. This is not the place to dwell on the theoretical, organizational and political difficulties associated with the introduction of economic calculation and profit motives into previously nonprofit oriented activities. The saga of Eastern European economic reform movements attests both to the significance and to the difficulties involved in the quest for better solutions to this problem.

## V. THE POSSIBILITY OF SECTORAL MISEQUILIBRIUM

It seems, that the current international economic predicament is related to the sectoral-structural questions discussed earlier. It appears, that in the United States, as well as other countries, the allocation of resources among the major types of economic activities has become less than optimal. In our view some overemphasis evolved on quaternary type activities (which have especially heavy

<sup>36</sup>Eli Ginzberg and George J. Vojta, The Service Sector of the U.S. Economy, *Scientific American*, March 1981, Vol. 244, No. 3, p. 51.

<sup>37</sup>Frequently it is considered pedestrian or worse to analyze issues of health or medicine or defense in the context of economic efficiency; what is overlooked is that the loss of resources due to the inefficient use of factors of production in *any* area (however sacred) reduces the resources available for all purposes.



weight in finance, insurance and real estate services; education and legal services; and administration services); and as a premature acceptance of a post-industrial posture occurred, this overemphasis and related inefficiencies became a factor in the weaker performance of the economy. The new world centers of manufacturing—especially in the Far East—became efficient exporters of their products to the areas with a “post-industrial” structure, but it is not clear how international trade will achieve a dynamic (or even static) equilibrium under the present conditions.

The sectoral-structural hypothesis assumes, that at least in principle, the longer term quaternary expansion could have contributed to the more recent deceleration in economic efficiency. However the hypothesis *does not assume* that the factors of production employed in quaternary (or tertiary) activities are less productive than the ones employed in the primary or secondary activities, or that the rates of efficiency growth are inherently slower in the service activities as compared to the production of goods. Rather the presumption is maintained that the same overall potential for efficiency growth exists in all broad economic spheres.

What *is assumed*, however, is that the economy’s growth rates and its efficiency performance are influenced, among others, by the allocation of resources among the four main types of activities and sectors and that under given historical circumstances some combinations may lead to better overall results than others. It is also recognized that the relationships are importantly influenced by technological factors and significant input-output type linkages exist among the sectors. It is also assumed that currently the production coefficients for the quaternary activities are less well defined by unavoidable technological circumstances than the coefficients in the primary, secondary and tertiary activities. Finally, it is believed that generally the consumers’ satisfaction of wants related to quaternary activities—along the line of Engel’s law—are relatively the farthest removed from the primary wants such as food (satisfied by the primary sector) or clothing and shelter (satisfied by the secondary sector).

It is generally acknowledged that economic development involves growing shares for successive types of productive activities, progressively removed from the primary agricultural and mining levels. In turn the sectoral-structural hypothesis assumes that the primary, secondary, tertiary, and quaternary activities can be in broad equilibrium at somewhat different growth rates or performance levels for the economy as a whole.<sup>38</sup> A state of seeming sectoral “equilibrium” but one that is associated with sluggish growth rates and a low overall performance of the economy—say, with several years of efficiency slowdowns or recession—may be designated as a state of “misequilibrium” or “growth misequilibrium.”<sup>39</sup> It is also assumed that among the main activities generally an optimal, or at least an improved, growth equilibrium—one that brings higher levels of overall efficiency—is feasible. Thus a Pareto optimal equilibrium of activities and sectors

<sup>38</sup>In most situations, economic growth and economic efficiency are considered to be positively correlated with each other.

<sup>39</sup>The term implies a difference from the more usual expression of “disequilibrium” by suggesting the existence of an equilibrium that is suboptimal for growth and may involve a low level secular stagnation.



is considered feasible: it is thought to exist if overall economic efficiency cannot be enhanced by the increase in the efficiency of any sector (or activity) because such would entail an equal (or larger) decrease in the economic efficiency of others. Growth of real output is considered to be an acceptable proxy for the growth of efficiency in this context. The actual annual contributions of the major types of economic activities may oscillate around their optimal contributions to economic growth and both cyclical and other factors could explain the deviation. Therefore, only deviations of alarming proportions or longevity are considered manifestations of growth disequilibria; finally, disequilibria are viewed as contributing seriously to economic ills such as growing unemployment and accelerating inflation.

It is recognized that the existence of the structural-sectoral difficulties may not signify the existence of “too much” services in an economy or signal that the output of the service sectors, in some sense, is “too large.” Difficulties arise even if the output of services is at nearly desirable levels, but the production of the same absorbs resources out of proportion to these outputs, i.e. if more than the average inefficiencies creep into these activities.

The relative productivity performance in the service sector—which Fuchs and Kuznets considered to be lower than in the primary and secondary sectors—remained a controversial issue, and was assigned little weight in explaining the decelerating overall productivity performance of several developed market economies. Therefore, a few of Kuznets’ general insights of particular importance for the present discussion are shortly reiterated here. The first is the apparently “low elasticity of demand for food and other products of agriculture and the high elasticity of demand for durable consumer goods and some services—products of the industry and service sectors.”<sup>40</sup> A second is that “consumers, who as producers had to live in the cities, have required goods and services that were not essential in the countryside”<sup>41</sup> with the related fact that the greater complexities of economic organization [are] requiring government regulation and administration”<sup>42</sup> and the important concomitant that “large scale plants and associated economies has meant a greater need for transportation and distribution than would have been required by more small plants, serving local markets.”<sup>43</sup>

A third point of Kuznets’ assumes special significance for our inquiry, as Kuznets raises, in principle, the possibility of a sector increasing its share in total resource use at the expense of other sectors: “A decline in a sector’s share in total product is not necessarily accompanied by a decline in its share in total labor force or total capital: if productivity or efficiency, reflected in output per unit of input, has risen *less* in a given sector than in others, the sector may have absorbed a constant or even rising proportion of total resources.”<sup>44</sup> Kuznets also found that “the share of the service sector in total resources in a number of

<sup>40</sup>Simon Kuznets, *Modern Economic Growth, Rate, Structure and Speed* (Yale University Press, 1966), p. 98.

<sup>41</sup>Kuznets, *op. cit.*, p. 102.

<sup>42</sup>Kuznets, *op. cit.*, p. 103.

<sup>43</sup>Kuznets, *op. cit.*, p. 103.

<sup>44</sup>Kuznets, *op. cit.*, p. 105.



countries grew relatively more than its share in total product and . . . the rate of growth in productivity in the services sector must have been distinctly below that in productivity in the economy as a whole.”<sup>45</sup>

We may be forced to recognize, that at our current level of knowledge and in some general sense the impact of physical effort—which often plays a more direct role in primary and secondary production—is easier to assess than it is to judge the outcome of mental (or intellectual) effort. From this it does not follow that somehow the results of mental efforts are intrinsically less valuable than those of physical efforts (actually they may be more valuable per unit of time spent on it).<sup>46</sup> It appears, however that often the product of physical effort is less “fakeable”—while the often intangible qualities of mental effort leave more room for make-believe and for doubtful results. Since the share of mental and intellectual work is often higher in the quaternary area, the measurement of results in general, and the accounting for production in particular, is very difficult. As mentioned earlier, in the statistics of services the quantity of inputs is often utilized to estimate output. Once again it is useful to underline that the two types of activities—physical and mental—are not compared to the detriment of either. Intellectual work may be considered even superior to physical work, but when it comes to evaluation, to judgments regarding the quantity and the quality of output, intellectual work is frequently less amenable to checks and measurements. This circumstance—*ceteris paribus*—may favor, during price and wage negotiations, those sectors of the economy which rely on a lot of mental effort.<sup>47</sup>

The needs of man which are satisfied by quaternary products and services are frequently less tangible than the products necessary for primary survival, such as the food coming from the primary sector or clothing and shelter provided by the secondary sector. Noting this, one again has to caution about hasty conclusions: health, car, education and cultural services—which generally elevate modern life above the level of earlier times—are all outside the area of primary and secondary activities but nevertheless constitute most valuable areas of social endeavor. The relatively intangible nature of a need does not place it low on man’s scheme of values but apparently makes the evaluation of the efforts expended to its fulfillment more complex and makes economic calculations more complicated regarding the service areas in general and the quaternary type activities in particular.

