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Economic Impacts of SEZs: Theoretical Approaches and Analysis of Newly Notified SEZs in India

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Abstract: This study aims at examining the economic impacts of SEZs in the Indian context. While doing so, it addresses the conceptual confusion about SEZs, outlines the evolution of SEZs; traces economic philosophies explaining the rationale and benefits of SEZs; extends existing theoretical literature to explain the economic impacts of SEZs; assesses the economic impacts of newly notified SEZs in India; reviews the strategies followed by various state governments in the implementation of the policy ; and draws policy implications. It argues that the existing economic theories do not adequately explain the rationale and contribution of SEZs. These approaches need to be extended by integrating the provisions of the theories of agglomeration economies and global value chains within the existing theoretical frameworks. It analyses the economic impacts of SEZs within the extended theoretical framework. It finds that while SEZs are stimulating direct investment and employment, their role appears to be more valuable in bringing about economic transformation from a resource-led economy to a skill and technology-led economy; from low value added economic activities to high value added economic activities; from low productive sectors to high productive sectors; and from unorganised to organized sectors, both at the national and regional levels. They have the potential of promoting new knowledge intensive industries; augmenting existing industrial clusters/industrial states; diversifying the local industrial base; and localizing global value chain. However, a strategic approach is required to reap the opportunities offered by SEZs.

I. Introduction

Since the early 1990s, there has been a sharp increase in the number of special economics zones (SEZs)² across the world. The number of SEZs increased from mere 79 across 29 countries in 1975 to 3500 across 130 countries in 2006 (Table 1). This surge in the number of zones has not only been due to increased number of countries setting up zones but also due to more zones per country. The average number of zones per country increased nine times from 3 to 27 during this period. The total employment in SEZs almost tripled within 10 years, from 22.5 million in 1997 to 66 million in 2006. China alone employed 40 million people in SEZs in 2006, an increase of 10 million people since 2002. But the growth in SEZ employment was faster outside of China where it doubled from 13 million to 26 million between 2002 and 2006.

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² Technically, SEZs are a special variety for export zones. However, through out this study, the term “SEZs” would be used as a generic term for all types of export dominated zones.

Table 1: Growth of zones worldwide: 1975-2006

	1975	1986	1995	1997	2002	2006
No. of counties with zones	29	47	73	93	116	130
No. of zones	79	176	500	845	3000	3500
Average no. of zones per country	3	4	7	9	26	27
Total employment (Mn), of which	na	na	na	22.5	43	66
China				18	30	40
Rest of the world	0.8	1.9	na	4.5	13	26

Source : ILO 2003, 2007

In line with the changing economic environment the world over, the government of India also upgraded its “export processing zones” (EPZs) to “special economic zones” in 2000, and enacted a SEZ Act in 2005 to encourage industrial growth through the development of special economic zones. It was expected that “the Act will provide confidence and stability to domestic and foreign investors, and signal the government’s commitment to the SEZ policy framework” (Economic Survey, 2005-06). However, implementation of the Act and the rush for setting up SEZs, that ensued, sparked off a fierce nationwide debate over the usefulness of SEZs. While the policy makers and supporters of SEZs claim that the SEZ policy has made a significant impact on investment, exports and employment, dissenters have expressed concern over the displacement of farmers associated with land acquisition, land grab, misuse of the policy for the real estate development rather than for generating exports, loss of fertile agricultural land, food security, huge revenue loss to the exchequer, uneven growth, labour exploitation and environment degradation (Aggarwal 2006). Serious concerns have been raised over the economic rationale of setting up SEZs, and their social and economic costs. Many believe that the economic and other costs of SEZs are likely to outweigh the benefits. The debate refuses to wane. Unfortunately, however, there is no systematic study based on field research that has analysed their economic impacts in the country. This study is an attempt in this direction.

Generally, SEZs are defined as industrial enclaves that enjoy certain preferential policies for “export oriented manufacturing”. However, over time the SEZ model has evolved in terms of objectives, preferential policies, governance, ownership and location. New varieties of zones have evolved and are subsumed in the category of SEZs. The evolution and explosion of SEZs have resulted in growing literature on various aspects of SEZs. But nonetheless, a little consideration is given to the “concept of SEZs”. Much of the SEZ controversy appears to be stimulated by the lack of clarity in the concept itself. Furthermore, despite their proliferation, there is a lack of strong

theoretical foundation to explain the rationale underlying their establishment and economic contribution. Without clarity in the concept of SEZs and an appropriate theoretical framework it is difficult to assess the contribution of SEZs. Before examining the economic impacts of SEZs, therefore, the present study sets out to address the conceptual confusion about SEZs; review the existing theoretical foundations of SEZs; and propose extensions in the existing theoretical framework. Thus the objectives of the study are to

- clear the mist over the SEZ concept;
- trace economic philosophies explaining the rationale and benefits of SEZs in general, and, in India, in particular;
- propose extensions in the existing theoretical literature;
- to assess the economic impacts of newly notified SEZs in India;
- to review the strategies followed by various state governments in the implementation of the policy ; and
- to draw policy implications

The analysis is based on extensive field research. Of the 16 states that have reported at least one notified SEZ, ten states were selected, and interviews were conducted with SEZ officials, custom officials, state government officials, developers, consultants, and entrepreneurs in these states to gauge their perspective on SEZs. From each of these eight states, we selected, for field visits, those SEZs which have already become operational or where the development process is in progress. These are

- Rajasthan (Jaipur, Jodhpur),
- Haryana (Gurgaon, Jhajjar),
- U.P (Greater Noida, Noida),
- Punjab (Mohali),
- Chandigarh,
- Gujarat (Vadodara, Surat, Ahemdabad, Gandhinagar, Bharuch, Mundra, Jamnagar),
- Maharashtra (Pune, Nagpur),
- Andhra Pradesh (Hyderabad, Vizag, Nellor),
- Tamil Nadu (Chennai, Kanchipuram, Coimbator), and

- Kerala (Trivandrum).

Although Kerala does not have a single operational SEZ, yet we covered the state and interviewed the state government officials to understand obstacles in the implementation of the policy. These interviews were supplemented with academic literature and newspaper clippings.

The rest of the study comprises of 4 sections. Section 2 conceptualises SEZs and outlines the evolution of SEZs. It also discusses the concept of SEZs in India's context. Section 3 provides a comprehensive overview of the theoretical literature on economic impacts of SEZs. It discusses the economic approaches to the rationale and benefits of SEZs and proposes extensions in the existing theoretical approaches. Section 4 then examines economic impacts of SEZs and analyses whether SEZs have the potential of being path breaking in introducing industrial dynamism in India. Section 5 concludes and suggests possible policy improvements.

2. Understanding SEZs

2.1 Evolution

Trade –based SEZs: The oldest SEZs were free ports the origin of which can be traced back to the free port of Leghorn set up in 1547 in the Bay of Genoa in the North West of Italy (Meng, 2005). In the early 17th century, free ports (FPs) emerged in some European cities, which gradually transmuted into 'free trade zones' (FTZs). FTZs are small, fenced-in, duty-free areas, offering warehousing, storage, and distribution facilities for trade, transshipment and re-export operations, and located in most ports of entry around the world³. The rationale of setting up these zones was to facilitate transiting trade. Foreign trade of super power countries during that time was entrepot, basically transiting other countries' exports. The level of international trade was therefore not linked to domestic production but depended on expanding 'transiting trade'. Since the tax system was very elaborate, free trade areas were set up to facilitate trade. Most countries are upgrading/setting up trade –zones in recent years as 'offshore warehouse & logistics hub' with world class trade infrastructure, multi modular transport facilities, barrier free custom procedures and attractive incentives.

³ U.S. Foreign-Trade Zones program was created by the Foreign-Trade Zones Act of 1934

Manufacturing-based SEZs: In the late 1920s, a new variety of SEZs appeared in Spain in the city of Cadiz. These SEZs were set up with the intention of increasing exports by value addition to the raw materials available in that country. In 1950, the US Foreign trade zone Act 1934 was amended to allow manufacturing activities in free trade zones. The first manufacturing - SEZ in a developing country was set up by the Island of Puerto Rico in the Caribbean Sea during 1947-1951⁴. The genesis of SEZs with emphasis on manufacturing activity however lies in the Shannon EPZ (export processing zone) in Ireland in 1958. It became instrumental in spreading EPZ knowledge around the world (Bolin 2004). Thus, a new class of SEZs evolved. These SEZs are industrial estates offering special incentives and facilities for manufacturing and related activities aimed mostly at export markets with the entire area within the zone reserved exclusively for export-oriented enterprises licensed under a SEZ regime. Unlike FTZ, a SEZ of EPZ variety need not necessarily be located adjacent to a port. These can be set up anywhere with good connectivity. India was the first Asian country to set up its own EPZ in Kandla in 1965. This was followed by Kaohsiung EPZ in Taiwan in 1966. Soon the number increased to 11 in 9 countries (5 in Asia and Latin America each and 1 in Africa). By 1975, 29 countries had 79 SEZs across the world. Almost all of them were fenced-in industrial estates. These zones are not static in nature. They evolve with economic growth of the domestic economy, in terms of the composition of economic activity and technological sophistication. They are dominated by low cost labour intensive industries in the earliest phase of development. They are known as first generation SEZs. With skill upgradation in the economy, they begin attracting technical consumer products such as radios, calculators, and wristwatches. As the economy further develops, they shift to the production of skill intensive chemical and engineering products and evolve into second generation SEZs. Finally, they move to third generation high technology intensive producer goods' industries. While the most important contribution of first generation zones is the alleviation of unemployment and generation of foreign exchange, the second generation zones contribute to human capital upgrading and export diversification. The third

⁴ World EPZ Association honored the Commonwealth of Puerto Rico for establishing the World's First Economic Processing Zones. Presentation of the award was made September 9, 2004 in San Juan to Hon. Carlos Vizcarrondo Irizarry, President, House of Representatives, and Sr. Antonio (Tito) Colorado, Former head of Puerto Rico Industrial Development Company (PRIDCO) and former Secretary of State of Puerto Rico during a conference of the Latin American Free Trade Zones Committee (WEPZA website : www.wepza.org)

generation SEZs are important contributors to technology generation, transfers and technological spillovers. These are followed by service zones. In many countries (including the US), the scope of FTZs has been extended to include manufacturing along with entrepot functions.

Comprehensive SEZs: At the end of the 1970s, China designed its own model of ‘Special Economic Zones’ (SEZs). Unlike export processing zones which are enclosed industrial estates, SEZs are mega industrial towns spread over several square km. SEZs are generally a much broader concept and typically encompass much larger areas. They accommodate all types of activities, including tourism and retail sales, permit people to reside on site, and provide a much broader set of incentives and benefits. These are inspired by the Becattini (1990) concept of industrial district. It is defined as a socio-territorial entity which is characterised by the active presence of both a community of people and a cluster of firms in one bounded area. These zones have played an important role in attracting FDI, promoting exports, and creating global cities in China (Zheng 1999, Li 2001) .

Newer varieties’ zones: The concept of SEZs is further augmented by incorporating particularly innovative features to the basic design to tap their potential, and to gain competitive edge over international competitors. This has resulted in a large variety of zones. These are high tech (science) parks, enterprise specific zones, service zones, country specific SEZs, and hybrid zones.

Transnational zones: In the 1990s, *cross border SEZs* emerged as a growth strategy of transnational regions. Their objective is to exploit location advantages of border areas and boost the economic and trade cooperation and development in the region. These zones are an upgraded version of traditional border industries developed in Mexico and South Africa. Their objectives were more political and social than economic ones. In the early 1990s, growth triangles were conceptualized and proposed as a growth strategy of transnational regions (Kudo 2009). GMS countries have exploited this opportunity to develop industrial clusters in the border areas. These are termed cross border SEZs. These SEZs derive their competitiveness from complementary factor endowment, cross-border infrastructure services and reduced border barriers. China has promoted cross border SEZs along the borders with Cambodia, Lao, and Vietnam.

Cross-national regional integration which started proliferating in the early 1990s is also a form of transnational SEZs. These economic arrangements aim at facilitating and enhancing economic

integration at the regional level. Traditionally, they aim at addressing trade barriers. Over time, deeper regional initiatives have appeared. They contain not only trade related provisions but also specific commitments on investment, services, intellectual property, domestic macro policies, regulation of product and factor markets, movement of labour, technical barriers to trade, and dispute settlement with the objective of facilitating economic growth through increased trade and investment. Table 2 summarizes features of some of the zones operating in various countries.

Table 2: Types of SEZs

EXPORT ZONES	
FTZs/ Bonded warehousing	FTZs are small, fenced-in, duty-free areas, offering ware housing, storage, and distribution facilities for trade, transshipment and re-export operations, and located in most ports of entry around the world
EPZs	EPZs are industrial estates offering special incentives and facilities for manufacturing and related activities aimed mostly at export markets with the entire area within the zone reserved exclusively for export-oriented enterprises licensed under an EPZ regime
Hybrid	Hybrid EPZs are typically sub-divided into a general zone open to all industries regardless of export orientation and a separate EPZ area reserved for export-oriented, EPZ-registered enterprises.
SEZs	SEZs are generally a much broader concept and typically encompass much larger areas. They accommodate all types of activities, including tourism and retail sales, permit people to reside on site, and provide a much broader set of incentives and benefits.
Enterprise specific (single factory)	These schemes provide incentives to individual enterprises regardless of location; factories do not have to locate within a designated zone to receive incentives and privileges. EOUs or STPI in India are examples of such zones.
Sector specific	Special economic zones have also evolved into highly specialized facilities, configured to the needs of specific industries and activities. These sector specific SEZs.
High tech parks	These zones to promote R&D activity and high technology or science based industries; petrochemical and heavy industry
Country specific zones	These are zones set up by foreign companies/governments and are expected to bring in huge FDI. Taiwan investment zone in China; Chinese, Australian and Saudi Arabian EPZs in Pakistan; Singapore SEZ in Indonesia; and Korean EPZ in Bangladesh are some noted examples of this type of SEZs.
OTHER ZONES	
Enterprise zones	Enterprise zones are intended to revitalize distressed urban or rural areas through the provision of tax incentives and financial grants. Most zones are in developed countries, for example the United States, France, and the United Kingdom, although South Africa is developing a similar mechanism
Transnational Zones	
Cross border SEZs	Cross border zones are industrial estates that are benefited by the location advantages of complementary factor endowments, availability of cross border infrastructure, and reduced border barriers.
Regional integration agreements	These are enlarged transnational SEZs with reduced trade barriers and preferential investment policies. They can take various forms: preferential trade agreement, comprehensive economic agreement, custom unions, common markets and economic and monetary unions.