<sup>45</sup>Kuznets, *op. cit.*, p. 113.

<sup>46</sup>The difficulties of converting skilled labor into units of more simple labor were considered already in the 19th century. Usually these efforts were not extended to mental work, in part because of assertions that mental activity has no costs. On the other hand Georg Simmel, in 1900 in his *Philosophie des Geldes*, in analyzing “the role that the mental expenditure of energy plays in the creation of value alongside manual labor” suggested a broader approach to the matter: “The reduction of the importance of mental labour to that of physical labour is ultimately only one side of the general tendency to produce a unified concept of labour. What has to be discovered is the common factor in all the diverse types of labour—a much broader and more differentiated diversity were achieved, then an extraordinarily large theoretical and practical gain would be made, as much in fact as the gain from the existence of money.” Georg Simmel, *The Philosophy of Money*, translated by T. Bottomore and D. Frisby, Routledge and Kegan Paul, 1978, p. 412.

<sup>47</sup>A large number of artists would doubt the validity of this proposition.



## IV. SOME RELATED POINTS

(1) *Connections to Current Economic Thought*

Perhaps it is useful to point to some apparent connections between the sectoral-structural propositions discussed and current economic thought. Beyond their potential intrinsic value, such connections may entice some readers (unwilling to consider ideas outside the framework of their own school of thought) to contemplate the perspectives discussed in this paper.

## (a) The Leontief-Sraffa Connection

As shown in Section III above, the input-output relationships among the four sectors of the U.S. economy are of considerable interest to our topic. This necessitates first a reference to Leontief's work. A second reference, only loosely related to the first, concerns the distinctions introduced by Sraffa about basic and nonbasic commodities. Naturally, given the significance and the complexity of their ideas, both Leontief and Sraffa ought to be studied in the original.<sup>48</sup> Many readers can profit also from the presentations of Luigi Pasinetti, whose own contributions treat Leontief's and Sraffa's ideas in a joint framework relevant to our investigation. Indeed Pasinetti's own work and his interpretation of Leontief and Sraffa should be viewed as additional and original contribution to this field of study.<sup>49</sup>

It appears that in the context of our hypothesis the following three items of Leontief's work are of special importance: first, the assumption that the sectors (industries) of an economy are mutually interrelated and that their links are both direct and indirect and changes in final demand can have important repercussions for both direct and indirect output requirements; second, the observation that the linkages among the sectors of the economy are importantly based on technological relationships, which can be captured by the technical coefficients of production and shown in appropriate matrices for purposes of analysis and planning; and finally, the experience that most statistical input-output tables handle the primary and secondary sectors of the economy somewhat differently from the tertiary and quaternary sectors.

In this last respect Pasinetti underlines the existence of "peculiar industries" in the input-output tables. As he states, "In compiling transactions tables one is faced, furthermore, with certain rows and columns which refer to very special 'industries,' for which the inputs and outputs do not reflect flows of strictly technical nature. The rows and columns in question are those referring to commercial services (wholesale and retail trade), transport, public administration, and importing and exporting."<sup>50</sup> Especially for the public administration sector he stresses that its "relationships are to only a minimal degree of a technical nature."<sup>51</sup>

<sup>48</sup>The seminal work of Wassily W. Leontief, *The Structure of American Economy*, first was issued by Harvard University Press in 1941. Piero Sraffa's famous *Production of Commodities by Means of Commodities* was published by Cambridge University Press in 1960. Both authors have formulated some of their basic ideas well before these publishing dates.

<sup>49</sup>Luigi L. Pasinetti, *Lectures on the Theory of Production* (Columbia University Press, New York, 1977). See also his *Structural Change and Economic Growth* (Cambridge University Press, 1981).

<sup>50</sup>Pasinetti, *op. cit.*, p. 41.

<sup>51</sup>Pasinetti, *op. cit.*, p. 42.



The connection of the handling of the service sectors to Sraffa's system is a more involved one. We are not going to try to describe his system—for this the reader is referred to Pasinetti's introduction<sup>52</sup> and to Sraffa's own book—and will invoke only those aspects of Sraffa's system which seem to be of particular relevance to our topic.

Sraffa's system places much emphasis on a so-called "standard system" which is an economy that exhibits certain proportionality relations. In Pasinetti's summary "the positive physical quantities which represent the solution of the system are such that the *proportions* in which the various commodities are produced are equal to the proportions in which the same commodities are used as means of production in the economic system as a whole, and are also equal to the proportions in which the same commodities are devoted to final uses (in the present context, consumption)."<sup>53</sup>

One ingredient of the "standard system" is the logical construct of "standard commodity," which is "a particular composite commodity, into which the various commodities enter in precisely determined proportions."<sup>54</sup> The standard commodity and the standard net product of Sraffa serve as the numeraire of the price system and provide the theoretical basis to explain income distribution. Sraffa's theory also assumes that the distribution of income can be treated independently of prices and that this possibility is not tied to the pure labor theory of value.<sup>55</sup> For our purposes the more involved aspects of Sraffa's system are not directly relevant and here we restrict ourselves to his distinction between *basic commodities* and *nonbasic commodities*. The *basic commodities* enter the standard system and the methods of production of these commodities play a role in the determination of the prices of the same; moreover, they also play a role "in the determination of maximum rate of profit and the uniform rate of surplus for the economic system as a whole."<sup>56</sup> The *nonbasic commodities*, on the other hand, play a limited role and do not appear in the standard system.

The basic and nonbasic commodities derive their distinction from certain characteristics of production technology.<sup>57</sup> Basic are those commodities which are required for the production of both basic and nonbasic commodities, in a direct or an indirect manner. The nonbasic commodities, on the other hand, are not required for the production of the basic commodities, while they may be needed for their own production. In Sraffa's system two further distinctions follow: zero production in even one basic commodity arrests the output of all

<sup>52</sup>Pasinetti's book makes extensive use of matrix algebra and therefore his treatment is probably more accessible to the economists trained in input-output analysis and linear programming.

<sup>53</sup>Pasinetti, *op. cit.*, p. 99. Emphasis by Pasinetti.

<sup>54</sup>*Ibid.*

<sup>55</sup>Pasinetti suggests that "In the economic literature the rejection of Ricardo's pure labor theory of value has generally been associated also with the rejection of his (quite legitimate) claim that his theory of income distribution is independent of his theory of value" (*op. cit.*, p. 120, footnote). This would also seem to apply to Sraffa's income distribution theory and, in some perhaps less convincing sense, to basic tenets of his standard system as well.

<sup>56</sup>Pasinetti, *op. cit.*, p. 104.

<sup>57</sup>Pasinetti defines these in terms of matrix calculations. "If the matrix of technical interindustry coefficients is an irreducible matrix, then all the commodities in the economic system are basic commodities; on the other hand, if the matrix is reducible, some of the commodities are basic commodities, while others are not basic commodities." Pasinetti, *op. cit.*, p. 104.



basic and nonbasic commodities of a closed system, but this is not the case for zero production of a nonbasic commodity; and second, when any one of the production coefficients for a basic commodity changes, this causes price changes for all basic and nonbasic commodities, but a similar change regarding a nonbasic commodity would not have the same repercussions. Pasinetti notes that “the distinction between basic and non-basic commodities corresponds to the distinction which the classical economists made between ‘necessary’ or ‘subsistence’ commodities and ‘luxury’ goods. The novel feature of Sraffa’s analysis is that the distinction is shown to arise from the technical properties of the production processes.”<sup>58</sup>

In our estimate Sraffa’s system symbolizes a return by means of complex analysis to certain of the great concerns of early thinkers. Should further research reveal that quaternary activities fall more often in the category of nonbasic commodities than into the group of basic ones, that could contribute to our understanding of the differences suspected in their pricing compared to the pricing on non-quaternary activities. Of course, from the viewpoint of the possible remedies to the sectoral-structural problem, which are sought in the magnitude and distribution of capital formation, the unresolved problems and debates of modern capital theory can be of certain significance, but, as indicated earlier, our article is not the place to discuss them.

In spite of the difficulties mentioned we see the sectoral emphasis broadly supported by certain features evident in the systems of Leontief and Sraffa. Given the Walrasian connections of the former and the Ricardian links of the latter, this may put the hypothesis—depending on the predilection of the reader—in some “bad company” one way or the other. However, these apparent connections suggest that the hypothesis is a reflection of certain real-life relationships which also received attention in the systems of Leontief and Sraffa which, of course, both cover wider ground than the sectoral-structural issues discussed here.

#### (b) Services in the Neo-Classical Framework

As already mentioned, Leontief’s system is typically linked to the work of Leon Walras—who was certainly as famous an expositor of the marginalist theory of production as one can think of. Therefore, the investigation of the interindustry relations of the service sectors is not a departure from mainstream thought in the neo-classical framework.

It could be argued, of course, that a pure neo-classical scheme leaves no room for the evolvment of a premature post-industrial syndrome. One could suggest that if fully efficient markets and nearly perfect resource allocation mechanisms existed the type of sectoral disequilibrium considered in this analysis could not have emerged. We fully believe that to the extent this is the case, the elimination of impediments to competition and improvements in the allocation of resources should be considered desirable, and indeed may constitute remedies to the problems discussed. It should be noted, at the same time, that staying within the neo-classical framework does not necessarily preclude arriving at conclusions of possible misallocation of scarce resources, such as capital. Lewis

<sup>58</sup>Pasinetti, *op. cit.*, pp. 108–109.



Johnson suggested that “unfortunately it can be shown that competitive equilibrium need not lead to an efficient capital stock.”<sup>59</sup>

The possibility also exists that while the neo-classical approach is a useful guide to the behaviour of economic agents, to pricing and other phenomena *within* each of the four main sectors or regarding these four activities; however the special features of the primary, secondary, tertiary, and quaternary sectors from time to time may limit the achievement of optimal equilibrium *among* the four.

### (c) Relationships to Institutional Thought

In our previous discussion the works of Kuznets and some other authors were considered in the context of the neo-classical framework. Daniel Bell suggests that “the initiation of statistical studies, such as those of Wesley, C. Mitchell, and such subsequent students at Columbia as Arthur F. Burns, Simon Kuznets, and Milton Friedman,” clearly “gave new life to neo-classical theory” after it had fallen low in esteem in the U.S. in the first three decades of this century.<sup>60</sup> At the same time these works also followed the traditions of the American institutionalism of John R. Commons. Indeed the statistical works stimulated by the NBER focused on the institutional reality of the U.S. economy, and in Bell’s estimate most of these efforts—including the system of national accounts—are “atheoretical.”<sup>61</sup>

For our sectoral-structural approach it seems particularly helpful to include references to thoughts contained in a recent book of Professor Douglass C. North. Professor North’s central concern is “the structure and performance of economies through time.”<sup>62</sup> In the Preface of his book he underlines that “Since Adam Smith, economists have constructed their models on the firm bedrock of the gains from trade. Specialization and division of labor are the key to *The Wealth of Nations*. In constructing their models, however, economists have ignored the costs arising from such specialization and division of labor.”<sup>63</sup> From the viewpoint of our hypothesis the issues raised by North, especially the costs of specialization, can be of great import. The great increases in the 20th century in the specialized activities grouped in the quaternary (and to a lesser degree in the tertiary) activities clearly involved a large step in the division of labor. Our hypothesis implies that, for a number of reasons, several Western societies were not attentive to the costs involved, which, given the difficulties of measuring both the costs and the benefits in this further process of specialization, is rather understandable.

<sup>59</sup>Lewis Johnson, “Capital Formation in the Long Run,” in Part II. Neo-classical Growth Theory, *Public Policy and Capital Formation*, Board of Governors of the Federal Reserve System, Washington, D.C., 1981, p. 96. He also suggests that “There are no forces in the economy to guide the competitive outcome of an optimal steady-state level of per capita consumption.” *Ibid.*, p. 276 (in his contribution “Life-Cycle Saving, Social Security, and the Long-Run Capital Stock” of the same volume).

<sup>60</sup>Daniel Bell, Models and Reality of Economic Discourse, in *The Crisis in Economic Theory*, Daniel Bell and Irving Kristol, eds. (Basic Books, New York, 1981), p. 58.

<sup>61</sup>*Ibid.*

<sup>62</sup>Douglass C. North, *Structure and Change in Economic History* (W. W. Norton, New York, 1981), p. 3.

<sup>63</sup>North, op. cit., p. ix. He also advises that “These transaction costs underlie the institutions determining the structure of political-economic system.” (*Ibid.*) Hence our review of his work as an institutionalistic type contribution.



North also calls attention to the fact that with increasing vertical integration and the growing concentration of economic activities in fewer corporate entities, there is a trend for the “firm to replace the market.”<sup>64</sup> From the narrower viewpoint of our hypothesis this trend is in line with the inclusion of an increasing amount of quaternary type activities in the three other sectors. North is also cognizant of the fact that “When we shift from orange juice to more complex goods or services such as a television set, the quality of repair work on an automobile or the quality of a physician’s service, the costs of measurement are increased immensely and we tend to rely on various surrogates such as brand names, trade marks, warranties, reputation.”<sup>65</sup> The difficulty is large even in the more traditional production areas where now larger teams of workers are involved in the output of many goods: “Because it is costly to measure individual performance (and perfect measurement is frequently impossible), shirking, cheating, and so forth are common, workers are paid by input, and various costly but imperfect monitoring devices are employed to reduce shirking.”<sup>66</sup> And it seems that such measurement difficulties are, as a rule, even more momentous in various fields of the quaternary activities.

Professor North suggests that “*The greater the specialization and division of labor, the more steps in the production process from initial producer to final consumer and the greater the total costs of measurement* (since measurement must occur at each step).”<sup>67</sup> Our hypothesis, of course, involves a stage-of-processing approach to the sectoring of the economy and the distinguishing of four major types of economic activity. Coupling North’s suggestion with our hypothesis means that due to the inherent difficulties of the measurement of quaternary activities, and because of the increased share of such activities within the grand total, the overall costs related to measurement must increase and in the complex new world the room for inefficiency is also larger.

The relationship between the measurement of production and institutional change is more complex than usually realized. Of course, informed economists and statisticians are familiar with the complexities of estimating changes in output in the quaternary sector in particular. Often it is thought, however, that the difficulties are mainly technical or due to lack of data. In fact, of course, the statistical difficulties in measuring output of the services areas are closely related to the relatively early developmental state of economic theory regarding important contemporary economic circumstances. In Daniel Bell’s formulation currently we may live in a postindustrial order, “yet contemporary economic theory, rooted in the world of agriculture and industry, has no means of measuring the ‘output’ of science and little, even, of technological change.”<sup>68</sup>

A deep-going and complex observation is offered by Douglass C. North in his analysis of the neoclassical theory of state. He suggests that “The costs of measuring the dimensions of the inputs and outputs will dictate the various

<sup>64</sup>North, *op. cit.*, pp. 37–38.

<sup>65</sup>North, *op. cit.*, p. 39.

<sup>66</sup>North, *op. cit.*, p. 40.

<sup>67</sup>North, *op. cit.*, p. 41. Emphasis added.

<sup>68</sup>Daniel Bell, Models and Reality in Economic Discourse, in *The Crisis in Economic Theory*, Daniel Bell and Irving Kristol, eds., Basic Books (New York, 1981), p. 80.



property rights structure for the diverse sectors of the economy, which therefore will be dependent on the state of the technology of measurement. Common property resources have persisted where the costs of measuring the dimensions of the resources have outweighed the benefits. The development of standardized weights and measurements is almost as old as government and has typically been fostered by the state. Standardization performs the function of lowering transaction costs and of allowing the ruler to extract the maximum amount to rent. The higher the cost of measurement of the multiple dimension of a good or service, the greater the dissipation of rent.”<sup>69</sup>

There are many implications related to North’s proposition. A most obvious one, from the viewpoint of the structural-sectoral hypotheses, is that certain of the differences in the nature of output, input and their relationships among the four major sectors of the economy are deeply rooted in the differences in the costs of measuring the dimensions of the inputs and outputs. Thus the state of art of the measurement of economic magnitudes assumes a significance not usually realized. And the difficulties of measurement, such as the ones mentioned about the statistical problems of services, become issues of import beyond their apparently narrow, technical field.