Source: compiled from various sources

Thus the original concept has changed over time and has acquired different meaning in different context. Table 3 summarises the evolution of SEZs in selected countries across different regions. We focus only on intra-national SEZs in the analysis. The table reveals that in most countries, newer varieties of SEZs have appeared and are coexisting with the traditional ones. Almost all developing countries have more than one variety of SEZs.

Table 3: Evolution of SEZs in selected countries

Country	First stage		Second stage		Third stage		Current status
	Year	Description	Year	Description	Year	Description	
China	Late 1970s	Large comprehensive SEZs developed by central government	Late 1980s	Economic and high tech zones at the state and provincial level	1990s	EPZ variety zones*: EPZs, FTZs, HIIZ, BECZ, THZs, TIZ, AHIDZ	All varieties of SEZs are operational
Korea	1970	Free export zones of EPZ variety	2000	Duty free zones of FTZs variety	2003	Free economic zones of comprehensive SEZ variety	All varieties operational
Taiwan	1966-97	EPZs: labour intensive 1989-97: capital intensive and technology intensive 2001: logistics	1980s	Science parks	2003	FTZs	All operational
Indonesia	1978	Bonded zones and warehouses equivalent to FTZs	2009	Special economic zones of EPZ variety			Large FTZs converted into SEZs
Thailand	1979	EPZs and bonded warehouses	2007	Free zones with enhanced package and better regional integration			EPZs are upgraded to free zones
Philippines	1969	EPZs	1995	Eco zones of SEZ variety			EPZs converted into SEZs
Vietnam	1991	Export processing zones and industrial estates both treated at par in terms of incentives and administration	2003	Eco zones (Comprehensive SEZs)			All varieties are operational
Jordan	1973	Free port	1983	Free zones of EPZ variety	2001	Special economic zone	All varieties are operational
UAE	1980	Free zones: all industrial estates with trading, manufacturing and service sector					Operational

		activities					
Pakistan	1980	Traditional EPZ	2001	Project based EPZs leased to foreign companies	Planned	Planned cities	All existing varieties are operational
Bangladesh	1972	Traditional EPZs	2007	Private SEZs	Planned	Eco zones of comprehensive SEZ variety	All existing varieties are operational
Sri Lanka	1978	EPZs in and around Coloumbo	Late 1990s	Country wide locations			
Egypt	Early 1970s	Free zones of EPZ variety both public and private	2002	SEZs of comprehensive variety	2004	Quasi industrial zones (QIZ) for exports to US markets	All varieties are operational
Mauritius	1971	Traditional EPZ	1992	Free ports of FTZ variety			Both varieties operational
South Africa	2001	Industrial Development Zone					Operational
Russia	1991	Free economic zones equivalent to free trade zone	2006	Industrial development zones, technology-innovative zones, tourist and recreation zones; and port based zones			All zones are upgraded to SEZs
Poland	1994	Special economic zones : Industrial clusters with special incentives In addition, there are FTZs and bonded warehouses	-	-	-		Operational
Czech Republic	1991	Free zones : equivalent to FTZs	1998	Industrial zones : Industrial clusters of EPZ variety			All varieties are operational
Brazil	1967	Free trade zone	1988	Free trade zone with manufacturing	2007	SEZs of Export processing zone variety	All varieties are operational
Mexico	1967	Maquiladoras of EPZ variety near US border	1994	Locational flexibility granted to Maquiladora	2006	An extended version of maquila: Maquiladoras and export services companies (IMMEX)	Maquila companies regulated by IMMEX

National Border and Economic Cooperation (BECZs), National Tourist and Holiday Resort (THZs), Taiwanese Investment Zone (TIZs); and National Agricultural Hi-Tech Industrial Demonstration Zone (AHIDZs).

Source: based on author's research.

With evolution in SEZs, their structural and institutional characteristics also changed. Some of the major development trends in terms of zone configuration, ownership, objectives, and composition of economic activity are as follows.

- The rapid pace of globalization and trade liberalization is stimulating a much broader view of zones, and their development objectives (FIAS 2008). The objectives of setting up SEZs evolved from promoting trade and generating employment to attracting advanced technologies, stimulating economic activity, and diversifying export baskets. In many countries, governments have been using them to promote planned urban cities.
- The preferential policy package has also been enhanced across depth and breadth. Traditional FTZs were meant to offer only tax incentives. New varieties of SEZs (including modern FTZs) are offering world class infrastructure, and services, relaxation in land cost, industrial policies, labour policies, and corporate taxations.
- The range of facilities, services, and amenities available within zones has also widened. They offer a greater range of business support services and specialized facilities than the traditional SEZs.
- They have evolved from being stand-alone industrial estates to integrated industrial townships.
- They have become more comprehensive in terms of economic activity also. The earliest variety of SEZs had trade orientation. Gradually, they moved to labour intensive manufacturing activities. Modern SEZs have evolved from labour intensive to capital intensive to highly technology intensive SEZs.
- In the earlier phases of growth most SEZs were created and owned by the government. In the 1980s, privately developed and operated zones started emerging. According to the World Bank (FIAS 2008), 62 percent of the 2,301 zones in developing and transition countries are private sector developed and operated.
- Spatial dimensions are also broadened. Traditionally, they were located in the proximity of ports but modern SEZs have increasingly been located on country-wide basis in an effort to integrate them with host economies.

Thus, SEZs have now become more comprehensive in terms of (1) objectives, (2) preferential policies, (3) composition of economic activities, (4) ownership, (5) spatial dimension and (6) integration with the rest of the economy.

2.2 SEZs: The Indian Perspective

The government of India adopted the ‘export processing zones’ (EPZs) policy in 1965 as part of its export promotion programmes. These were manufacturing-based zones of EPZ variety⁵, all created by the central government. Their primary objective was to promote exports and earn foreign exchange in an import substituting regime.

In 2000, EPZs were upgraded to SEZs. Unlike EPZs, ‘SEZs’ subsume a variety of zones with EPZs being only one of them. These are: free trade & warehousing zones (FTWZ), manufacturing based EPZs, service based EPZs, SEZs of EOU variety, and large comprehensive SEZs of Chinese variety.

- **FTWZs** : These are trade-based SEZs with a focus on trading and warehousing. They are ‘international trading hubs’ established in areas proximate to seaports, airports or dry ports so as to offer easy access by rail and road.
- **EPZs**: Most sector specific SEZs are export processing zones (EPZs). They are industrial clusters with little social infrastructure. These SEZs have developed highly specialized facilities, configured to the needs of specific industries and activities. First -, second -, and third-generation SEZs coexist. While Apache (sports shoes), Cheyyar (sport shoes) and Brandix (Textile) are first generation SEZs dominated by labour intensive industries; Gems and jewellery, are second generation SEZs; Petrochemicals, bio tech, electronics, and Pharmaceutical SEZs are knowledge intensive SEZs. All IT and IT enabled service SEZs are service based SEZs.
- **EOUs**: The tiny captive SEZs are equivalent to EOUs. Many IT SEZs are of EOU variety.
- **Large comprehensive SEZs of industrial district variety**: There are 9 to 10 large multi product zones which are special economic zones along the lines of industrial districts. These SEZs are far larger in scale and can function as independent towns by providing residential, medical, educational and business services.

⁵ Santacruz was the exception.

The Special Economic Zones Act, 2005, was passed by Parliament in May, 2005 which received Presidential assent on the 23rd of June, 2005. This was the first time that special over riding legislation and laws were formulated to provide the necessary regulatory foundation for SEZs. The SEZ Act along with SEZ rules provides the umbrella legal framework for establishment of SEZs and also for units operating in such zones. It provides a comprehensive SEZ policy framework to satisfy the requirements of all principal stakeholders in an SEZ - developers & operators, occupant enterprises, and domestic suppliers

SEZs are far larger in scale. To facilitate the creation of townships, the SEZ model envisages a minimum size of 1000 hectare for all green-field multi product SEZs. The minimum size for other sector specific SEZs has also been well stipulated. In each zone the minimum processing area stipulated is 50% of the total area. This will ensure some critical mass of economic activity.

The primary thrust of the SEZ Act is to attract private investment not only in productive activity but also in the creation of SEZs. Setting up of EPZs had been the principal responsibility of the central government⁶ which had invested necessary funds to create zone infrastructure. Contrary to this, under the SEZ act, the Central government would only be responsible for the broad policy framework and monitoring of the scheme.

A major development has been the broadening of the role assigned to SEZs. While the objective of EPZs was to promote exports in the import substituting regime, SEZs are assigned an ambitious role of stimulating economic activity in the economy.

Administrative procedures are streamlined to ensure a “single window mechanism” for approvals and day today operations. In order to ensure substantial investment in infrastructure, specific guidelines are provided for the minimum infrastructure that the developers need to provide to SEZ units for different types of SEZs.

Finally a highly attractive incentive package has been devised to attract private investment not only in productive activity but also in the development of SEZs.

⁶ The policy of setting up EPZ in the private sector was initiated in 1998 but only one EPZ was set up in the private sector, in 1998.

In sum, there have been profound changes in the SEZ concept in India. The SEZ Act has led to a tremendous growth in the establishment of SEZs in India. Only 8 export processing zones were set up across 7 states during the period 1965-2000, locking the area of 2521 acres with 95000 people employed. In 2000, the SEZ policy replaced the EPZ policy which stimulated the SEZ activity. Between 2000 and 2005, 11 new SEZs were set up. However the scenario transformed completely after the SEZ act was passed in 2005. As of December 2008, formal approvals were given to 552 SEZs across 23 states. Of them 274 across 16 states were notified. Of the 274 notified SEZs, 101 reported some economic activity.

3. Economic Rationale of setting up SEZs

3.1 Theoretical approaches

The neo Classical approach (Orthodox view): The mainstream neo classical economic theory views SEZs as enclaves offering open and freer trade policies set up with the objective of promoting trade. According to this theory, free trade is the best policy for a government to adopt. If freer trade is not politically viable at economy wide level, some welfare gains may be obtained from SEZs. SEZs therefore represent, at best, a second best policy. When viewed from a static perspective, SEZs are distortionary trade instruments which distort trade patterns, promote unfair competition between domestic and SEZ firms, drain government revenue and if the rest of the economy is not liberalized they remain production enclaves with little economic contribution. It argues that SEZs are useful only when the government uses them as a vehicle to further economy wide reforms. Their role should therefore be transitory, facilitating the transition of an economy from import substituting regime to free trade regime with minimal government intervention. They lose their significance as countries implement country wide systemic trade, macroeconomic and exchange rate reforms (Madani 1999).

This theory provides the basis for much of the criticism against SEZs. However, if freer trade is the most compelling need for a SEZ , it could be captured by the duty drawback regime. Furthermore, the recent experience shows that a considerable increase in the number SEZs across the world has followed the adoption of trade and economic reforms in the rest of the economy rather than

preceded them. They are not a vehicle to promote liberalization but are an outcome of the liberalized regime.

The political economy approach : The political economy perspective of SEZs is based on the ‘public choice theory’ (Buchanan and Tullock 1962), which draws on the interest group theories of Political Science and neo classical economic school. It argues that the provision of government intervention promotes lobbying by interest groups for rent seeking. The main lesson of this perspective which supports the principle of “minimalist government” is that the best strategy for all countries and in all situations is to liberalize – and not do much else. Free trade with minimal state intervention alone can ensure growth. The objective of the SEZ policy according to this approach is to generate rents to a few capitalists by facilitating land acquisition and offering tax incentives at the cost of the rest of the population, which in turn would reduce the overall welfare. The argument of the self-regulating market and minimalist government has increasingly been criticised. Evidence suggests that governments in industrialised countries manipulated and maintained rents to create a capitalist class and after the creation of this class used these rents to encourage them to invest in growth (Khan 2004).

The Heterodox Approach : While the neo classical theories are obsessed with markets and argue that limiting the role of the state is essential in minimizing market distortions, the heterodox school advocates a mix of state-market interactions, in which developmental governments play a significant role in investment, human capital formation, acquisition of technology, institution-setting, and the promotion of policy and institutional reforms (Chang 2002). This school draws on the endogenous growth literature and development state and new institutional theories. It argues that domestic firms lack the technical, marketing and managerial know-how and that they seldom have access to international distribution channels. In this scenario, SEZs are a government sponsored initiative to fill this gap. By offering enabling investment climate in terms of efficient infrastructure, good governance, simpler regulatory system, availability of skilled labor, tax incentives, finance and strategic locations, SEZs are instrumental in attracting FDI. FDI is accompanied with better technologies and managerial skills. The presence of foreign firms generates important spill-overs also. These spill-overs include labor and management on-the-job training and learning by doing, copying and demonstration effects, and impact on the rate and level of human capital formation in host countries. SEZs can thus offer unique scope for learning, improvement and transformation

through the flow of technology, knowledge and skills (Milberg 2007 for survey of literature). However, in this framework also SEZs are a second best policy. If the country's investment climate is significantly improved, SEZs become superfluous in the economy's performance.

With the proliferation of a variety of SEZs across the world (including in developed countries) there is need to extend theoretical foundations of setting up of SEZs for a better understanding of their contribution to the economic growth. We propose to extend the heterodox approach to embrace the agglomeration economies approach and the global value chain approach to explain the rationale and contribution of SEZs.

The global value chain approach: The globalisation process is accompanied by a rapid emergence of “global value chains”. The whole process of producing goods, from raw materials to finished product, has increasingly been “sliced” and each process is carried out wherever the necessary skills and materials are available at competitive cost either through off-shore outsourcing and/or off-shoring. Offshore-outsourcing is associated with subcontracting parts/ the whole production process to specialized firms abroad while off-shoring is the shift of production to a new location in another country through affiliates (FDI). However, market forces alone cannot ensure an effective integration of domestic firms in these chains. Global competition is so intense that unless deliberate policies are introduced to foster a favourable investment climate in terms of improved infrastructure, simplified rules and harmonised processes, regulations, and standards with domestic, bilateral, regional, and international practices, domestic firms in these economies are not usually able to avail the opportunities to integrate within these networks. By offering an enabling business climate SEZs facilitate the host country's insertion into global value chains through both off-shoring and offshore-outsourcing. SEZs thus promote both domestic and foreign direct investment. While there is huge literature on the role of FDI in technology transfers and diffusion in developing countries, the contribution of outsourcing to domestic firms in technological upgrading of the economy has attracted little attention. Outsourcing has opened large export opportunities for domestic firms in developing countries. Integration within the global value chains is an important way for strengthening the competitiveness of developing-country firms and building their productive capacities. Entry into global chains promises access to a global pool of new technologies, skills, capital, and markets, upgradation of firm-level capabilities from ‘learning’ through technology diffusion and exposure to international best practice systems of corporate

governance. As a consequence of ‘learning by exporting’ they can target more sophisticated market segments such as design, marketing and branding. They can thus be a potential tool for promotion and diversification of export activities. One clear example of upgrading among developing country producers is the case of East Asian SEZ producers. According to Gereffi (1999: 47) they moved from (a) assembly of imported inputs, to (b) increased local production and sourcing, to (c) the design of products sold under the brands of other firms, and finally to (d) the sale of own branded merchandise in internal and external markets. In all these countries SEZs were used as a tool to attract offshore-outsourcing and off-shoring activities.