Probably to the astonishment of the humble economic statistician, this suggests that depending on the state of his art, the world may assume rather different structural characteristics, especially regarding property rights. For those familiar with the many institutional changes in the field of monetary affairs, this situation, in which the tail appears to be wagging the dog, is not inexplicable. The revolutionizing effects of computerized recordkeeping (which, of course, involves much faster measurement of assets and liabilities and other magnitudes) led to numerous institutional changes, such as the establishment of the so-called money market mutual funds and other new forms of asset management. In turn, these institutional changes led to new complications in statistical measurement, as exemplified by the difficulties in evaluating various monetary aggregates. Indeed in the United States monetary statistics is the foremost recent example of the complex interrelationship between institutional change and measurement and recordkeeping. And, keeping in mind Professor North’s analysis, one should consider the impact of the impulses that emanate from the latter and influence the former.

#### (d) Extensions of the Hypothesis

The four basic types of economic activities, which were distinguished earlier to characterize a basic aspect of the primary, secondary, tertiary and quaternary activities, were analyzed mainly in the context of the developed economies of the industrialized (or even post-industrial) West. The hypothesis of the premature post-industrial syndrome was designed certainly with a view to mature market economies of the capitalist sphere.

The stage-of-processing distinctions used in this analysis, and even the related sectoring, are apparently not out of place in the other types of economies existent

<sup>69</sup>Douglass C. North, *Structure and Change in Economic History* (W. W. Norton, New York, 1981), p. 26. The overall gains in the situation described may be such that the ruled may accept the arrangements as sufficiently beneficial.



on our planet today. Indeed it is tempting to apply the basic hypothesis of relating economic growth to the interrelationships of the four major divisions of activity to some basic economic problems experienced in the developing countries of the "third world," and also in the socialist economies. In the case of the developing nations the general backwardness of the secondary activities, as well as the lack of infrastructure (frequently a sign of the weakness of tertiary and quaternary activities) are, of course, often diagnosed among the key factors of economic backwardness, manifested in a low-level equilibrium trap. On the other hand the outstanding cases of economic success observed in the "third world"—apart from some oil producing countries—are usually based on fast gains in the secondary division and growing strength in the tertiary and the quaternary divisions. Admittedly relating the hypothesis to the "third world" does not add too much to the understanding of the development process *per se*—except, perhaps, making the improvements in the infrastructure conceptually a more organic component of the overall development effort. However, the potential applicability of the general hypothesis to the situation in the "third world" strengthens the likelihood of its validity for the "first world." Of course one does not expect the hypothesis to hold very well for smaller economic units in any part of the world since the effects of sizable foreign trade and other international linkages may complicate the analysis of the relationships among the major divisions of activity in many but the largest units of the world economy, such as the United States, the European Economic Community (as a whole), the U.S.S.R., India and China.

Regarding the socialist economies, certain aspects of the U.S.S.R. history also seem to indicate the need for studying the interrelationships among the four major divisions of economic activities as one of the explanatory factors of economic development. The considerable overall success with Soviet industrialization for example, is obviously in line with "Petty's law." At the same time the problems of Soviet agriculture seem to be related, in part, to a long-term underrating of the role and overall contribution of this component of the primary division of the economy. Regarding the tertiary and quaternary divisions the Soviet experience seems to suggest both serious underdevelopment in certain areas (such as trade) and burdensome overdevelopment in others (such as governmental/military activities). It is probable that the apparent imbalances among its major economic activity areas have contributed to the overall efficiency and economic growth problems of the U.S.S.R. Thus, some key economic problems in the economies, certain major growth problems in the development nations, and the inflationary pressures and other serious issues in the developed market economies may have a potent common characteristic related to the structure of their own four main kinds of economic activities.<sup>70</sup>

Considering the extension of the validity of the stage-of-processing sectoring approach back in history to precapitalistic societies, one has to realize that very large shares of tertiary and quaternary activities in total output are mostly 20th century phenomena which attained prominence only in the developed market

<sup>70</sup>One can think of a variety of national, institutional, and cultural reasons why a particular type of imbalance among the four main activities or sectors may emerge. Still it is interesting to note that they all appear to manifest themselves in sectoral imbalances, and ultimately, in efficiency losses. The retardation of economic growth is a typical corollary.



economies. The origins of such activities, however, go back for thousands of years. In some form and manner tertiary and quaternary type activities were part of the social endeavor much before our times. Therefore, one wonders whether growing imbalances among the four major divisions of activity (or among their ancient equivalents), were not among the economic factors of the much discussed declines of past civilizations. "Over-taxation" in general and the economic burdens related to military ventures have been often cited by historians as the factors of declines which occurred in the past. Is it not possible that imbalances among the four main divisions of activity contributed to such declines as they led to the loss of overall efficiency, retardation of growth, or outright overall contraction of output? Indeed, it may not be farfetched to think that an element of the picture in Rome's decline in antiquity was an imbalance among its main sectors of activity and a misallocation of Rome's resources.

### CONCLUSIONS

Current national and international economic predicaments are apparently related to sectoral-structural developments. The ascendance of many service-type quaternary activities in developed economies, and the emergence of new centers of secondary, especially manufacturing activities (for example in the Far East), created new, as yet unbalanced, patterns in world trade and production.

The input-output relationships among the primary, secondary, tertiary and quaternary sectors of the U.S. economy offer some clues about the nature of the sectoral-structural problems. Since the proportion of value added is highest in the quaternary sector, while the use of intermediate inputs (especially materials) is the highest in the secondary sector, the faster growth in quaternary outputs may provide less indirect stimulus for the national (or the world) economy than the same growth in secondary outputs would. And the shifts to the use of imported secondary outputs in mature economies may exacerbate this problem for the "post-industrial" economies, and may, for a while, mask the challenge for the new industrial centers.

Modern economics, despite the long (albeit often flawed) tradition of thoughts about sectoral differences, has mostly neglected structural-sectoral analysis. Therefore the kernels of truth discernible in the classical studies as well as some directions offered in the analyses by Leontief and Sraffa, and more explicitly by Kuznets, Clark, Olson and North, need to be taken to heart at this stage.

The issues of measurement, especially the difficulties in defining output in the quaternary areas, constitute a key, and integral component of the problem. The institutional setting typical for many quaternary service activities is a related matter.

The difficulties of assessing the costs of increases specialization and growing division of labor is a closely connected issue. The effects of these difficulties, for overall economic efficiency growth can be significant. If large—and growing—areas of the modern economy are, to a considerable degree, beyond the reach of usual statistical and financial measures and analysis, the careful husbanding of resources in these areas can suffer.



Nevertheless the advancement of the service area is both inevitable and beneficial. However the adjustment to the new situation is not easy, the room for inefficiency is considerable and the national and international handling of the matter leaves much to be desired. In part this is due to our limited understanding of the sectoral-structural problems. One can assume that with the accumulation of knowledge on the subject, the more promising courses of action will become clearer, at least from an intellectual perspective. After all, the needs and best modes of transition from the age of agriculture into the modern industrial economy were not easily perceived either and were even more difficult to implement. There is every reason to expect many intellectual and practical difficulties in the transition to the service (post-industrial) economy<sup>71</sup> as well. The political difficulties of the transition from predominantly agricultural to predominantly industrial economies were also pronounced. The transition to predominantly service type economies may similarly involve considerable political stress. And there may be some intriguing, and rather monumental, international difficulties involved in the process.

Clearly far-reaching accommodations need to take place in the world economy before the optimal geographic distribution of production in general, and of the primary, secondary, tertiary and quaternary activities in particular, will be reached. Economic theory, statistical research, and many other fields of human effort need further advancement if we want to meet, at least half-way prepared, the challenge posed by this prospect.

<sup>71</sup>The term "post-industrial" involves the same difficulties as the designation of the industrial economies as "post-agricultural." After all, agriculture has not disappeared from the scene, and neither will industry in the process of development.



**Inside...**The contributions  
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Sector ....Page-4Automobile  
Industry..Page-5

“Start up India,...7

Sunrise Sector Page-8

**Data on Secondary  
Sector**India – 2<sup>nd</sup> Largest  
Producer of Textiles  
& GarmentsIndia Ranks 6<sup>th</sup> in  
Industrial OutputGlobal  
Competitiveness  
Index - India -2<sup>nd</sup>  
PositionConstruction-Major  
Employer in  
Secondary SectorEmployment through  
Secondary Sector-  
Karnataka-18.3%34.9% Employment  
in Urban Karnataka11.1% Employment  
in Rural Karnataka

## Role and Importance of Secondary Sector

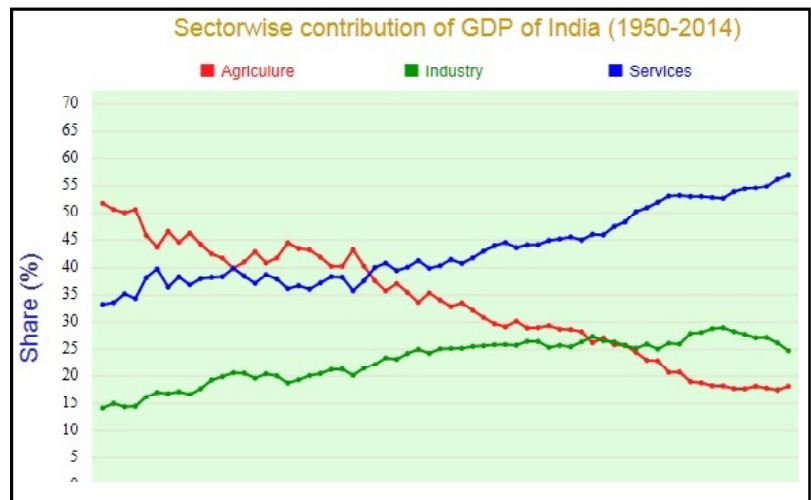
**-Gayathri .R**

Secondary sector includes all branches of human activities that transform raw materials into finished products. Some of the manufacturing industry that comes under secondary sector are Automobile industry, Electrical industry, Chemical industry, Energy industry, Metallurgical industry, Construction industry, Food industry, Glass industry, Textile and Clothing industry and Consumer goods industry

(all consumables). Secondary sector sometimes is also known as production sector with small-scale units and large scale units. Some of the examples of small scale units are shoe factory, textile unit, printing, glass making, furniture etc. The large scale manufacturing industries include steel, automobiles, aluminium, etc.,

The secondary sector forms a substantial part of GDP, it creates values (goods) and it is the engine of economic growth and is crucial for all developed economies, although the trend, in most developed countries, is the predominant tertiary sector or service sector.

The development of secondary sector can be attributed to demand for more goods and food, which leads to industrialisation. Though primary sector is vital there is a natural limit on how much can be extracted from primary sector. However, when economy moves into the secondary sector, new farm techniques are used and industrialisation becomes dominant as the goods can be transformed into articles of our need, distributed and sold.

**Graph 1**

Source: statisticstimes.com

The economy of India is the seventh-largest in the world by nominal GDP and the third largest by Purchasing Power Parity (PPP). The country is classified as a newly industrialised country, one of the G-20 major economies, a member of BRICS and a developing economy with an average growth rate of approximately 7% over the last two decades. According to CIA sector wise Indian GDP composition in 2014 are as follows: Agriculture (17.9%), Industry (24.2%) and Services (57.9%). The GDP of Industrial sector is \$495.62 billion making India 12<sup>th</sup> in the world ranking. India ranks 6<sup>th</sup> in industrial output according to IMF and CIA World Fact book, 2015, with output of 559 billion USD where China, United States and Japan occupy first three positions.

It is clearly understood from the graph that, the primary sector which mainly constitutes Agriculture is declining. However, the growth of secondary sector has been very slow vis-a-vis the services clearly indicating that there is a lot of scope for the growth of secondary sector in India.

Source: statisticstimes.com



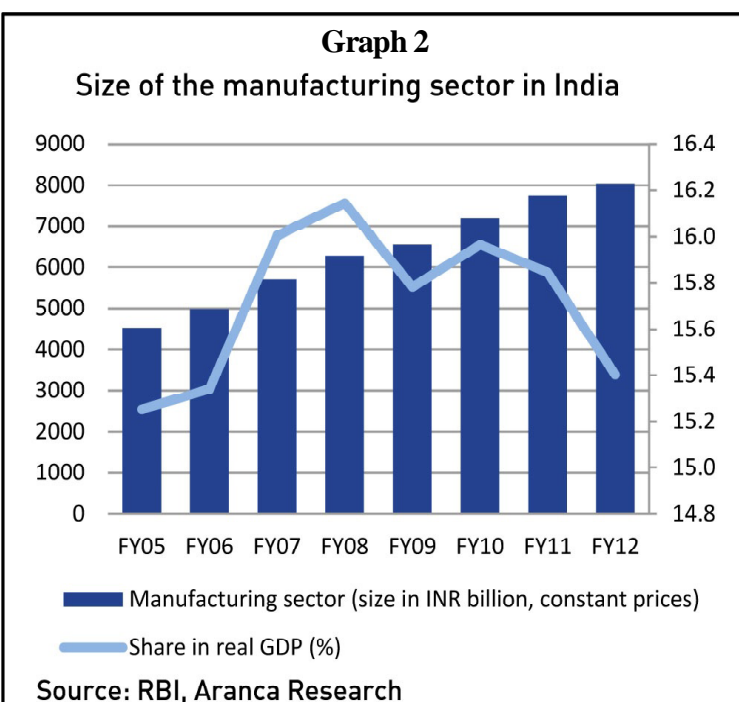
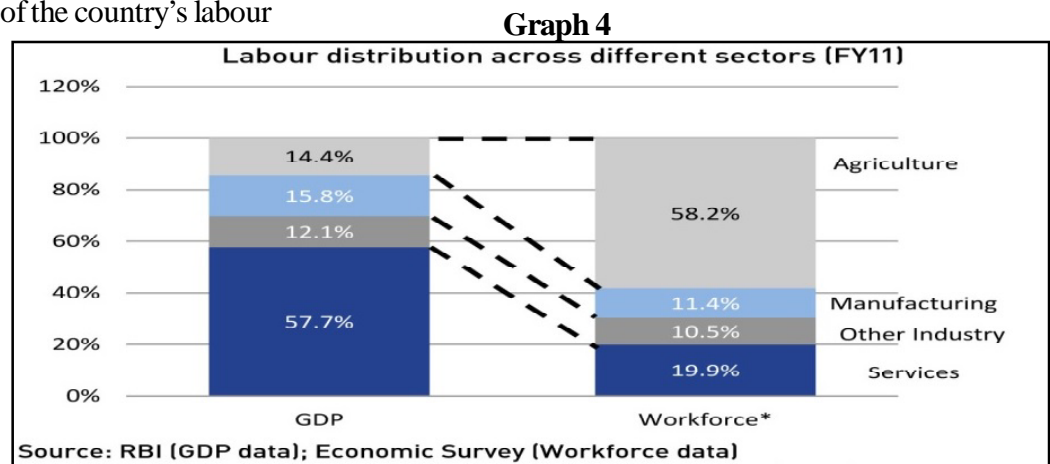
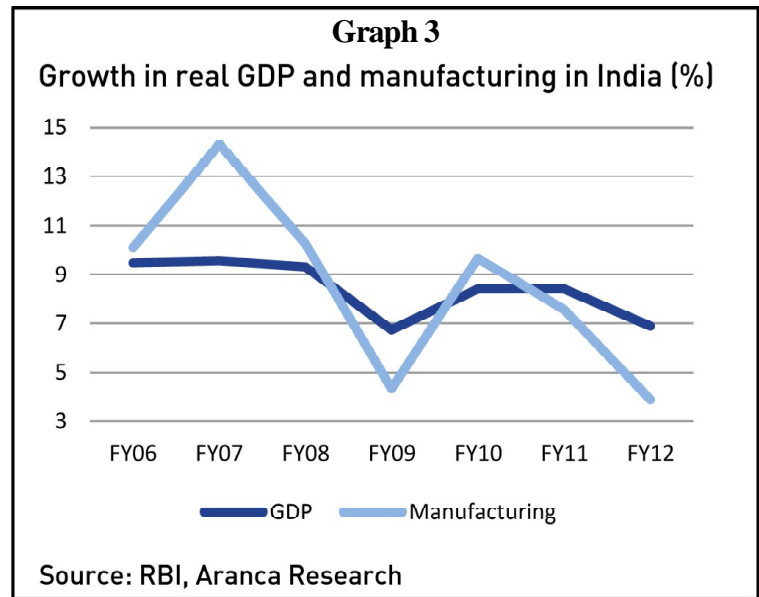
# Industries Contribute 16% of the Real GDP

- Nandeesh H.K.