Agglomeration economies approach: This approach does not focus on augmenting resources for growth but on reallocating them for promoting productivity and innovativeness. The advantages of agglomerations are rooted in: knowledge spillovers, resource sharing, and labour pooling. Within this framework, SEZs are government promoted clusters of outward oriented firms, both foreign and local, and are set up to exploit the benefits arising from global value chains. These clusters enhance productivity and spur innovation by bringing together technology, information, specialized talent, competing companies, supporting companies, academic institutions, and other organizations⁷. The success of clusters depends on four sets of factors: firms structure, strategy and rivalry, demand conditions, factor conditions and supporting industries. The more intense and developed the interaction of these factors, the greater is productivity enhancing effects of these clusters. The more outward oriented these clusters are the greater is the intensity of interaction between these factors. Openness to international markets imparts dynamism to clusters and enhances factor specialization and upgrading, and demand sophistication. Furthermore, clustering of foreign and local firms amplify these benefits further. A close proximity of foreign and domestic firms, and the accompanying linkages, facilitate technology spillovers and demonstration effects. ‘Local producers learn a great deal from global buyers about how to improve their production processes, attain consistent and high quality and increase the speed of response’ (Kim and Zhang 2008, p 268). Evidence suggests that geographically concentrated foreign companies are better than dispersed foreign companies in transferring technology and managerial skills via training and spillover to domestic firms (Kim and Zhang, 2008 for discussion). Firms in the cluster forge linkages with external actors and enhance their competitiveness as well.

⁷ <http://joeg.oxfordjournals.org/content/3/1/5.full.pdf>

Large comprehensive SEZs are based on the concept of industrial districts. Becattini (1990) popularized the term and defined the industrial district as a ‘socio- territorial entity which is characterized by the presence of both a community of people and a population of firms’. According to him ‘in the district, unlike in other environments . . . community and firms tend to merge’ (Becattini, 1990, p. 38). The main components of this model are: geographical and sectoral concentration of enterprises; cooperative competition; a socio-cultural identity which facilitates trust and active self-help organizations (Schmitz, 1995, p. 10). The process of globalization has intensified the pressure to develop global cities which can utilize resources at local, national, and global scales. In this context, industrial districts can act as nodes for globalization and economic development. Urban and industrial agglomerations reinforce synergies created by each of them. In China, they have become a central force underlying the emergence and transformation of the metropolises into global cities (Wei and Leung 2005).

SEZs are thus not a second best. They are the strategic policy tool to insert the domestic economy into the global economy and to enhance productivity of resources through knowledge spillovers, technology diffusion and demonstration effects by exploiting agglomeration economies (Aggarwal 2007). They not only reduce barriers to the flow of capital and trade, and intensify global competition, but can also be used as drivers of global-city formation.

3.2 Rationale of setting up SEZs : The Indian perspective

In the initial phase, SEZs were as industrial clusters of EPZ variety. They were set up in an import substituting regime with the objective of promoting export production and earning foreign exchange. The main attraction of operating in them was the fiscal incentives. Thus India’s early special economic zones could be seen as embodying the orthodox view.

Industrial and trade reforms initiated in the mid-1980s and accelerated in the early 1990s marked a shift from inward-looking to an outward-oriented (EO) trade regime in India. In an outward-oriented regime export growth is one of the key determinants of growth. Export growth is necessary not merely to offset the deterioration in balance of payments caused by import surge; its primary role is as a key engine of the process of industrialization, growth, and employment generation. An important policy question that faces the governments of developing countries therefore is how to

promote exports. In order to promote exports, the government of India initiated several new schemes and revamped the existing ones in the post-1991 period. In this regard, in 2000, the SEZ scheme was also upgraded through a revision in the Export-Import Policy 1997-2002. The Special Economic Zones Act was passed in 2005.

The SEZ policy was upgraded in the belief that this would address the supply side bottlenecks which affect investment climate adversely and be path breaking for the industrial dynamism that India needed. While the SEZs of EPZ variety set up in the import substituting regime focused only on fiscal incentives, modern SEZs offer various advantages including a single window clearance mechanism, world class social and industrial infrastructure, and a host of fiscal benefits, in order to ensure favourable investment climate and promote economic activity. The objective is not to attract FDI alone. It aims at attracting both foreign and domestic investment for exploiting the opportunities arising from both, off-shoring and offshore-outsourcing, and dynamism generated in the agglomeration of local and global firms. They offer a platform for global-local interface by clustering foreign and local firms which is likely to stimulate demonstration effects and maximize spillovers. Large comprehensive SEZs with social infrastructure are aimed at creating industrial districts and facilitating global city formation.

Setting up of SEZs has been synthesised with the development industrial corridors to promote agglomeration economies. The development of Delhi-Mumbai dedicated freight corridor (DFC) is underway. The Delhi-Mumbai industrial corridor will be of 150 Km width on both sides of the DFC covering 6 states : Up, Rajasthan, MP, Gujrat, Maharashtra, Haryana and Punjab. Several large investment regions, industrial hubs, SEZs, industrial towns and multi model logistic hubs are planned in this corridor. Each hub is to have world class infrastructure, business centres, transport facilities, and good connectivity. SEZs are thus a part of the agglomeration. They are expected to be benefited from these industrial nodes and are expected to reinforce them further.

In short, unlike EPZs, the current SEZ policy experiment can be viewed as a government launched initiative to create hassle free outward oriented industrial clusters/cities equipped with modern infrastructure with the objective of attracting both domestic and foreign investment to benefit from the opportunities associated with the global value chains and reap the cluster specific advantages

while promoting export oriented industrial activity. Thus, a synthesis of the three above mentioned theoretical approaches explain the current SEZ experiment in India. These are,

- the heterodox approach,
- the production network approach, and
- the agglomeration economies' approach.

Indian planners visualized the importance of industrial clusters as far back as in the 1960s. The Third five year Plan included a proposal for setting up 'industrial development areas' to promote industrialisation. The promotion of industrial estates has been an integral part of the industrial policy in India, since then. State industrial corporations were set up in each state in the 1960s to promote the process of industrialization by acquiring suitable tracts of land at focal points where good communications exist or can easily be developed and developing factory sites thereon. Table 3 provides information on the number of industrial estates developed and the area of land acquired by state industrial development corporations in selected states.

Table 3: Industrial estates* across selected states

	IT	Year of introduction	No. of industrial estates	Land (Hectare)
Andhra Pradesh	APIIC	1973	270	32932
Gujarat	GIDC	1962	166	26331 (2007)
Goa	GOa_iDC	1966	20	na
Karnataka	KSIIDC	1964	157	12400 (2006)
Maharashtra	MIDC	1962	229	60000 (2007)
Madhya Pradesh	MPSIDC			17482.6
Tamil nadu	SIPCOT	1971	74	9694 (2004)
Uttar Pradesh	UPSIDC	1961	155	16780 (2007)

*Excluding SEZs.

Source: Relevant websites

Over the years, the government has launched new varieties of industrial estates offering various incentives and concessions. These are for instance, growth centres, integrated infrastructural development centres; and integrated textile parks (SITP). The concept of private parks is also not new. The 'Industrial Park Scheme' was first introduced by the Government in 1997 to give impetus to infrastructure development. The scheme extends 100 per cent tax holiday on profits derived by an undertaking from the activity of developing, developing and operating, or maintaining and operating an Industrial Park. The scheme was revised in 2002 and was valid up to March 2006. A

new scheme was introduced in 2008. It provides a 10-year tax holiday under Section 80-IA of the Income Tax Act, 1961 ('the Act') to any undertaking that develops, develops and operates or maintains and operates an industrial park set-up during April 1, 2006 to March 31, 2009. Though no tax benefits are available to the units set-up in the industrial parks, they benefit indirectly in form of lower rent, higher FSI index, etc. Thus the government has been encouraging private developers to create infrastructure facilities for the industrial activity in the form of industrial parks, since 1997. State industrial development corporations are also entering into collaborations with private foreign companies to set up industrial estates. For instance, HSIDC has joined hands with Mitsui and Company India Private Limited to set up an integral industrial park; RIICO entered into MOU with JETRO to set up a Japanese industrial Park. Gujarat has been promoting privately owned industrial parks since the mid 1990s.

A variety of outward looking industrial estates have also been set up to promote export oriented manufacturing. These include, EPZs, EOUs, STPs, Bio Parks, and EIPs. In 1965, India was the first Asian country to set up trade oriented industrial estates termed 'Export Processing zones'. By 2000, there were 8 EPZs operating in India across 7 states. The size of EPZs and benefits offered, both, were limited. However, in 2000, EPZs provided employment to 94000 people and generated 5 percent of the total exports from India.

In 1991, the Department of Communication & Information Technology, Government of India introduced a Software Technology Park Scheme with the objective of encouraging, promoting and boosting the software exports from India. A software park may be a cluster of units or a single unit set up in the private or the public sector. They enjoy special benefits just as EOUs and SEZs/EPZs.

Bio Technology Park (BTP) can be set up by the Central Government, State Government, Public or Private Sector Undertakings or any combination thereof. Under the Foreign Trade Policy 2004-09 the Commerce Minister extended the export oriented units (EOU) scheme benefits to BTPs in the country.

A centrally sponsored 'Export Promotion Industrial Park' (EPIP) Scheme was introduced in 1993-94, with a view to involving the state governments in the creation of infrastructural facilities for

export oriented production. The Central Government has so far approved 19 proposals for establishment of EIPs.

SEZs subsume these varieties of export oriented industrial estates and, by allowing social infrastructure, they take the concept of industrial clusters (Marshallian industrial districts) forward to Becattini's industrial districts.

4. Economic benefits of SEZs : The Indian experience

4.1 Quantifiable (Static) benefits

The SEZ Act 2005 spells out the following objectives of the scheme:

- generation of additional economic activity
- promotion of exports of goods and services;
- promotion of investment from domestic and foreign sources;
- creation of employment opportunities;
- development of infrastructure facilities; and
- maintenance of sovereignty and integrity of India, the security of the State and friendly relations with foreign States.

Interestingly, all these objectives relate to static benefits of SEZs. It is therefore important to first analyse the performance of SEZs in terms of the primary objectives of the policy.

4.1.1 Promotion of economic activity

Investment and Employment

Direct employment and investment: As on December 2009, the direct employment in newly notified SEZs stood at 228,226 persons while the total investment was to the tune of Rs. 1,156,037.8 million. At the same time, economic activity in those SEZs that came into force between 2000 and 2005 also grew several times in terms of employment and investment. While their employment

increased five times from 12,468 in February 2006 to 61,225 (as on December 2009); investment increased more than 4 times from 17,563.1 million to Rs. 67,943.1 million. Interestingly, matured central government zones also witnessed a robust increase in economic activity after the Act was enacted. It is also interesting to note that incremental change in employment and investment during the 4 years time after the Act came into force was several times higher than that during the preceding five years (Table 4).

Table 4: Employment and Investment in SEZs in a comparative framework

	SEZs notified after Feb. 2006	Zones set up between 2000-05	Central govt SEZs	Total
SEZ Notified as on 10 feb 2010	348	12	7	367
Formal approval less notified:	223	-	-	223
In principle	147	-	-	147
Units as on 31 Dec 2009	573	945	1243	2761 (171.7%)
Units as on November 2006	Nil	154	862	1016 (43.5%)
Units in March 2000	Nil	Nil	708	708
Employment as on 31 Dec 2009	228226	61225	200907	490358 (264%)
Employment as on feb 10, 2006	Nil	12468	122236	134704 (59.3%)
Employment in March 2000	Nil	Nil	84545	84545
Investment as on 31 Dec 2009 (Rs. Mn)	1,156,037.8	67,943.1	59,869.6	1,283,850.5 (3081%)
Investment as on feb 10, 2006 (Rs. Mn)	Nil	17,563.1	22,792.0	40,355.1 (84%)
Investment in 2000 (Rs. Mn)	Nil	Nil	21,939.0	21,939.0

Source: MOC

Indirect employment and investment: In addition to direct investment and employment, SEZs create indirect investment and employment also by generating economic activity in the rest of the economy. Indirect employment and investment generated by SEZs can be measured using input-output coefficients. In general, SEZs, which are better integrated into the domestic economy, are likely to contribute more significantly to the rest of the economy than the SEZs that are isolated enclaves of production.

The SEZ potential of generating direct and indirect benefits may be gauged by ‘value addition’. The larger the component of value addition, the greater may be local sourcing of inputs, wages and even profit margins (as most producers are Indian) and hence economic activity in the DTA. Table 5 reveals that India’s zones are not characterised by low value added activities. During 2000-06 the

total value addition rate was 48 percent. Amirahmadi and Wu (1995) found that value addition by EPZs was 62% in Indonesia, 53.2% in South Korea and 49% in Taiwan. Apparently, the rate of value addition in the zones in India compares favourably with these countries that were successful in establishing backward economic linkages. This is despite the fact that policy obligations on value addition were done away with in the SEZ scheme (2000). In fact, the value addition rose from 42% during the 1990s (Aggarwal 2004) to 48% over the period 2000-2005.

Table 5: sector wise Value addition: 2000-05

Sector	Export (US \$ mn)	Import (US \$ Mn)	Net exports as percent of total exports
Chemicals & drugs	819.3847	232.4144	71.6
Electronics HW	2269.847	1806.509	20.4
Electronics SW	2413.87	308.5893	87.2
Engineering	964.0784	540.9952	43.9
Food	230.0963	27.62107	88.0
Gems & Jewellery	8315.363	5137.62	38.2
Leather	201.8	48.89	75.8
Rubber/Plastics	416.91	142.88	65.7
Textiles	1314.87	518.39	60.6
Misc	529.2	190.25	64.0
Total	17274.6	8969.14	48.1

Source: Calculations based on the data collected from DCs offices

There are variations in value addition across sectors (Table 5). However, value addition has been more than 50 percent in all the sectors except electronics hardware, engineering goods, and gems and jewellery. Low value added component in electronics hardware could be attributed to the fact that production in this sector is networked through international supply chains and that the local supply chains are not well developed in the country. The SEZ policy is likely to change the scenario, as we shall discuss later.

Since most newly notified SEZs are in nascent stages of development, export import data may not be comparable. However, Table 6 provides some insight into value addition done in these SEZs.