Industries play a crucial role in the economic development in the world. The Gross Domestic Product popularly known as GDP of an economy requires contribution from major industries to be healthy. As famous saying goes, “industrialise or perish” is the mantra. Various sectors contribute to India’s GDP. Some of the major sectors are Automobile industry, Steel industry, Real Estate industry, Tourism industry, Energy sector, Textile industry, Airlines industry, Medical industry, Biotechnology industry, Electronics and Hardware and the Power industry. Amongst all the major industries include; Textiles, Chemicals, Food Processing, Steel, Transportation Equipment, Cement, Mining, Petroleum, Machinery and Software.

Manufacturing holds a key position in the Indian economy, accounting for nearly 16 percent of the real GDP in FY12 and employing about 12 percent of the country’s labour force. Growth in the sector has been strong, outpacing overall GDP growth since the past few years. For example, while real GDP expanded at a CAGR of 8.4 percent over FY05–12, growth in the manufacturing sector was marginally higher at around 8.5 percent over the same period. Consequently, the sector’s share in the economy increased marginally to 15.4 percent from 15.3 percent.

The rising competitiveness of India’s manufacturing companies is



reflected in the country’s second position in the world in terms of competitiveness as per the 2010 Global Manufacturing Competitiveness Index followed by China, which occupies the first position.

The manufacturing sector employs 12.0 per cent of the country’s labour force as well as provides a transitional opportunity to the labour force from agriculture. According to National Manufacturing Policy 2011, every job created in the manufacturing sector creates 2-3 additional jobs in related activities.

Indian economy is one of the fastest growing economy in the world. Labour dependency is low compared to the agriculture sector but the GDP contribution is higher than agriculture sector. This is brought out clearly in the above graph where we can see that agriculture and allied activities have 58.2% workforce and GDP contribution is 14.4 % whereas, manufacturing sector has a workforce of 11.4% and contributes 15.8% of GDP.

Source: India Brand Equity Foundation



# Employment Growth Rate in Secondary Sector

**-Mahamad Musstaf P. S. & Vagdevi H. S.**

Secondary sector has been a key sector in raising productivity and generating employment in the country. The pace of expansion of this sector in India is, however, marked by fluctuations in growth and differences in trends in different phases. India's experience in the

expansion of secondary sector is unique both with regard to the structural transformation as well as with regard to the

impact of this transformation on employment. In India like the rest of the world, the structural transformation followed the archetypal pattern of agriculture giving way to industry, and industry in turn paving way to the service sector. However, the dynamics of this shifting pattern is what makes Indian economy distinct. Post-independence and in the wake of socialisation of democracy, share of agriculture in total output was declining and the share of industry was increasing. This trend had however come to an abrupt halt with the share of services going up sharply post liberalisation.

Employment growth in the secondary sector, consisting of mining, manufacturing, electricity, water and gas, and construction, has been relatively

high; in fact, it is the highest among the three sectors. Even during 2004-05/2009-10, when overall employment virtually stagnated, the secondary sector employment grew at around 3.5 per cent. Within the secondary sector, 65% of the

growth. Whereas, mining and utilities has been declining over the past four decades.

As per the NSS 66<sup>th</sup> Round, Employment & Unemployment Survey, 2009-10, all states in India record employment share of the secondary sector

## Growth Effects by Sector: 1973-2012

Sectors	1972-83	1983-94	1994-2005	2005-2012
<b>Mining</b>	4.77	4.33	2.18	1.13
<b>Manufacturing</b>	17.52	14.10	16.19	19.44
<b>Utilities</b>	3.00	4.40	1.89	1.87
<b>Construction</b>	2.01	6.29	9.40	9.61

*Source: Based on the CSO data*

incremental employment came from construction alone during 1994-2012. Construction has thus emerged as a major employer. Manufacturing, the share of which remained stagnant in GDP, increased its share in employment slowly but not steadily and contributed 33% of the incremental jobs during the period of liberalisation. Utilities did not show perceptible changes, while mining has experienced a continuous decline in terms of the rate of growth of employment since 1993-94.

When we look at the above table it is quite clear that among the secondary sector construction sub sector has emerged as major employment growth sector from 2.1% share in 1972 – 83 to 9.61 % share in 2005 – 12. Manufacturing sub sector has also shown a slumber

above 13 % against the national average share of 11 % only. Jharkhand remains top in the country in share of employment in secondary sector with 21 % share of employment in construction, 2.4 % in mining and quarry and the aggregate of rural (1.6 percent) and urban areas (6.2 percent). Karnataka's share in secondary employment are; mining and quarrying (0.7 %), manufacturing (10.4 %), electricity, gas and water supply (0.3 %) and construction (6.9 %). Where Jharkhand's aggregate in secondary sector employment is 31.6% Karnataka's share in secondary employment aggregate is 18.3%. In Karnataka, 34.9% in urban areas and 11.1% in rural area depend on secondary sector for employment.

*Source: Report on Employment and Unemployment Survey, GoI*

## Measures to Boost Secondary Sectors

**-Kiranbabu P.**

An entrepreneur requires a continuous flow of funds not only for setting up the business, but also for successful operation as well as regular upgradation/ modernisation of the unit. To meet this requirement, the Government (Central and State) has been undertaking several steps like setting up of banks and financial institutions; formulating various schemes, etc. All such measures are specifically focused towards the promotion and development of Secondary Sector.

The public sector banks are the major source of financial assistance to the industrial sector. They extend credit support to the firms in the form of loans, advances, discounting bills, project financing, term loans, export finance, etc. Some such financial supports through banks are;

**Modified Special Incentive Package Scheme (M-SIPS):** The scheme provides capital subsidy of 20% in SEZ (25% in non-SEZ) for units engaged in electronics manufacturing. It also provides for reimbursements of CVD/excise for capital equipment for the non-SEZ units.

*(continued page-6)*



# Share of Secondary Sector in GDP – India & Karnataka

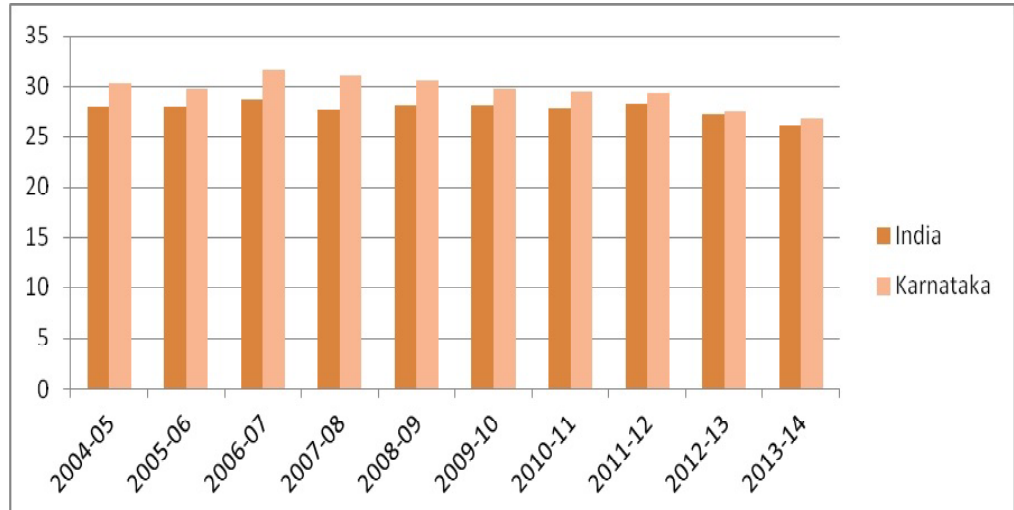
**-Punithkumar L. M.**

Indian economy is classified into three sectors like Primary sector, Secondary sector and Tertiary sector. Agriculture, forestry, pasturing, mining, fishing are known as primary activities as their products are essential or vital for human existence. Manufacturing industries, trade and commerce, transport and communication are known as secondary activities, whereas all types of services are under tertiary activities which directly or indirectly help the above mentioned other two types of activities.