Table 6: Value addition in newly notified SEZs

SEZ	Sector	Export	Import	Vale addition per unit of export
Hyderabad gems	Gems & Jewellery	2.82	2.51	11.0
Divi lab	Pharmaceutical	468.01	106.15	77.3
Apache	Footwear	151.28	27.22	82.0
Jodhpur	Handicraft	55.3537	0.8744376	99.4

Source: DC Office, Vizag and relevant SEZs

Clearly the value addition component is rather high in most sectors. India is an emerging economy with a large industrial base. Therefore it has substantial absorptive capacity ensuring large potential spill over effects of SEZs. Furthermore, SEZs are dominated by domestic producers who are much better linked with the rest of the economy than the foreign producers. Evidence suggests that the backward linkages forged by foreign investors in SEZs are rather weak (Jenkins, 1997). This shows that the role of domestic capital in SEZs is rather underrated and that of foreign investment overrated.

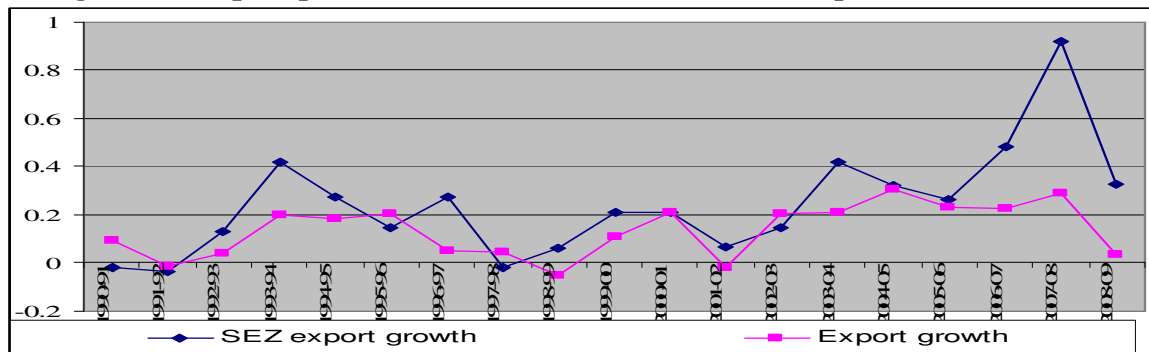
There are several other ways in which SEZs have augmented investment and employment in the rest of the economy. For instance, setting up of SEZs has created demand for physical infrastructure. This has stimulated not only the infrastructure industry directly but also the real estate industry. According to an estimate, the real estate sector is subservient to the development of over 250 other ancillary industries. A study by a rating agency ICRA shows that the construction industry ranks 3rd among the 14 major sectors in terms of direct, indirect and induced effects in all sectors of the economy. Furthermore, there has been increasing demand for financial and various other supporting services such as hotels, restaurants, tourism, transport, housekeeping, and security. These are non-negligible. Almost all companies in SEZs are providing subsidized food, free health services and transport services. Each SEZ has fire station, expansive landscapes, elaborate security arrangements, own administrative set up and a custom office. The Ministry of Commerce compiles information on employment generated *within* SEZs on account of the demand for peripheral activities and construction. This is termed as “indirect employment”. It stood at 2,20,506 as on 31 March 2008. In fact this is a fraction of total indirect employment generated by peripheral activities demanded in SEZs. Furthermore, all these activities generate not only employment (as the MOC has been highlighting) but also investment which is not quantified.

Induced investment and employment: By augmenting investment and generating employment outside the agricultural sector SEZs could be instrumental in generating additional incomes. Once additional incomes generate, there is increase in the demand for various goods and services such as housing, education, health, transport, banking, trading and so on. This in turn has a multiplier effect on investment, income and employment. The larger the value addition, the greater is the multiplier effect.

Promotion of Exports

Table 7 reveals that there has been continuous improvement in the export performance of SEZs since the SEZ policy was announced. However, it was the enactment of the SEZ Act that provided a major push to the SEZs’ export performance. The average annual growth rate of physical exports (outside India) zoomed to 92 percent in 2007-08.

Figure 1 : Export performance of EPZs in India over the period 1990-09 (US \$ million)



Source: Calculations based on the Ministry of Commerce and RBI data

Apparently, exports from SEZs rose much faster than from the domestic tariff area. The current global economic crisis the worst ever since the 1930s surfaced in mid-September 2008 with the collapse of Lehman Brothers on 23 September 2008 and took all the countries across the globe into its grip. The Indian economy could not remain resilient to its effects. The crisis which considerably slowed down India’s economic growth had ravaging effects on the export sector. This sector constitutes almost 23 percent of India’s GDP and generates large multiplier effects across the national economy. It was the first time in nearly a decade that merchandise exports recorded a single-digit growth of 3.4 per cent in dollar terms to touch \$168.70 billion over the previous fiscal’s US \$163.132 billion. Services’ export growth also crashed to 12.4% against 22% in 2007-08. In the crisis-ravaged external sector, special economic zones (SEZs), the most controversial industrial

clusters in the country, emerged as the only source of solace. Belying the predictions that the crisis would completely derail their future prospects, SEZs registered an impressive growth in export, investment and employment generation. Notwithstanding the fact that the SEZs have also been severely impacted by the crisis, their exports recorded an increase of 36.4% in dollar terms from \$16 billion in 2007-08 to \$22 billion in 2008-09. Of this, \$4.63 billion (21 %) was accounted for by those 91 SEZs that had been newly notified (notified under the SEZ Act 2005). This formed 2.7 percent of the total national merchandise exports.

They improved their performance in the first half of the current fiscal year (April-September). While national merchandise exports were \$77.9 billion down 28.47% from \$108.9 billion during the corresponding period in the previous year, SEZ exports already reached at \$18.5 billion level against \$21.9 in the whole of fiscal year 2008-09. Interestingly, the operational notified SEZs the number of which increased to 101 as on 30.09.09, accounted for 52.85% (\$9.8 billion) of the total SEZs export during this period.

Table 7: Export performance of SEZs : Sector-wise disaggregated analysis

Exports (US \$ Billion)	2008-09				2009-10 (April-September)			
	IT/ITES	Trading	Manufacturing	Total	IT/ITES	Trading	Manufacturing	Total
Central government SEZs	na	na	na	10.34	na	na	na	4.87
<i>Sector-wise share (%)</i>	<i>na</i>	<i>na</i>	<i>na</i>	<i>100</i>	<i>na</i>	<i>na</i>	<i>na</i>	<i>100</i>
SEZs notified between 2000-2005	0.41	0.00	6.55	6.96	0.22	0.00	3.62	3.84
<i>Sector-wise share (%)</i>	<i>5.87</i>	<i>0.01</i>	<i>94.12</i>	<i>100.00</i>	<i>5.76</i>	<i>0.00</i>	<i>94.23</i>	<i>100.00</i>
SEZs notified under the SEZ Act 2005	2.30	1.13	1.20	4.63	3.34	0.01	6.41	9.77
<i>Sector-wise share (%)</i>	<i>49.71</i>	<i>24.39</i>	<i>25.90</i>	<i>100.00</i>	<i>34.22</i>	<i>0.09</i>	<i>65.68</i>	<i>100.00</i>
SEZ exports	na	na	na	21.93	na	na	na	18.48

Source : Ministry of Commerce

Critics argue that IT/ITeS exports have remained the mainstay in SEZs' export performance and that these exports would have happened even in the absence of the SEZ policy. According to them SEZs export statistics creates an illusion that it is the SEZ policy that is responsible for *the increased exports*. However, sectoral disaggregation of SEZ exports does not fully support this argument. Despite the fact that most newly notified SEZs are in the IT/ITeS sector, trading and

manufacturing accounted for almost 50% of their total exports in 2008-09. In the first half of 2009-10, manufacturing exports from these SEZs increased almost 500% while IT/ITeS exports exhibited the growth of mere 55%. As a result, the share of non IT/ITeS exports in total exports from newly notified SEZs increased further to 66%. Clearly, once the economy is out of recession SEZs are expected to become a hub of manufacturing exports from India.

4.1.2 Additionality of economic activity

Many argue that all the activity generated in SEZs is not additional. There has been a large scale of relocation of existing units and diversion of new economic activity from non SEZ to SEZ areas. It is believed that rather than promoting new businesses, SEZs are merely attracting investment that would have been made anyway; and that instead of finding fresh sources of money for the infrastructure, the country is depriving itself of tax revenue. *Theoretically*, the location and relocation decisions are based on a complex set of variables. According to the location theory of investment, the most important location criteria are market access, transport costs, agglomeration economies, labour costs, availability of factors of production, infrastructure availability, proximity to research universities, and the quality of life (Fujita et al. 1999 for a survey of this literature). In addition, there are personal reasons, social and cultural factors, chance factor and opportunity. Tax breaks are far from being the most important factor when companies choose where to locate their facilities. Once the location decision is taken, firms enter into negotiation with suppliers, governments, labour unions and other institutions about prices, wages, taxes, subsidies, infrastructure, and other key factors in the production process of the firm (Pellenbarg, Van Wissen and Van Dijk, 2002). Therefore, firms are not likely to relocate on the basis of any short term consideration. Hayter (1997) argues that heavy sunk costs are involved in relocation. These costs comprise costs of dismantling, moving, hiring and training new labour, reconstruction of facilities etc. A recent study (Maariotti, 2005) on the role of financial aid schemes in fostering the development of backward regions in Europe reveals that government incentives do not seem to have played an important role in the location and relocation strategies of firms. India has a long history of offering tax benefits to promote backward areas. However, the policy has met with limited success.

Empirically, it is difficult to establish the extent of relocation/diversion. However we have assessed it quantitatively by examining the trends of industrial investment and units outside SEZs in the past

few years. While doing so, we examined the trends and patterns of IEMs, EOUs and STPI units and investment thereof. Figure 2a shows the actual number of IEMs implemented and a three years' moving average of the actual number of IEMs. The moving average evens out the fluctuation and brings out the trend in the number. Fig. 2b shows the actual level of investment from actually implemented IEMs and its trend. Figures 3a, 3b, 4a and 4b depict the actual number of EOUs and STPI units and their export growth.

Our findings are as follows

- There has been a continuous increase in the number of IEMs implemented. Total investment in IEMs declined slightly in the last year which could be due to recessionary conditions set in 2008 but increased in 2009 again.
- The number of export oriented units (EOUs) and their exports have been increasing continuously. In relative terms, the number of EOU units was lower in 2007-08 but it could be due to sharp increase in the growth rate in the previous years.

While the number and exports of STPI units have been increasing continuously, there has been visible decline in the growth of STPI exports since 2007-8. STPI units' growth rate also shows a downward trend *albeit* weakly. Relocation/diversion is relatively easier in the service sector. But SMEs in the service sector have little advantage in moving to SEZs due to the fact that they do not require large space and do not wish to get out of the city where they have operational advantages. Only large IT firms would find it easier to divert their investment. The decline in the export growth of STPI could partially be attributed to the expansion of large IT companies in the SEZ sector. However the role of recessionary conditions cannot completely be ruled out. Apparently, as of now, there is no evidence of structural break in terms of the number of units or the performance of non SEZ sectors.

Figure: 2 Number of IEMs implemented and total investment per year

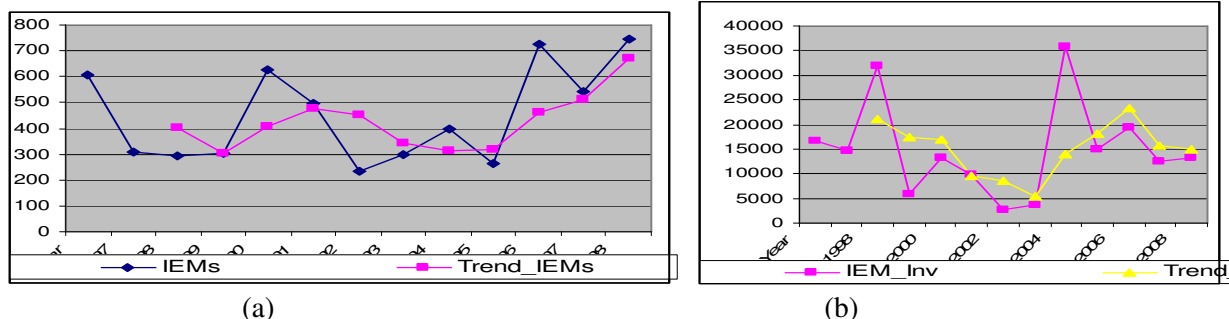


Figure 3: Growth in the number of EOUs and exports

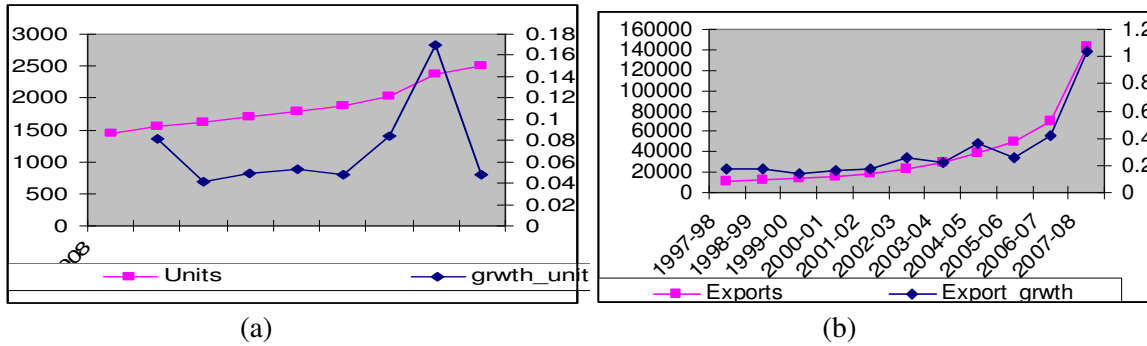
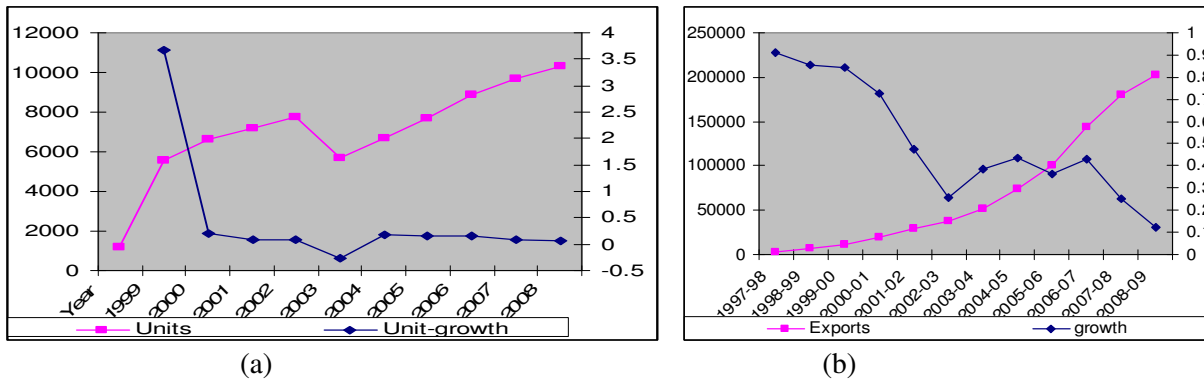


Figure 4: Growth in STPI units and exports



Source: Based on the data provided by the Department of Industrial Policy Promotion, Export Promotion Council for EOUs and SEZs, and the STPI

Firms enjoy substantial flexibility in doing businesses outside. Most firms, in particular, in traditional sectors such as textiles, gems and jewellery, food processing, and handicrafts sectors run their businesses in traditional ways with little paper work. The unorganized segment units in these industries are enjoying flexibility in doing businesses in terms of location, purchases and sales. Those in the organized segment also have established informal supply chains, as we shall discuss later. After entering into SEZs, they get exposed to new ways of doing businesses. Their paper work increases tremendously. They are subject to continuous surveillance and loose freedom of operation. Furthermore, labour standards are very strict in SEZs. Most firms find it costly and difficult to comply with these rules. Finally, duty drawbacks are a major attraction for units to work from outside the SEZs. While duty drawbacks available outside of SEZs are claimed on value addition, SEZs offer exemption of custom duties on the value of imports. Higher the value addition in a line of production, the greater is the duty drawback loss. Many SEZs including, Moradabad, Boranada (Jodhpur), and Food processing park (Kerala) are thus finding it difficult to attract units. Thus investment in SEZs is profitable only if

- firms plan large scale production or expansion with large resource requirement, and

- it requires sophisticated and risky technologies to begin operation.