In the secondary sector of the national economy, naturally available resources are used to create products and services that are subsequently used for consumption. This sector can be regarded as one that adds value to the products and

services on offer. The latest gross domestic product estimates show that industry grew by just 1.0 percent in 2012-13 and slowed further in 2013-14, posting a modest increase of 0.4 percent (Rani Anju, 2015).

**Graph 5- Secondary Sector Contribution to GDP in India and Karnataka**



**Secondary Sector Contribution to GDP in India and Karnataka (GDP at Constant 2004-05 Prices)**

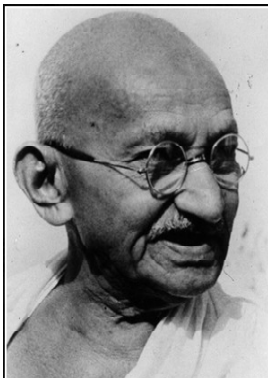
Year	India	Karnataka
2004-05	27.93	30.30
2005-06	27.99	29.70
2006-07	28.65	31.60
2007-08	27.74	31.10
2008-09	28.13	30.50
2009-10	28.17	29.70
2010-11	27.92	29.50
2011-12	28.22	29.40
2012-13	27.27	27.60
2013-14 (P)	26.13	26.80

Source: Planning Commission Report 2014, Directorate of Economics & Statistics, GOK.P-Provisional

Gross Domestic Product (GDP) represents the monetary value of all final goods and services produced within a nation's geographic borders over a specified period of time. The share of different sectors in Indian economy is different i.e. primary sector contribution to GDP is less compared to secondary and service sectors. The table explains the secondary sector contribution to GDP in India and Karnataka.

The table and graph shows the secondary sector contribution to GDP in both India and in Karnataka. The comparison of the data clearly shows that secondary sector contribution to the state's GDP in Karnataka is higher than in India in most of the years. The reason being the state's favourable industrial programmes and policies, which encourages investment in the sector.

Source: Planning Commission Report 2014, Directorate of Economics & Statistics, GOK. , Indiastat.com , Economic survey of India and Karnataka 2014-15



India must protect her primary industries even as a mother protects her children against the whole world without being hostile to it.

— Mahatma Gandhi —



*Investing in industries and technology for the 21<sup>st</sup> century generates high skilled, high wage jobs for industries of the future.*

Jay Inslee  
Governor of Washington, USA



# India: The Largest Three Wheeler Market

- Deepa T.M

India's automobile industry is one of the most competitive in the world. The Indian automotive industry has emerged as a 'sunrise sector' in the Indian economy. India is emerging as one of the world's fastest growing passenger car markets and second largest two wheeler manufacturer. It is fifth largest commercial vehicle manufacturer. India is emerging as an export hub for sports utility vehicles. The automobile industry

is one of the key drivers that boost the economic growth of the country. Since the de-licensing of the sector in 1991 and the subsequent opening up of 100 percent FDI through automatic route, Indian automobile sector has come a long way. Today, almost every global auto major has set up facilities in the country.

India is a very favorable market for small car production, sales or export. The large manufacturer of small cars companies like Hyundai and Nissan Motors export about 2.4 to 2.5 lakh cars annually. India emerged as Asia's fourth largest exporter of automobiles, after Japan, South Korea and Thailand. The growth trend of automobile industry is: Two Wheelers-32.31 percent, Commercial Vehicle -19.10 percent and Passenger Cars grew by-19.10 percent in the year 2011.

The world standing for the Indian automobile sector, as per the Confederation of the Indian industry is denoted in the box.

However, since the year 2013-2014 there has been a decline in the industry's growth. High inflation, soaring interest rates and rising fuel prices along with economic slowdown are the major reasons for the downturn of the industry.



- Largest three-wheeler market
- Second largest two-wheeler market
- Tenth largest passenger car market
- Fourth largest tractor market
- Fifth largest commercial vehicle market
- Fifth largest bus and truck segment

Except for the two-wheelers, all other segments in the industry have been weakening. To match the decline in demand, automakers have resorted to production cuts and lay-offs, due to which capacity utilisation for most automakers remains at a dismal level.

Despite the comprehensive market being under extreme burden, the luxury car market has observed a robust double-digit hike during the year 2013-2014, as a result of rewarding new launches at compelling lower price points. Further, with the measured increases in the price of diesel, the overall market continues to shift towards petrol-fuelled cars. This has led to the growth in sales of the 'Mini' segment of the PV market by of 5.5% in the year 2013 – 14.

The auto-shows in February

2016, promised a blend of technology and automobiles. With the recession trend breaking its leashes from the past two years, 2016 is expected to get back on track with the sale of automobiles in the country.

The Indian automobile industry has a prominent future. Apart from meeting the advancing domestic demands, it is penetrating the international market too. Favoured with various benefits such as globally competitive

auto-ancillary industry; production of steel at lowest cost; inexpensive and high skill manpower; entrenched testing, the industry provides immense investment and employment opportunities. The global automobile majors are looking to leverage India's cost-competitive manufacturing practices and are assessing opportunities to export SUVs to Europe, South Africa and Southeast to feed the world demand for SUVs.

Source: [www.ibef.org/industry/india-automobiles.aspx](http://www.ibef.org/industry/india-automobiles.aspx)



*Think Big, Think Fast ,  
Think Ahead, Ideas are no  
One's Monopoly*

-Dhirubhai Ambani



# Measures to Boost...

*continued from page-3*

**Small Industries Development Organization (SIDO)** is an apex body for promotion and development of small scale industries in the country. SIDO has devised a comprehensive range of schemes for providing credit facilities, technology support services and marketing assistance, etc. Some of the major schemes are:-

**National Small Industries Corporation Ltd (NSIC)**, has been assisting small enterprises through a set of specially tailored schemes which facilitate marketing support, credit support, technology support and other support services.

- ◆ Marketing support schemes
- ◆ Credit support schemes
- ◆ Equipment financing
- ◆ Financing for procurement of raw material
- ◆ Financing for marketing activities
- ◆ Financing through syndication with banks
- ◆ Performance and credit rating scheme for small industries

- ◆ Technology support schemes

## ARI Division Schemes

The major schemes in the ARI Division are;

- ◆ The Scheme for providing financial assistance to set up new enterprises under Prime Minister Employment Generation Programme (PMEGP). The Khadi and Village Industries Commission is implementing the programme.
- ◆ Scheme for providing insurance cover to Khadi artisans under Janshree Bima Yojana
- ◆ Providing financial assistance to Coir units for export under Plan (General)
- ◆ Providing financial assistance to Khadi institutions
- ◆ Providing training to the aspiring Coir workers for capacity development and quality improvement under Plan (General)
- ◆ Providing financial assistance for R & D activities of Coir Board under Central Sector Plan Scheme of Science & Technology (S&T) of the Coir Board
- ◆ Providing financial assistance to Coir units for infrastructure development under Plan (General)
- ◆ Providing financial assistance to Coir units
- ◆ Providing insurance cover to Coir workers under Plan (General)

## SME Division Schemes

The major programmes provided to MSME are;

- ◆ Providing financial assistance on International Cooperation'. It is related to the International Cooperation Scheme. It deals with providing assistance to MSME, so that they are able to send delegations to overseas locations, thus enabling them to

find out and know more about newer technologies being used in those countries.

- ◆ Providing financial assistance for performance and credit rating under PCR Scheme
- ◆ Providing financial assistance on marketing support under Marketing Assistance Scheme
- ◆ Providing establishment of new institutions (EDIs) and strengthening the infrastructure for EDIs under ATI Scheme

## DC MSME Schemes

The DC MSME division boasts of 22 programmes for companies in the MSME sector.

- ◆ The Scheme for 'Providing Financial Assistance on Bar-Code', a National Manufacturing Competiveness Programme (NMCP) Scheme, is one of the major names in this area. It is basically a programme in which the fees paid for bar coding is reimbursed to the company that has made the payment.
- ◆ 'Support for entrepreneurial and managerial development of SMEs through incubators' – an NMCP Scheme
- ◆ 'Credit Guarantee Fund for Micro and Small Enterprises'
- ◆ 'Enabling manufacturing sector to be competitive through Quality Management Standards and Quality technology tools' – an NMCP Scheme
- ◆ ISO 9000/ISO 14001 Certification Reimbursement
- ◆ Building Awareness on Intellectual Property Rights (IPR) for the Micro, Small & Medium Enterprises – an NMCP Scheme
- ◆ Market Development Assistance (MDA) to MSMEs
- ◆ Lean Manufacturing Competitiveness of Micro Small and Medium Enterprises (LMCS) – an NMCP Scheme
- ◆ Strengthening of Training Infrastructure of existing and new Entrepreneurship Development Institutions
- ◆ Setting up Mini Tool Room & Training Centres under PPP Mode' – an NMCP Scheme
- ◆ Micro Finance Programme
- ◆ Building Design expertise of MSMEs Manufacturing sector (Design clinic scheme) – an NMCP Scheme
- ◆ National Awards
- ◆ Marketing Assistance and Technology Up-gradation of MSMEs – an NMCP Scheme
- ◆ Supporting 5 selected universities / colleges to run 1200 entrepreneurship clubs per annum
- ◆ Trade Related Entrepreneurship Assistance and Development (TREAD) Scheme to Women and others.

Source: [http://www.archive.india.gov.in/business/business\\_financing/government\\_fund.php](http://www.archive.india.gov.in/business/business_financing/government_fund.php)



# Start up India & Stand up India

- Shivaprasad B. M.

It cannot be denied that there are huge number of small and developing companies in India that are not able to sustain in the present market due to lack of a stable capital and appropriate investment. The “start up India, stand up India” is undoubtedly an appreciable initiative taken up to support these companies by raising capital in certain incubation centers and ease procedures. This is not only going to support small startup business organisations but will also enhance the financial stability of our country.

It is true that our country faces a critical problem of unemployment and a huge number of skilled youth in India are still unemployed. This initiative to support the startup companies will help in dealing with unemployment issues to a considerable extent. The initiative is to encourage entrepreneurship within the youth of India. The scheme includes even the vulnerable sections of society like the dalit's, tribals and women so that they do not feel deprived.

## The Stand up India Scheme provides for:

- Refinance window through Small Industries Development Bank of India (SIDBI) with an initial amount of Rs. 100 Billions.
- Creation of a credit guarantee mechanism through the National Credit Guarantee Trustee Company (NCGTC).
- Handholding support for borrowers both at the pre loan stage and during operations. This would include increasing their familiarity with factoring services, registration with online platforms and e-market places as well as sessions on best practices and problem solving.



## The details of the scheme are as follows:

- Focus is on handholding support for both SC/ST and Women borrowers.
- The overall intent of the approval is to leverage the institutional credit structure to reach out to these under-served sectors of the population by facilitating bank loans repayable up to 7 years and between Rs. 1 to 10 million for Greenfield enterprises in the non farm sector set up by such SC, ST and Women borrowers.
- 100% deduction of profits for 3 out of 5 years for start-ups set up during April 2016 to March 2019.

## Make in India:

Make in India is an initiative launched in September 2014 by the Government of India to encourage multinational, as well as national companies to manufacture their products in India.



The major objective behind the initiative is to focus on job creation and skill enhancement in 25 sectors of the economy. The initiative also aims at high quality standards and minimising the impact on the environment. The initiative hopes to attract capital and technological investment in India.

- ◆ Under this initiative skill development programs would be launched especially for people from rural and poor ones from urban cities.
- ◆ 25 key sectors have been short listed such as telecommunications, power, automobile, tourism, pharmaceuticals and others.
- ◆ Individuals aged 15-35 years would get high quality training in the following key areas such as welding, masonries, painting, nursing to help elderly people.
- ◆ Skill certifications would be given to make training process, a standard.
- ◆ Over 1000 training centres would be opened across India in the next 2 years.
- ◆ For companies setting up factories, “Invest India” unit is being set-up in the commerce department which would be available 24/7.
- ◆ The main focus of this department would be to make doing business in India easy by simplifying all the approval processes and resolving the issues in getting regulatory clearances faster, within 48-72 hours

Source: <http://startupindia.gov.in/>, <http://www.makeinindia.com/>



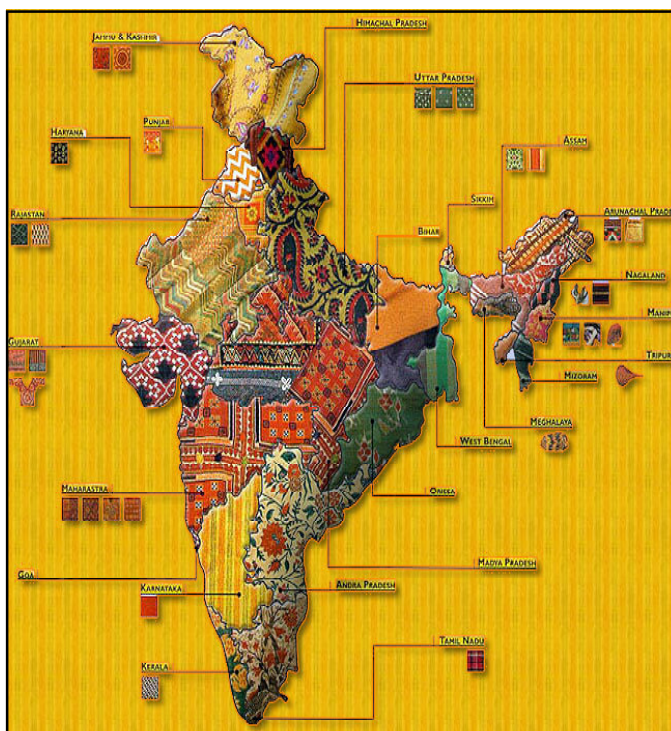
# Sunrise Sector of Indian Economy

- Venugopal Gowda M.K.

The archaeological surveys and studies have found that the people of Harappan Civilization knew weaving and the spinning of cotton. It is also known that, a block printed and resist-dyed fabrics, whose origin is from Gujarat is found in tombs of Egypt. Large quantities of Indian silk were traded through the silk route in China to the western countries. During the late 17<sup>th</sup> and 18<sup>th</sup> century there were large export of the Indian cotton to the western countries. All these show that, textiles have had played a major role in shaping up our culture and also economy. This sector is popularly called as 'Sunrise Sector' of India.

India is the world's second largest producer of textiles and garments overtaking Italy, Germany and Bangladesh. The Indian textiles industry accounts for about 24% of the world's spindle capacity and 8 % of global rotor capacity (Report on Textile Industry of India, 2015). Abundant availability of raw materials such as cotton, wool, silk and jute along with skilled workforce have made the country a sourcing hub. As per the report, the potential size of the Indian textiles and apparel industry is expected to reach US\$ 223 billion by 2021.

This sector contributes about 14% to industrial production, 4% to the gross domestic product (GDP), and 27% to the country's foreign exchange inflows. The industry is the second largest employer after agriculture, providing direct employment to over 45 million and 60 million people indirectly. Apparel exports from India have registered a growth of 17.6%



in the period April - September 2014.

The global trade of textile and garments was approximately \$781 billion in 2013. This is almost 4.6 % of the trade of all commodities traded in that year. From 2008 to 2013, the global textile and garment trade has grown at a CAGR of 4 %. The top five textile and garment exporting nations are China, India, Italy, Germany and Turkey. China is the single largest exporter with 39 % share while India stood at a distant second place with 5 % share.

With a view to raise India's share in the global textiles trade the Ministry of Textiles

have proposed 50 new textile parks, Scheme for Integrated Textile Parks (SITP), Technology Mission on Cotton, Technology Upgradation fund Scheme, Setting up of Apparel Training and Design Centres, 100 % Foreign Direct Investment (FDI) in the textile sector under automatic route, revival of 18 textile mills, machineries for the upgradation and modernisation of the mills and other programmes and schemes are introduced for the sector's development.

The Indian domestic consumption of textile and garment is valued at US\$ 63 billion in 2013. Within this, garment retail has the highest share of 73 % contributing \$46 billion, technical textile contributes \$13 billion with a share of 21 % and home textiles contribute \$4 billion with a 6 % share.

Source: WWW.cci.in

**University with Potential for Excellence** of University Grants Commission was awarded to the University of Mysore in the disciplines of Science and Social Science. In Social Science, the focus area of study is '**Media and Social Development: A Case Study of Karnataka**'. The *Newsletter ABHYUDAYA* is an initiative to create awareness in the area of media and social development by encouraging Project Fellows to submit contributions in interdisciplinary areas of social sciences.

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