Most firms during our interviews admitted that but for SEZs they would not have undertaken investment of that magnitude. Clearly, SEZs have proved to be instrumental in stimulating additional investments.

A pertinent question is whether additionality of investment important? The argument of additionality itself is over emphasized. The literature suggests that relocation of a company may not always be welfare reducing. The argument can very well be explained within the framework of ‘New growth theories’. The basic idea of growth in this framework is summarized by Romer (2007)⁸ when he states that ‘economic growth occurs whenever people take resources and rearrange them in ways that are more valuable’. SEZs, by rearranging the given investment may act as growth poles/nodes. Garcia-Mila and McGuire (2002) have argued that if there is potential for agglomeration economies then tax breaks to lure or retain businesses can be welfare improving and a positive sum game. Agglomeration-based tax incentives become more and more attractive when they induce other firms to come to the cluster. In that case, the optimal tax incentive includes both the direct effect of the first firm plus the indirect effects that work through the location of other firms. Glaeser (2001) has carried this argument forward. He argues that if agglomeration economies exist, tax incentives are almost surely necessary to get the efficient location of firms. “More generally, tax incentives will lead to efficient, not inefficient, location of firms if there are heterogeneous agglomeration effects across space”. Thus by diverting investment or motivating firms to relocate investment to agglomerations (clusters) tax incentive will have a net positive impact on investment. Setting up of a large IT firm for instance itself generates agglomeration effects which motivates new investment. The IT sector started taking off in Vishakhapatnam when some IT majors moved in the city. Presence of these IT majors attracted skilled labour and created externalities for smaller firms also. This motivated many small investors to undertake investment in the region. Agglomeration economies have a net positive impact on productivity and growth. If a unit in SEZ motivates upstream and downstream firms to locate/relocate their facility, it can augment local value chains and generate externalities. For instance, there has been substantial increase in investments in aerospace over the last 16 years in India. Large companies such as Honeywell Technology Solutions, GE's Jack Welch Technology Center, Airbus have emerged. New

⁸ <http://www.stanford.edu/~promer/EconomicGrowth.pdf>

JVs are coming up. These facilities are dispersed. If they are clustered in a SEZ they can generate spillover effects which may have significant effects on the growth of the industry and in turn, the regional economy. This will improve productivity of firms even *if there is no additionality of investment*.

4.2 Non quantifiable(dynamic) benefits

In a large economy such as India, zones need not be evaluated in terms of their static contribution to foreign exchange earnings, employment or investment. The share of SEZs in exports/ employment does not set standards for the benefits that SEZs may generate (see, Baissac 2003 for discussion). What is of primary importance is the role that they play in stimulating structural change in the economic activity relocating resources from low value added to high value added sectors and thus imparting dynamism to the economy. In almost all the East Asian countries where zones proved to be successful engines of growth, the share of SEZs in national exports had been 5% to 6% (Madani 1999, Ahmadi and Wu 1995). Even at the height of their influence, SEZs never acquired a prominent role either in terms of exports value or employment creation in S. Korea or Taiwan (Madani 1999). Zones helped these countries in achieving sustainable long-term growth by diversifying them into high-value-added manufactured goods (Rhee and Balot 1990, Haywood 2000). While too much emphasis has been placed on the magnitudes of employment and investment in India, what is more important is the effect of SEZs on industrial restructuring and competitiveness, which are the ultimate objectives of SEZs. Most of these objectives are non quantifiable.

4.2.1 Structural shift in the economy

Economic growth is intrinsically linked to changes in the structure of production. Overall productivity increases are mainly the result of the reallocation of labour from low- to high-productivity activities. In India, a large chunk of population in the country is still trapped in agriculture- a low productivity sector. This is because there are no alternative employment opportunities. Due to heavy and increasing population burden on the land, land holdings in most parts of the country are small and fragmented making agricultural practices economically unviable. In an interview a developer who acquired land in Haryana informed that acquisition of 1100 odd

acres of land by him involved 2200 registries signed by 18000 owners. Land man ratio has thus turned very unfavourable. The per-household average area of land owned in the rural sector for the year 2003 (NSS, 59th Round) came to 0.725 ha, about 27% less than the corresponding figure in 1992. Poorly maintained irrigation systems and almost universal lack of good extension services add to the woes of farmers. Farmers are caught in a vicious cycle of low-productivity and poverty. The relative productivity of workers in agriculture is only one fifth of those in non-agricultural occupations and has declined from 26 per cent of non-agricultural productivity in 1972-73 to 20 per cent in 2004-05 and, of the 89.33 million farmer households estimated in 2003, 43.42 million or 48.6 per cent were found to be indebted. It is therefore important to promote economic activity outside agriculture and wean away labour from agriculture to other sectors. SEZs can be instrument in this shift from a low productivity sector to a high productivity one. This would not only improve overall productivity of the country but would also affect productivity of agriculture by raising the land man ratio in the country.

4.2.2 Diversification of exports:

While accumulation of capital is the key to economic development, the structure of investment is also important. Sustained reallocation of labour from low- to high-productivity sectors is crucial in order to create and sustain the competitiveness and growth of the economy. In most East Asian countries, the government aggressively pushed the diversification of the economy. For instance, in the early 1950s, Japan had a disadvantage in producing capital-intensive goods. The Japanese government adopted a policy of fostering particular industries for rebuilding and modernizing the industrial sector. Basic capital-intensive industries such as steel, chemical, and shipbuilding were initially assisted, followed by knowledge-intensive sectors (Grossman, 1990). Newly industrializing countries followed a similar approach. Several different policies including SEZs were used, which led the country to a high growth trajectory. SEZs therefore emerged as a device to promote diversification of industrial activities. As discussed above, second and third generation SEZs are associated with more advanced technology, skills and higher learning possibilities that, in turn, may produce dynamic externalities for creating new paradigms and industries. The composition of economic activities in SEZs therefore, has an important implication for their economic impacts. Table 8 presents a sector-wise composition of SEZs in India. It shows that the SEZs of different generations are co existing in India. While Apache in Andhra Pradesh, Cheyyar in Tamil Nadu,

Brandix in Andhra Pradesh, and Apparel Park in Gujarat are the prominent examples of labour intensive low tech first generation SEZs; IT, auto components, electronic components, gems and jewellery, and metal fabrication are skill intensive second generation SEZs; and biotech, pharmaceuticals, and petrochemicals are high tech third generation zones.

Table 8: Sector-wise composition of SEZs

	IT	Other services	Electro	Bio/phar	Eng	Petro Chem	Power /port	Tex/leathe	Fo od	Gems & jew	MP
AP	38	2	2	5	1			4	1	1	3
CH	1		1								
GJ	7		1	2	5	1	1	2		1	4
GOA	1			2							
HR	18	2		2	2			1			
JH	0				1						
KL	4		1				2		1		
KN	16		1	3	2	1		1	1		
MH	21	1	1	6	2		1	1	2	1	2
MP	3				1						
ORS	2				2						
PB	1			1							
RJ	2		1					2			
TN	26	1	6		4			5			
UT	2										
UP	14		1		1						
WB	7		1								
Total	163	6	16	21	21	2	4	16	5	3	9
% of	61.3	2.26	6.02	7.89	7.89	0.75	1.50	6.02	1.8	1.13	3.38

Source: MOC

These SEZs are expected to promote not only horizontal but vertical diversification as well. Horizontal diversification takes place when new industries are created while vertical diversification happens when new products are produced within a given industry category. Several new industries are being promoted in these SEZs. Some of them are discussed below.

Electronic manufacturing service industry (EMS):

The EMS industry consists of companies that are hired by Original Equipment Manufacturers (OEMs) to produce electronic products on contract basis where the OEMs own the designs and Intellectual Property Rights (IPR). Countries like Taiwan, Korea, Malaysia, and of late, China, have become significant players in the world. Presently, these 4 countries account for 20 per cent of the global electronic equipment production and are exporting worldwide. Development of the EMS

industry needs scale, well developed logistics, and infrastructure. This is because high inventory turnover is essential for a competitive and profitable EMS industry, as 85-90% of the costs of an EMS company are tied in materials. OEMs prefer to develop 'Integrated Industrial Parks' in low cost regions to maximize the advantages of global, large-scale, high volume capabilities. Products in these parks can be produced on site and shipped directly from the Industrial Park to the end users, greatly reducing freight costs of incoming components and outgoing products. SEZs offer cheap land, a good investment climate and tax incentives for the industry to grow. SEZs have therefore been the major drivers of the growth of this industry in all these countries.

India has become one of the fastest growing markets for electronic manufacturing services (EMS) in the world. However, over 95 percent of the demand for electronic components has been met by imports which incur high freight and logistics costs. There are very few world-class electronic component manufacturing and supply facilities in India. The SEZ policy has proved to be a driver not only for contract manufacturers but also for OEMs to set up their facility in the country. SEZs set up in Sriperambudur-Oragadam corridor have poised to become manufacturing hub for the industry. Capital investments committed by companies in this corridor have touched Rs 33,000 million, which is half of the country's EMS business. It has attracted many big EMS and original design manufacturers such as Flextronics, Sanmina-SCI, Solectron and Wintek. There are three types of operators coming up in this corridor.

- One, the OEMs like Nokia (Nokia SEZ), Motorola and DELL (SIPCOT high tech SEZ).
- Two, the EMS companies, such as Flextronics (SEZ) and Foxconn (SIPCOT SEZ) who supply to OEMs around the globe.
- Three, the component suppliers who work either with the OEMs or the EMS, such as Velankani SEZ

Nokia SEZ: the 210-acre Nokia Telecom SEZ at Sriperambudur near Chennai, has so far invested about \$285 million, close to double the original investment commitment of \$150 million made in early 2006 for the subsequent four years, in the Sriperambudur unit, which employs about 18,000 people. Typically, materials account for 80-85 per cent of the total costs. Companies like Nokia, therefore, prefer to either have their vendors within the same compound (as is evident in Sriperambudur) or manufacture in locations where it is logistically easy to source components.

Currently it houses six-seven global component suppliers close to the Nokia factory. The company has a supplier base of about 20 component makers. It intends to bring in more vendors and strengthen the tier 2 supplier base in India to sustain the momentum and achieve better cost efficiencies. It exports about 50 per cent of its production to about 60 countries in South East Asia, West Asia, Australia and New Zealand while the rest of the production is sold in India. As of October 2008, the cumulative mobile handset production volumes stood at 200 million units by the unit.

Flextronics SEZ: Spread over 250 acres of land, Flextronics has developed 75 acres of land. Of the total land, 45 acres is for the non processing area. The SEZ was notified in March 2006. By November 2006, it started manufacturing. Total turn over of the SEZ was US\$ 80 million in 2007-08. It is expected to be \$90 million in 2008-09 against the target of \$120 million. Of the total turnover, DTA sales constitute 80 percent while 20 percent is the exports. The company has several facilities across the globe. In China alone they have developed 13 facilities with two large industrial parks.

SIPCOT High tech zone: The SIPCOT SEZ developed by the Government of Tamil Nadu on 571.5 acres is fully operational. Overall, 15 LOAs are issued. While 50 acres of land is allotted to DELL, Foxconn and Motorola occupy 151 and 60 acres of land, respectively.

DELL had set up call centres at Delhi, Hyderabad, Bangalore and Mohali. After the introduction of the SEZ policy, it put up a manufacturing plant at Sriperambudur. The first export consignment was sent on 31st July 2007 to Infosys. In 2008, it started notebook manufacturing. Earlier, India's markets were being served from Malaysia which involved a delivery lead time of 20-21 days. Local production cut down the delivery lead time. Currently 100 percent exports are directed to the domestic market, which are of import substituting nature. But soon exports to SAARC countries will start from this location.

The Motorola plant, set up at an investment of Rs 1720 million started manufacturing on 26th April 2008. It can produce 12 million mobile phone handsets and 6,500 base terminal stations and is Motorola's largest plant outside the US. Prior to this, it had set up 12 call centres in India. After the SEZ policy was introduced in India, they decided to make India their manufacturing base as well. The unit has provided direct employment to 600 people. Indirect employment is roughly 150. Total

exports were to the tune of Rs 2000 million during the past fiscal year. Of the total exports, 85 percent served the DTA. In all, 4 million units were produced. They have closed down their units in Singapore and Germany after setting up base in India.

Velankanai SEZ: The Velankani Park, an upcoming SEZ, will house a 5 million-sq. ft manufacturing facility for a set of 20 global telecom suppliers (see 'Feeding into the System'). The Velankani Park is the only SEZ which will offer a plug & play facility in Sriperambudur for companies to have a hassle free experience in starting operations. All basic infrastructures like power, communication, water, sewer and storm water drains will be provided by Velankani to meet the present and future requirements.

Hi-Tech SEZ Oragadam: It is being set up in an area of 347.66 acres at Oragadam Industrial Growth Centre, Kanchipuram District for Electronic/ Hardware and related Support services to complement the Velankani Park

According to an estimate, Sriperambudur units would provide employment to 100,000 people in the next two years. Growing annually at a rate of about 30 percent, Frost & Sullivan studies estimates suggest that the EMS industry in India will grow from \$900 million in 2005 to \$2.5 billion by 2010 while the global industry will touch \$40 billion. These companies are working on thin margins and large volumes. With the growing markets in India, most companies would like to move to India to save on freight charges and delivery lead time. There is thus huge scope for expansion. Estimated savings of over US\$ 2.18 billion in imports is expected, if manufacturing units for handsets are set up in India. Setting up of SEZs has provided them a platform for entering the market.

However, the performance of these SEZ has been much below their expectations. The existing companies are facing problems on account of the lack of complete supply chain in the country, duty free imports from China, below-expectation growth of demand due to low IT penetration, and slow growth of social infrastructure in the surrounding areas. Jabil a key component vendor to Nokia, a 12.8 billion US based company has closed down its operation in Nokia and shifted its base to China. The company had invested \$100 million in the new facility and had employed 600 odd workers. It is therefore important to address these constraints to reap the full benefits of SEZs. According to the

officials, imports from China are cheaper than the local production. If India is to promote the industry and exploit this opportunity, it needs to

- promote the local IT industry to create demand,
- augment local supply chains, and
- introduce an offset policy requiring the use of local components.

Aerospace industry:

The global market for aircraft maintenance, repair, and overhaul (MRO) services is growing. It is driven not only by the number of aircrafts but also because airline operators are demanding for more rapid turnaround times on MRO services in order to keep their planes in the air. In-house maintenance is also giving way to more outsourced work as airlines focus on their core business of passenger transport. Major MRO service providers are global in scope. The developed countries have a strong existing base of MRO activity with a sizeable number of airlines operating from these countries, and a flexible labour force. However, rising wage rates and the shortage of skilled maintenance engineers has posed a downside risk to investors. MRO outsourcing opportunities are therefore pouring into Asia from Europe and the US. Global and western companies are increasingly planning deeper investments with Asian partners. Countries such as Malaysia and Singapore are slated to be potential global hub of this industry due to the facilities that they have created and the availability of skilled labour force. One quarter of Asia's MRO activities are based in Singapore, and in the past decade, its aerospace sector has enjoyed an annual compound growth of 12%, according to the International Civil Aviation Organization.

The MRO market in India is presently worth a relatively small \$405 million, even though it has the potential to grow to \$1.6 billion by 2018 Industry. Several companies have already set up their centres in the country. However there are fiscal concerns. Repairs undertaken outside India do not have any service tax or value added taxes applicable to them, while those in India do. The SEZ law that provides attractive fiscal benefits for developers and manufacturers is expected to promote India as an aerospace and MRO destination.

Belguam SEZ : A 300-acre area promoted by Quest Global, near Belgaum in rural north Karnataka, has become the country's first aerospace SEZ (special economic zone). It hosts a couple of its

subsidiaries and two other companies. It was started with an initial investment of Rs 1500 million in collaboration with North American copter major Textron. Quest already is in the supply chain for Airbus A80 and A350 that is due in 2013; provides landing gear shackles for Boeing 777, 787 and 737 aircraft programmes through its partner, Magellan — a Boeing and Airbus supplier. EADS, Rolls-Royce, GE Aviation, Toshiba and UTC are among its clients. T It is expected that the SEZ will create more than 7,000 jobs for local talent and infuse \$500 million (in)to the economy in ten year.

Adibhatla SEZ : Another aerospace and precision engineering SEZ is taking shape in Andhra Pradesh at Adibhatla, near the Hyderabad international airport. To be spread across 351 acres, the Andhra Pradesh Industrial Infrastructure Corporation Ltd (APIIC) has identified the land. The focus areas of the SEZ include manufacturing of defence, aerospace and commercial aircraft components, testing and calibration labs, high precision metrological labs operation, a commercial MRO and flying training hub, design and development of satellite missiles apart from the common facilities. Apart from this, engineering services, an avionics systems repair and supply chain management is also facilitated. Concordia University of Canada has decided to set up an aviation-focused university in the SEZ. Though the foundation stone was laid in 2008, the progress is extremely slow. According to the officials, it will take 5-6 years to develop it. Recession has majorly affected the investment plans. Further, the service tax fiasco may also hit these SEZs adversely.

Solar energy:

The solar energy demand has grown at about 30% per annum over the past 15 years. Globally, the year 2007 installations are around 3 GW; in 2010 it is predicted to be more than double. World-wide shipments of solar cells to companies that install rooftop solar-power systems and build fields of solar panels for commercial energy production grew 85% to almost 6 GW in 2008, according to research firm Collins Stewart LLC. Turnover in 2006 was \$16 billion globally and is expected to rise to \$65 billion in the short span of about 2013; Japan is the largest net exporter of the solar energy and accounts for 30% of the total market. Other major producers are the USA, Germany, Italy, and China. India right now has a very small percent of this market. In spite of having immense potential, solar (energy) has not been able to take off in India because of expensive installation

costs. The SEZ policy has now facilitated expansion of this industry in India. Some of the SEZs in solar energy are as follows.

Moser Baer SEZ: A solar photovoltaic panel SEZ was set up in Noida in 2007 with the help of 'Applied Materials Inc.' USA. This is the world's first generation (Gen) 8.5 Thin Film Solar Module Production Line with the 60MW capacity. It is manufacturing photovoltaic solar modules using ultra-large 5.7m² substrates (2.2m x 2.6m). These glass panels, which are four times bigger than the largest solar panel substrates, are expected to drive down panel production costs and help reduce the overall cost of solar electricity. A thin film solar process has the theoretical advantage of being significantly cheaper than most solar processes. Moser Baer ended 2007-08 with revenues of more than Rs 20,000 million. Thin film photovoltaic panels present ample room for further development and deployments since 90-95% of the solar panel demand is currently met by crystalline silicon. "According to market figures, the thin film based solar modules market is expected to reach a size of five billion dollars globally by 2010 with a demand of 2 GW," Puri said⁹. In addition there are two more units in the SEZ: one manufacturing solar cells while another supplying gas to its thin film plant, making it a vertically and horizontally integrated park.

Fab city: Fab City is the 'biggest SEZ for semiconductor manufacturing in the country'. SemIndia, Signet Solar, Titan Energy, Solar Semiconductor, and Moser Baer among others are in the process of executing their Fab City projects. "We have already allotted 600 acres out of 1,000 acres to 23 companies and by the end of 2009 the investments will be worth more than Rs 10,000 million," said the Andhra Pradesh Industrial Infrastructure Corporation (APIIC) managing director, Mr B.P. Acharya. The first export consignment from Fab City, comprising solar photovoltaic (PV) modules, worth Rs. 20 million was flagged off on Feb 26, 2009. The modules were manufactured by Solar Semiconductor Pvt Ltd., which has invested more than Rs. 2000 million in phases one. It has the capacity for 120 MW module production and 60 MW of PV Solar Cells. It proposes to spend more than Rs. 4000 million on expansion in the current fiscal and envisages an overall investment of Rs. 11,000 million over 10 years. Solar Semiconductor Private Limited completed the unit with an investment of Rs 6500 million. Three more units taken by XL Telecom, KSK Energy, SemIndia-AT&T and Surana FAB, each with investment to the tune of Rs 10,000 million, are in different

⁹ As quoted in a blog at http://thefraserdomain.typepad.com/energy/2007/03/moser_baer_to_b.html

stages of completion. The SEZ does not yet have electricity¹⁰. Companies have their own power generator which increases the cost of production. Global recession has hit the industry and the plans of the companies very adversely.

Wind mill

Suzlon SEZs at Coimbatore Varodara, Mangalore and Kandla: It is a highly investment intensive industry and has huge employment potential. A wind turbine has 20 separate component parts. As a rule of thumb, every 1000 MW requires a \$1 billion investment in rotors, generators, towers and other related investments. Investment in new wind creates a demand for all of the components that make up a wind generation. According to a recent analysis done by the Renewable Energy Policy Project (REPP) for a proposed Renewable Portfolio Standard in Pennsylvania, every 1000 MW of wind power developed creates a potential for 3000 jobs in manufacturing, 700 jobs in installation, and 600 in operations and maintenance. (REPP 2004). Both the US and Europe are giving major thrust to this industry.

To promote the industry, the government of India has also been offering a package of incentives which includes tax concessions such as 100% accelerated depreciation, tax holidays for power generation projects, soft loans, customs and excise duty reliefs, liberalised foreign investment procedures, etc. Though local production base for wind turbines now exists in India, with 15 manufacturing companies active in this sector, Suzlon alone captures 50% of the market. With a capacity of just 3 MW at the end of 2007, it supplied over 6,000 MW the world over. In 2006, Suzlon acquired Hansen Transmissions of Belgium. The acquisition of the world's second leading gearbox maker has given the company manufacturing and technology development capability for wind gearboxes, enabling an integrated R&D approach to design ever more efficient wind turbines.

The SEZ policy has given an opportunity to set up an integrated production facilities for manufacturing wind turbine generators and related components within one park. Suzlon Energy Ltd is setting up a SEZ with planned investment of Rs 40,000 million in Suzlon Infrastructure's SEZ for the hi-tech engineering sector at Palladam near Coimbatore. This zone would attract units engaged in manufacturing gear rotor shafts, gear wheels and others and would produce the entire range of components that go into the production of wind turbine generators. Suzlon Energy

¹⁰ At the time visits were made for the study.

subsidiary SE Forge is setting up one of the largest foundry and forging capacities in the world with an investment of about Rs 1000 million within the SEZ. While Suzlon would invest Rs 1550 million to develop this zone, it is confident of attracting an investment of close to Rs 8500 million in this SEZ, once it is developed. Spreading over 101 hectares, the SEZ will employ close to 1,000 people.

The plans are adversely affected in the wake of the global financial crisis and dwindling orders from its main markets — the US and Europe. Suzlon was planning investments in three other SEZs — at Kandla in Gujarat to manufacture tower equipment, a forging facility at Baroda, a wind turbine and a rotor blade manufacturing unit at Mangalore. An integrated manufacturing facility in Karnataka's Mangalore is already completed. Varodara is also functional. However plans at Kandla are put on hold.

Bio tech:

This is one of the priority industries in most countries of the world. Most bio products are patented and are exported by the US at exorbitant prices. In a few years they will be off patents and India may develop generic markets. With this view, the government has been trying to develop the manufacturing capabilities in India. However, this industry is scale and technology intensive. Initial investment of 200-250 crs is required to generate viable scales. The gestation period is long. Finance is a major constraint for the development of the industry. It requires continuous supply of power and water. It generates heavy effluents. It is highly R&D intensive and is subject to tight regulation by the WHO and the developed countries. Planting this industry in a developing country setting requires huge efforts. Furthermore, the industry requires a variety of industry-specific infrastructure including, steam to kill virus (boiler), deep freezer, cold storage, gas reserves (nitrogen, LDO, ADO), power generation, and environment protection infrastructure. SEZs which allow clustering of firms offer an ideal location for this industry to economise on the cost of creating this infrastructure. Bio parks are being set up in Maharashtra and Andhra Pradesh.

Serum biopharma park: SERUM Institute of India (SIIL), the Rs 6000- million vaccine manufacturer, set up the country's first biotech SEZ in Pune. The Rs 12,000- million project, spread over 55 acres, it is expected to be ready by 2010. It will house players other than Serum's own production facilities. A Special Purpose Vehicle (SPV) has been created for the purposes of investment in the Park which will develop the infrastructure there. This could also include a captive power plant. The Poonawalla group holds a total of 150 acres land which was their stud park. A part

of this park is converted into SEZ. Serum Institute of India was founded in 1966 with the aim of manufacturing life-saving immuno-biologicals, which were in shortage in the country and imported at high prices. Currently it has four domestic units. In 1994-95 the company started export of vaccines to UN agencies. Today, the company has 3 EOU units. It is exporting to over 140 countries; It is recognised as the largest producer of Measles and DTP vaccines in the world.

The SEZ, located at Hadapsar, adjoining Serum Institute's existing manufacturing unit, will facilitate the growth of the niche biotechnology industry by ensuring economies of scale and giving much needed support to research and development. The zone is functional. Three units are being developed. One unit would manufacture vaccines for pneumonia, rotavirus, and combination vaccines for the entire range of meningitis, influenza and Hib (penta valent). Another unit is exporting anti-cancer products to the US and EU markets. Ten to twelve products are identified and the premises has already been pre-qualified by the World Health Organization. The third unit is an R&D unit. It is developing 13 new products. It is developing pneumo-cocaine vaccine for rota virus, a cellular prothesis for cough which has until now being imported.

R&D is a crucial growth driver of this industry. Earlier, the company focused on adaptive R&D but now in SEZ its R&D unit it is conducting original R&D in collaboration with government institutions such a NIV and NCC. R&D activities are time consuming. There are three phases of clinical trial only. The WHO requires large scale clinical trials even for R&D. It was reported by the company sources that the R&D unit might not generate NFE in five years. It needs to be exempted from tax payment altogether or for ten years. This would greatly facilitate the growth of the industry.

Sports shoes:

Sneaker companies began manufacturing in the United States and Germany, passed through Japan, Korea, and Taiwan, to its present day central areas of China, Indonesia, and Vietnam. A large amount of new capital has been pumped in these countries, generating employment and upgrading their manufacturing expertise. Despite low labour costs India could not insert itself in the value chain due to poor investment climate. The SEZ policy in India has however presented a low cost hassle free platform for the production of sports shoes in the country. Two sports Shoe SEZs are already functional.

Apache: The authorised manufacturer of Adidas sports shoes, Apache Footwear has set up a manufacturing facility at Nellore in Andhra Pradesh with an investment of Rs 5000 million. This is Apache's first plant in India. Based in Southern China, Apache produces 1.2 million pairs of sports shoes for Adidas annually in its two units and employs 18,000 people. Apart from sports shoes, the company also offers a wide range of clothing and sports apparel, golf accessories and others. The state government has provided 314- acres of land to the company for the facility. Nearly 5000 workers are employed by the SEZ from nearby villages.

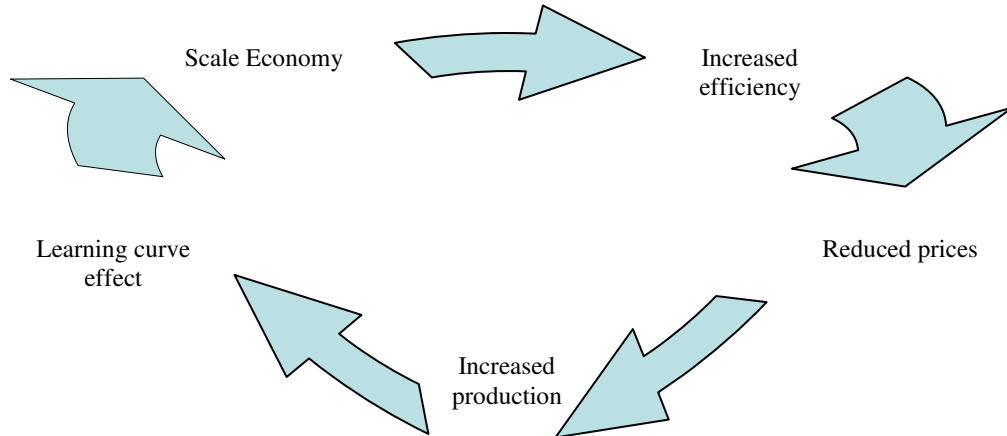
Cheyar: Following Apache, footwear SEZ is set up in Cheyyar, Tamil Nadu by a Taiwan based company “Lotus”. It is a manufacturing arm for Nike. Thus the policy has brought the world’s largest sport shoe company to the country. It employs 2200 people in the first unit that it has set up. Construction of other units is in progress.

4.2.3 Scale advantage and SEZs

For years, government policies in India discouraged large scale production through tight industrial policies. In 1991 licensing abolished and expansion was allowed. However capital market rigidities, constraint on land availability and labour market rigidities did not allow large scale production. In this scenario, SEZs have become a potential tool to promote large scale production. Availability of space, single window clearance, good infrastructure, facility to borrow from OBUs, and direct and indirect tax incentives have facilitated large scale production in SEZs.

‘Economies of scale’ is considered as a core determinant of competitiveness in the literature of growth. It is associated with the possibility of: (a) introducing labour specialisation; (b) translating high fixed costs (equipment or R&D) into low unitary costs; (b) benefiting from the increasing returns associated with learning and the creation of knowledge; and (c) overcoming indivisibilities or pecuniary externalities associated with increasing return technology (Murphy, Shleifer and Vishny 1989). Thus, whether it is a classical theory of labour specialisation or the endogenous theory of innovations and learning, the role of large scale production is considered crucial in enhancing competitiveness. The theory of Virtuous Circle suggests that the larger scale leads to more learning and innovation, and these together lead to more and cheaper production, starting the cycle over (Figure 5).

Figure 5: Virtuous circle in macro economics



China's emergence as world factory has exerted serious pressure on many industries world wide, especially in labour intensive manufacturing. Markets all over the world are flooded with Chinese products. The fear of Chinese competition reflects in the number of anti-dumping cases imposed on China. According to experts China scores on two points: scale and the government support. SEZs have facilitated large scale production on Indian soil also. Some of the classic examples are as follows.

Apache: The scale of apache in Tada, Andhra Pradesh is currently smaller than its facility at Guangdong in South China, where 18,000 people produce 1.2 million pairs of Adidas shoes every month. The company currently has around 5000 employees but it is planning to increase employment to 30,000 which is significantly larger than the China facility.

Cheyar: Similarly, the Lotus Company has set up large facility in Cheyyar Tamil Nadu which would give employment to nearly 20,000 people. However, in view of the problem being faced by SIPCOT in the land acquisition process in nearby areas, a top official of the company expressed fears that 'the creation of a large hub of employment might not be a good strategy in India'.

Jamnagar: The Jamnagar EOU (now a DTA unit) refinery of RIL was number three behind Venezuela's Paraguana and South Korea's SK Corp. However with the setting up of the SEZ refinery, it has emerged as the world's largest single-location refinery with the combined refining capacity touching 1.2 million barrels per day, 5% of the world's capacity. American major Bechtel is serving as engineering, procurement, construction and management contractor for the project

while the technology is sourced from global majors such as Exxon Mobil and Foster Wheeler. The total SEZ project is worth nearly Rs 270,000 mn. Furthermore, the SEZ refinery boasts of Nelson complexity of 14. It means that it will be able to process much heavier and higher-sulphur crude than any other refinery in the world. Nelson complexity is a scale that measures the ability of a refinery to process various kinds of crude oil. The refinery will produce petrol and diesel, compliant to Euro-IV emission norms. It is therefore not only the largest and the most complex but will also be the largest suppliers of clean fuels to all global markets. The company will leverage the competitive advantages of scale, complexity and capability to process a wide range of crude oils and flexibility to produce high quality transportation fuels. The RIL has production capacity of 5,80,000 barrels-per-day of fuel products.

A captive power plant is set up to meet the energy needs of its 5,80,000 barrels per day (bpd). Reliance Petroleum Ltd (RPL) has sought permission from the Centre to export surplus power generated from its Jamnagar SEZ and sell it in the domestic tariff area (DTA). It is a multi product SEZ and apart from the refinery, polypropylene plants will also be set up. The SEZ is facing holdup problem in the land acquisition process which has slowed down its progress.

Moser Baer : This SEZ unit will be the world's second largest such unit after Phoenix, a US-based company. MBPV generates electricity at less than Rs15 a kilowatt-hour, or unit, which it expects will drop to under Rs 5 each unit in three to four years. The Noida unit will make equipment capable of generating 60 megawatt of power just behind "First Solar's" 250MW capacity today that is being ramped up to 1 giga watt.

4.2.4 Augmenting existing clusters and industrial estates

Some of the SEZ-active states are using SEZs for augmenting their existing industrial estates and industrial clusters. Theoretically, industrial estates and industrial clusters are two essentially different concepts. While industrial estates are induced clusters created by the government where firms may or may not be functionally related, industrial clusters are natural concentration of firms which are functionally related. The emergence of industrial clusters is shaped by the availability of local resources and entrepreneurship. The levels of cooperation and trust are likely to be higher in industrial clusters than in industrial estates. But this does not ensure self propagating dynamism of

clusters. For both, clusters and industrial estates to be dynamic, it is necessary to create opportunities for mutual learning, and innovation. In today's increasingly knowledge intensive and globalised world, inward looking clusters and industrial estates are facing serious challenges in terms of technology flows, skill, environment, and quality control. These inward looking clusters/estates may be augmented by the presence of outward looking clusters in the close proximity. Our field visits revealed that SEZs have emerged as a critical component of cluster and industrial estate promoting strategies of the state government. In some locations SEZs are set up to augment the natural industrial clusters. For instance, in Gujarat, Zydus, Dahej, Jamnagar, and Jhagatia SEZs; in UP, Moradabad; In Jodhpur, handicrafts; in Jaipur, gems and jewellery SEZs have been developed, tying the development of local industry to outward oriented SEZs. On the other hand, there are cases where SEZs are being promoted as part of the promotion of existing industrial estates. There are no natural clusters there. To create synergies with industrial estates, a part of an industrial estate is designated as SEZs. In Kerala, food park, and animation and gaming SEZs; in Andhra Pradesh, APIIC SEZ in Genome valley of Medak; and Ramky SEZ in Jawaharlal Nehru Pharmacy, Vizag are set up to create synergies between domestic market oriented and outward looking enterprises for the promotion of agglomeration economies with technological incubator and innovational centers. These synergies, drawing on both local production systems and global resources would enhance regional competitiveness. The case of Bio SEZ in Genome valley may be used as an example to elaborate this point. The Genome valley is being promoted by the Government of Andhra Pradesh. The area is being promoted as a cluster for biotech research, training and manufacturing activities, and incubator. The ICICI knowledge park in the valley hosts several research institutes. It provides world-class infrastructure facilities to over 100 biotech companies. There have been 34 resident companies in the Park so far. Setting up of SEZ in the park would have mutual reinforcing effects on both, the SEZ and the rest of the park.

4.2.5 Geographical diversification of industries

There are several instances where SEZs are being created as industrial estates to promote new industries and diversify the economic base. The Sriperambudur - Oragadam belt in Tamil Nadu, Jamnagar in Gujarat, and IT corridor in Sri Ranga Reddy district are the classic examples here. Tamil Nadu is known for its engineering base. However the state is now taking the advantage of the SEZ policy to create a hub of highly R&D intensive electronic industry. It has been developing the

Sriperambudur - Oragadam belt, which covers a full spectrum of different tiers of suppliers in the supply chain network. It is being developed as a high tech electronic corridor of India's SEZs.

Jam Nagar was earlier known as the 'Brass City' housing more than 5,000 large scale and 10,000 small scale units manufacturing brass items but the Jam Nagar SEZ transformed it into a high tech petro chemical hub.

Sri Ranga Reddy district in AP has a large barren and rocky tract of land. It is being promoted by the State government as IT hub using the SEZ policy as an economic device.

Surat is known as the synthetic city but by setting up of an apparel park, textile industry is introduced in the region. This is attracting textile units in the region from Ahmedabad and Mumbai where the cost of production is very high. Additionally, it was known for the diamond trading but with gems and jewellery SEZ, the jewellery industry has found its roots in the region.

The SEZs can thus contribute to the state economy by transforming it from low value added activities to high value added activities.

4.2.6 Localising global value chains

Many OEM firms are seeking to use SEZs to attract new upstream and downstream links in the global value chain and forging an industrial chain by creating all the necessary backward and forward linkages of the firms within an SEZ. This process of localization of international chains enhances industrial efficiency by reducing transport and inventory costs and ensures all the advantages of vertical integration. SEZs thus provide a platform for localizing the global value chains.

The **Nokia SEZ** in Sriperambudur is a good example. The 250 acre Park is developed with suppliers clustered around a central Nokia hub. Nokia has attracted 8 subsidiaries locating around the leading firm. All the companies involved in the project have the same logistical operating model in common, guaranteeing flexible and efficient manufacturing. Nokia is expecting to attract more collaborators to the SEZ. The scale economies are a sufficient condition for the related firms to join

the anchor firm's cluster. In China, the Nokia-created Xingwang International Industrial Park in the Beijing Economic Development Zone has attracted more than 16 collaboration companies including Sanyo and Foxconn. Nearly half of Nokia's global output comes from this park, including its best cell phone.

Suzlon is setting up its vertically integrated multi-facility infrastructure base for manufacturing wind energy generation equipment in Coimbatore.

In **Coimbatore**, an integrated textile park is being developed within SEZ, by ETL developers. Spread across 250 acres, the park will have five zones within the SEZ for yarn manufacturing, weaving, processing, garmenting, and packaging. Commercial Infrastructure including modern and hi-tech Business Centre, Common Data Centre, Food Courts etc. would be constructed.

Geetanjali SEZ near Hyderabad, is an integrated business model from rough diamond sourcing, cutting, polishing and distribution, and jewellery manufacture, to jewellery branding and retail, as well as global lifestyle brands, in India and abroad. Geetanjali has strong presence across the value chain. SEZ facilitated the integration of the value chain in a single park. Currently, one unit is operating with 800 workers and 2007-08 its export's value was Rs 3000mn. The operating unit is diamond unit. Four more units will be set up for manufacturing for different brands : Ddamas, Sangini, Nakshatra, Gilli and Asmi. It has a JV with MMTC for exports and plans to import/export directly.

Uniparts in APIIC SEZ in Vizag, is another example of the integrated facility. The 'Uniparts India Ltd.' manufactures and supplies three point linkage parts for tractor original equipment manufactures. It has 6 units across the country for producing tractor parts. Two forging units are in Ludhiana while 3 manufacturing units are in Noida. It has set up an upgraded integrated unit in the APIIC SEZ. The facility is at 30 acres with the investment of 780mn and its turnover in the first year is expected to be 2200mn. It is planning to invest another 780-800 mn and double the turnover. The company has 87 percent market share in the relevant products.

Flexxtronics also had plans to ask its related firms to set up their plants within the SEZ. However, it has not materialized. In fact, the raging SEZ controversy has done an incalculable harm to the SEZ policy.

4.2.7 Shift of production activity from unorganised to organised sectors:

Finally, low-tech first generation SEZs are serving as a potential instrument to transform the unorganised low cost based industries such as handicrafts and brassware industries into design led organised sectors. The gems and jewellery SEZ of Mumbai transformed an unorganized cottage industry of jewellery into an organized and high technology sector. Prior to 1987-88, the industry was a labour intensive cottage industry using the labour casting technology. In 1987-88, SEEPZ was open to gems and jewellery units and it is here that the “wax setting/casting techniques” was introduced which laid the foundation of the modern gems and jewellery industry. The jewellery industry underwent a dramatic transformation. The old crowded workshops have made way for smart work floors with excellent working conditions for the staff. Professionals are employed at all levels of the industry, from senior management to technically skilled personal, as well as a rapidly growing number of trained designers who are products of specialized jewellery and fashion training schools. Processes are highly mechanized and factories are equipped with world class facilities. SEEPZ is still a leader in the introduction of the latest technologies in this industry.

The handicraft SEZs in Jodhpur, and brassware SEZ in Moradabad can be used as a mechanism to achieve this transformation for these sectors. In these industries, manufacturing activity is carried out through informal local supply chains between the factory and the household sectors. Factories constitute the formal sector of the brass industry, while the household units form the bulk of the unorganized or informal sector. Exporters take orders which are then placed with subcontractors. Exporters in the factory sector are largely involved in final checking, packing in-house and marketing. The exporter could even be a manufacturer (if they own a factory that carries out certain basic processes) but this is not very common. Subcontractors may have their own manufacturing facilities or they may simply be middlemen. The household units get the orders from subcontractors on piece rate basis. A household unit may have all the workers from the same family in which it operates or the unit owner may hire workers from neighborhood. The value chains are informal; the sub-subcontracting arrangement could be done with different individuals and household at different

times and for different types of order. Since the market is buyer driven, competitive edge is derived from low production costs. There is very little room of experimentation, research and product development. There is little information on international trends, technology processes and materials. Competitiveness of such exports has therefore been declining. Total export from Moradabad was close to Rs. 40 billion in the year 2001. In 2006, it dropped down to Rs 30 billion. Handicraft exports have also been declining continuously since 2006-07. There is thus need for paradigm shift from low cost base to design led industry.

The SEZ can be used as a policy tool to transform these unorganized clusters into organized parks. This will be significant implications for the tax revenue as well in the long run. However, as of now, these SEZs are not successful in terms of attracting investment. For making them a success, it is important to identify the supply chains of these industries and create integrated production facilities within the SEZ. Furthermore, proper organization of production and services, good infrastructure, research and product development facilities need to be promoted to improve productivity, designs, research and quality.

5. SEZs and economic growth: A tale of four states

Table 9 presents state wise distribution of SEZs. States are categorized as top, middle and low rung states in terms of the number of SEZs approved. As on June 9, 2009, a total of 578 SEZs were approved, of which, 322 were notified. The table shows that six states namely, Andhra Pradesh, Gujrat, Haryana, Karnataka, Maharashtra and Tamilnadu account for 75% of the total formal SEZs and 80 percent of the notified SEZs. Our study has covered all of them with the only exception of Karnataka. In what follows, we describe how these states have used the SEZ policy to reap the potential of this policy. Haryana has not made much progress and therefore we excluded it from our analysis.

Table 9: State-wide distribution of SEZs (Number)

Top rung states			Middle rung states			Low rung states		
State	Formal	Notified	State	Formal	Notified	State	Formal	Notified
Maharashtra	111	55	West	25	11	Dadra	4	
Andhra pradesh	103	68	Kerala	24	11	Uttarankhand	3	2
Tamil nadu	69	49	Madhya	14	5	Chandigarh	2	2
Karnataka	52	27	Orissa	10	6	Nagaland	2	
Gujarat	50	27	Punjab	10	2	Chattisgarh	1	
Haryana	46	30	Rajasthan	8	7	Jharkhand	1	1
Uttar	34	16	Goa	7	3	Pondicherry	1	
Total	465	272		98	45		14	5

Source : Ministry of Commerce

Gujarat: Gujarat is one of the leading industrial states in India. The per capita income at current prices (2005-06) is \$833, which is higher than the national average of \$627.2. The manufacturing sector contributes over 38 percent of GDP. Gujarat ranks second in the country, in terms of the state-wise percentage share in 'Net Value Added by Manufacture' generated by the factory sector. The manufacturing base of the state is highly diversified with over 30 engineering clusters, 13 textile clusters, 10 food processing clusters and seven chemical clusters in the state. The State Industrial Development Corporation (SIDC) has been augmenting these clusters by setting up industrial estates since 1964. Gujarat has been a front runner in industrial initiatives. It is the first state in India to formulate a Port Policy, to enact the Private Sector Participation (PSP) Law to provide frame work for participation in the infrastructure projects by the private sector, and to enact the SEZ Act. The state has been taking several initiatives to promote industrial activity in the state in recent years. The thrust is on promoting knowledge based industries. It has been identifying competitive advantages of various regions in value added knowledge based industries and trying to enhance them through state sponsored efforts. Several proposals have been made to develop these nodes. For instance:

- Special investment regions (200 sq km): Ahmedabad-Dholera Investment Region and Vadodara-Ankleshwar Industrial Area in the Delhi-Mumbai industrial corridors
- Knowledge corridor
- Petroleum and Chemicals & Petrochemicals Investment Region (PCPIR): Dahej in Bharuch
- Gujarat International Finance Tec City (GIFT) : between Ahmedabad and Gandhinagar

Setting up SEZs is one of these initiatives. The State is using SEZs as a tool to reinforce the existing industrial clusters and estates, and impart outward orientation to them to induce dynamism. SEZs are concentrated in 6 regions which have competitive advantage in knowledge based industries:

- Ahmedabad : Pharma, textile and IT industries.
- Gandhinagar : IT ,
- Bharuch : Chemical region
- Voradara Engineering industries,
- Jamnagar : Refinery
- Kutchh: heavy metal based industries and logistics

Most SEZs are located in these regions so that they generate synergies and create internationally competitive export hubs. Thus, the state government has identified core competencies of various regions and is using SEZ policy along with other policy tools to reinforce them.

Andhra Pradesh: Andhra Pradesh is predominantly an agricultural state with over 29 percent of GDP being contributed by agriculture. The services sector in the state has shown a promising growth over the years primarily due to the growth of the IT sector. Manufacturing contributes only 19 percent of the GDP. The pharmaceutical, in particular, bulk drug industry of the state has a significant global presence with some state based companies having established their facilities abroad. The State has taken major initiatives to promote industrial development and creation of industrial hubs is adopted as a route to industrial development. Just as Gujarat, the thrust is on knowledge based industries. The Andhra Pradesh Industrial Investment Corporation (APIIC) has been designated as the nodal agency to implement the SEZ policy. The Agency is responsible to implement State sponsored schemes such as Growth Centres, Export Promotion Industrial Parks, Integrated Infrastructure Development Centres as well as mega projects like Hitech City, Vishakha Industrial Water Supply, Gangavaram Port, Convention Centre, Mega Industrial Parks at Parawada, and Pashamylaram Financial District Hardware Park at Hyderabad. To integrate the SEZ scheme with the overall industrial policy of the State, the agency has been designated to develop SEZs also in the State. Making APIIC as a nodal agency for the SEZ programme is a very progressive move. Interestingly, unlike industrial development corporations of other states, it has been also entrusted with the powers of developing social infrastructure, also. Thus, while Gujarat is using SEZs as a device to augment existing clusters, in Andhra Pradesh, they are being created either as part of

augmenting newly developed clusters or to create new clusters. The IT SEZs in Hitech city, Bio SEZ in Medak and Pharma SEZ in Mehaboobnagar are set up to augment the newly developed clusters while Achtapuram, Brandix, and Sri city SEZs are being created to initiate new industrial activity in the backward areas..

Tamil Nadu: Manufacturing contributes almost 30% to Tamil Nadu's SDP close to Gujarat, with 56.2 percent accounting for by services. The state government has been playing an important role in driving the impressive industrial development in the state. In the early 1960s, the government created SIPCOT. Since then it has been instrumental in promoting and diversifying industrial activities in the state by creating industrial estates. There is now paradigm shift in the industrial policy approach. The focus now is shifted to set up 'Industrial Corridors of Excellence'. In this drive, SEZ policy is being used as a key driver. In the first phase, Chennai-Manali-Ennore corridor and the Chengalpattu-Sriperumbudur- Ranipet corridor will be developed into Industrial Corridors of Excellence, with Special Economic Zones supported by Industrial & IT Parks, R&D institutions, Universities, and social infrastructure like housing, health-care and schooling facilities. Similarly, the Madurai-Thoothukkudi and Coimbatore - Salem Corridors will also be developed. SEZs are being used to kick start the development of these corridors. Thus several SEZs are created in the Chennai-Manali-Ennore and the Chengalpattu-Sriperumbudur- Ranipet corridors.

Apparently, Tamil Nadu has been more ambitious. It is using the policy to enter the third stage of industrialization which is innovation driven.

Maharashtra : Maharashtra is the most industrialized state in the country. It contributes 20% of India's industrial output. The tertiary (service) sector is the largest contributor (60%) to the State's economy. But the share of the industry also is as high as 28 percent. Per capita income is 44% higher than the national average. Table 9 shows that Maharashtra also tops the state wise charts for the maximum number of SEZs. Our analysis of the state SEZ policy reveals two interesting patterns which have significant economic implications for the development of the State:

One, private SEZs seem to reinforce the existing industrial patterns in the industrially developed belt of the State: Nashik-Pune-Mumbai. Most IT and service sector SEZs are in the private sector. While a large number of them are concentrated in and around the IT cities of Pune and Mumbai,

Thane and Raigarh have also emerged as preferred IT destinations. Other SEZs being developed in this belt pertain to bio technology and engineering sectors. This belt is now being extended to Aurangabad in the East and Raigarh in the South by setting up SEZs in these areas.

Two, while privately owned SEZs are close to the Nashik-Mumbai belt, MIDC has taken up ambitious projects in manufacturing and infrastructure development in the industrially backward districts of Nagpur, Jalna, Nanded, Latur, Amravati, and Akola, among others. The State agency has been playing a significant role in implementing the SEZ policy with 19 projects directly being developed by it.

The ongoing controversy over land acquisition in the State has slowed down the process of SEZ development considerably. The state government's attitude has become extremely cautious affecting the growth of certain projects even where the issue of land acquisition does not pose problem. For instance, the land acquisition process is complete in the Mihan project in Nagpur but there are delays in the finalization of R&R package and other important decisions which have been delaying this very ambitious project.

6. Conclusion

Growth is a dynamic process by which one state of the economy evolves into another. Growth requires not only augmenting the available resources but rearranging them so that they generate a greater value. This in turn requires strongly focused and concerted action with a right choice of drivers of growth as well as the enabling policies and necessary resources (human and financial) to support these strategic choices. Targeted policy initiatives need to focus upon identifying specific bottlenecks faced by the chosen growth drivers and addressing them given the resource constraints. SEZ is one such targeted initiative to promote the export sector which is a vital growth driver in an export oriented economy. This sector constitutes 23% of the total GDP and generates important multiplier effects. Theoretical approaches to the rationale and benefits of SEZs are limited. The neo classical school suggests that they contribute to the economy by furthering reforms. The heterodox school suggests that their contribution lies in the fact that they serve as a platform to attract FDI which is instrumental in transferring new technologies and generating spill over effects which upgrade the rest of the economy as well. Both these theories have limited applicability in the Indian context. Our analysis suggests that the economic contribution of SEZs in the Indian context can be

explained within the framework of the agglomeration economies and global value chain theories. Within the framework of these theories, SEZs are outward oriented industrial estates which are set up to reap the opportunities created by global supply chains. Their major contribution lies in getting the domestic firms inserted into global supply-production-distribution networks and augmenting their efficiencies through agglomeration economies.

Our assessment of economic impacts of SEZs reveals that while they are stimulating direct investment and employment, their role appears to be more valuable in bringing about economic transformation. Our study of implementation of the SEZ policy shows that our SEZs have the potential of benefiting the economy by

- shifting the resources from low productivity agriculture to more productive activities;
- promoting new knowledge intensive industries;
- augmenting existing industrial clusters/industrial states;
- diversifying the local industrial base;
- localizing global value chain;
- converting vicious circles into virtuous circles; and
- encouraging shift of economic activity from unorganized to organized sector.

Economic globalization has translated into fierce competition. Rapid technological changes, shrinking economic distance, new forms of institutions, and widespread policy liberalization, are altering radically the nature of business environment facing enterprises. Competition can arise with great intensity from practically anywhere in the world. The only way for the country to survive is to speed up its economic and industrial restructuring. An internationalization of labor division, driven by globalization, has created a worldwide production chains from knowledge-intensive industry to capital-intensive industry to labor-intensive industry creating new opportunities for developing countries to get networked into these chains and induce economic transformation. The SEZ policy has a potential to reap this opportunity.

SEZs have been set up not only in labour intensive industries; they are also appearing in skill and technology intensive industries. Thus, the first-, the second- and the third- generation SEZs are emerging at the same time. While the first generation SEZs are contributing primarily to employment and foreign exchange generation, the second and the third generation SEZs are

stimulating diversification of the economic activity and exports. In predominantly agricultural states such as Andhra Pradesh, SEZs are being used to boost the process of industrialisation and generate employment, and thereby lowering the land man ratio and improving productivity, in both, agricultural and industrial sectors. Relatively more industrialised states such as Maharashtra, Gujarat and Tamil Nadu are using them to further strengthen and upgrade the industrial sector in their respective states. While Tamil Nadu is using them as a device to target high value added, knowledge and technology intensive investments and upgrade the economy to high tech manufacture of higher value-added products, Gujarat is using the strategy to reinforce the existing industrial patterns. Maharashtra is targeting selected backward districts alongside strengthening the existing patterns of industrialization. However, most other states have missed the opportunity due to various reasons.

Different strategies have been adopted by SEZ-active states to reap the potential of SEZs. While Gujarat has been augmenting existing clusters by generating synergies between domestic market-oriented industrial clusters and SEZs, in Andhra Pradesh SEZs are being used either to reinforce the newly emerging clusters or create altogether new clusters. Tamil Nadu is attempting to give a major push to the existing industrial sector to enter the high tech innovation driven industrialization. Maharashtra is augmenting existing industrial development by attracting private capital while at the same time creating new industrial nodes in backward regions through state investment in SEZs.

Further, different strategies are adopted to promote SEZs in these states. Most SEZs developers in Gujarat are business houses and have anchor units in their SEZs. This is likely to ensure dynamism in the zone. In Andhra Pradesh, mega real estate developers are engaged along with APIIC while in Tamil Nadu, most SEZs are sponsored by the State owned SIPCOT and ELCOT. The latter has also attracted some mega real estate companies and some business houses such as Suzlon and Mahindra and Mahindra.

Our field surveys however show that the controversy surrounding SEZs has done incalculable harm to the implementation of the policy. State governments are dragging their feet in pushing the programme due to anti-SEZ sentiments. Projects are getting delayed even where land acquisition poses no problem. At the Centre, the 'Direct tax Code' has once again put a question mark on the

sincerity of the government in implementing the programme. Uncertainty is all pervasive and is largely responsible for the slow implementation of SEZ projects.

Lastly, the SEZ policy alone is not sufficient. It calls for concerted efforts by the government to reap the maximum benefit of SEZs. It is important to identify the bottlenecks that the upcoming industries, SEZ developers and units are facing and address them effectively. There has been excessive focus on creating conducive economic conditions within the SEZ. What is now important is to adopt a holistic view of the factors that can make these SEZs successful. Furthermore, most SEZs are being set up to augment existing clusters/industrial clusters or to initiate new clusters. The role of the government is to develop sectoral policy packages to ensure that synergies between SEZs and existing clusters are being generated and spill overs from the new clusters are strengthened. Besides, the creation of SEZs would need to eventually influence the investment climate of the economy outside SEZs because they cannot continue to operate successfully if the supply bottlenecks persist in the rest of the economy. The development outside SEZs has been extremely slow. This is affecting the performance of SEZ units as well. New initiatives need to be taken on PPP basis to foster the growth process. Finally, the SEZ policy is fraught with some major problems. For instance, the objectives of the policy are defined very narrowly. They focus merely on direct benefits of SEZs. Our study reveals that SEZs are more important for indirect benefits which relate to transfer of advanced technology, managerial techniques and know-how, skill upgradation, and export diversification. Further, the policy remains silent or is unclear on several issues. This has led to uncertainties among investors due to delays in clarifications and frequent changes in the interpretation of provisions. For instance, omission of provisions on appeal and dispute settlement mechanism, accountability safeguards, exit and denotification, warehousing in SEZs, dormitories by units, urban management, and land acquisition has affected the implementation of the policy rather adversely. Besides, restrictive clauses in the provisions of DTA sales, sub contracting, inter-and intra-SEZ sales, development of social infrastructure, and non processing areas have little economic justifications. Lastly, there is need for a self sufficient administrative system at all levels of its implementation (centre, state, and local) ensuring coordination between various actors involved in its implementation, greater participation of the State governments and greater accountability. To unleash the potential of SEZs, policy-makers need to identify the relevant issues and adopt a systematic approach to address them. A strategic approach is required to reap the existing and potential opportunities offered by SEZs.

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