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Special Economic
Zones & Development:
Geography and
Linkages in the
Indian EOU Scheme

Andrew Cheesman

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Special Economic Zones & Development: Geography and Linkages in the Indian EOU Scheme

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Abstract. During the past five decades, free trade zones have become an increasingly important element of world trade. As a result, a somewhat standard zone model has developed, based loosely on the much-lauded 1970's Chinese zones. Used properly, this model can be effective at generating change within a handful of basic economic parameters (the opening and development of new markets, exports-generation, attraction of FDI, experimentation with liberalization, etc.). But this model, also frequently implemented with some vague developmental objective, is often ill-designed to contribute to domestic processes of economic change in host countries.

Taking a distinctly developmental perspective on zones' usefulness, this paper analyzes the extent to and mechanisms by which India's Export-Oriented Unit (EOU) scheme (a policy platform supporting geographically-dispersed, opt-in, domestically-linked export enclaves) has contributed to structural transfor-

mation in recent decades. The paper will assess state-wide EOU distributions based on three characteristics – urbanization, geographical dispersion, and sectoral identity – in order to draw relationships between the geography of international trade and economic development.

The paper finds that EOUs have contributed more to processes of domestic structural change than have India's more traditional SEZs, via three processes: technological and skills spillovers, economic linkages, and the disaggregation of semi-tax-exempt enterprise. It also finds, based on empirical analysis guided by the three parameters outlined above, that the optimal distribution of EOUs will be “somewhat urbanized, somewhat dispersed, and sectorally reflective of the domestic economy.” The paper concludes with policy recommendations intended to expand the canonical zone model by incorporating some key EOU characteristics, in hopes of better-tailoring this broad model to a more positive developmental effect.

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List of acronyms.

EOU	Export-Oriented Unit
EPCES	Export Promotion Council for SEZs & EOUs
EPZ	Export Processing Zone
FTZ	Free Trade Zone
GOI	Government of India
MOSPI	Ministry of Statistics and Programme I mplementation (India)
NEG	"New Economic Geography"
RBI	Reserve Bank of India
SEZ	Special Economic Zone

1. Introduction

1.1. International context

As a policy tool, the modern Special Economic Zone has attracted considerable influence during the decades since its first appearances. Enacted in Ireland in 1959 and – to much critical acclaim – in China in 1979, zone policies have now been set up in more than 130 countries worldwide (most of which are in the developing world). In 2008, it was estimated that the nearly 3,000 zones in operation generate on the order of 70 million jobs and contribute \$500 billion annually in direct trade-related value added. Special economic zones have transformed worldwide shipping practices, and have facilitated the global expansion of developed-world capital (FIAS, 2008).

The speediness of zones' proliferation worldwide would seem to imply their broad applicability to common developing-world problems and/or adherence to a standardized model of zone implementation: a platform which effects specific policy or economic objectives as a response to economic, social, political, or developmental circumstances.

But the fact is that no such formal zone model exists: political economy may explain worldwide zone implementation more effectively than the model's widespread technical suitability. Thanks to the spectacular success of a handful of SEZ implementations and an increasing push towards export-generation in the developing world, many SEZs have been established without reconciling the policy's suitability to immediate circumstances. As a result, many countries' SEZs have experienced lackluster results (Brautigam, 2011; Farole, 2010; FIAS, 2008). The Indian zone experience, which is the focus of this paper, falls partially into this category (Aggarwal, 2004).

1.2. The SEZ as a Development Tool

The prototypical Chinese zone – implemented in Shenzhen and 5 other areas in 1979 – has been cast as a basic paradigm of the bounded export-generated developmental (zone) model. Soon after foundation, the Chinese model's success earned a positive reputation worldwide due to the strength of its economic performance, but its popularity among developing-world policymakers – and one of the foundations for the abstract attractiveness of the zone as a developmental tool – can be attributed to

its perceived role in China's rapid development during the 1980's and 1990's (cf. Wong and Chu, 1984).

There exists some support for the idea that China's SEZs led directly to the spectacular improvements in standards of living and economic structural change the country experienced during the 1990's and 2000's (Brautigam, 2011). But while the zones' role in facilitating broader structural change is apparent, they were neither necessary nor sufficient to the precipitation of this process: China's SEZs were couched in a set of broader and longer-lasting open-market reforms (Nishateno, 1983): indeed, China's SEZs were the tip of the liberalization iceberg. Notwithstanding the complexity of the zones' relationships with the Chinese economy (and the complexity of the Chinese economic and regulatory structures more generally), the reputation for the developmental push afforded by China's zones seems to have become outsized in the approaches of many developing-world nations, contributing to the enthusiastic application of zone policy to conditions perhaps less than well-suited to their success.

The Indian zone implementation, begun in 1965, follows the pattern outlined above: it initially sought to implement the SEZ model as a tool for the generation of exports revenues, as part of a contemporary sea change in development theory which emphasized the importance of positive foreign exchange (Gupta, et al., 2010). Later, as the effects of the Chinese example became clearer, the country's SEZs explicitly sought to replicate the Chinese zones' developmental impact despite considerable administrative and economic difficulties (Gupta, et al., 2010).

The first Indian zones resembled the Chinese zones: they were government-run, geographically-bounded export enclaves offering taxation, logistical, and infrastructural incentives to enterprises which located within them. Sectorally they were focused on light manufacturing and shipping, like the first Chinese zones. But due to bureaucratic inefficiencies, generally restrictive domestic policy, infrastructural inadequacy, and general failure to mesh with local economic structures, the performance of India's early SEZs was stagnant for many years; poor performance persisted even after the opening of secondary zones in other Indian states.

In 1981, seeking to decentralize SEZ management structures and liberalize exports performance (mainly as a

response to criticisms drawn by the scheme's logistical and administrative inefficiencies) the Government of India (GOI) broadened its zone policy by establishing the Export-Oriented Unit (EOU) scheme, which is the focus of this paper.

EOUs can be viewed as “mini-SEZs”: the EOU policy platform is almost identical to the SEZ policy platform, though it differs in a few key ways. The EOU platform extends export benefits to individual productive facilities as opposed to geographically-isolated agglomerations of enterprise. It also relaxes export and import restrictions, allowing EOUs to share their output with and source inputs from the domestic Indian economy.

At present, there are nearly 2500 functioning EOUs in India, primarily concentrated in the states of Karnataka, Andhra Pradesh, Tamil Nadu, Gujarat, Maharashtra, Delhi, Kerala, Uttar Pradesh, Haryana, Punjab, and West Bengal (Export Promotion Council for EOUs and SEZs [EPCES]). National statistics indicate that India's EOUs comprise a sizable portion of its exports earnings and domestic activity, especially compared to its longer-standing SEZs: in 2009 EOUs comprised 8% of India's exports, while SEZs contributed 4%. They also generated a larger portion of domestic industrial activity than SEZs: EOUs employed more than 6 million people in 2003, compared to SEZs' 2 million in 2008 (GOI/DOC data; most recent years with comprehensive available data).

Theoretical study of the developmental effects of SEZs (and FDI more generally) show that a policy platform of this nature should be poised to make a positive contri-

bution to economic structural change. Via the linkages it could create with the domestic economy and the disaggregated spread of advanced skills and technology, it would be expected that the EOU scheme would have aided processes of industrialization (Johansson, 2004; Hirschman, 1958; Jones and Marjit, 1995). These theoretical discussions also suggest that India's EOUs could have made a large impact on structural change than its SEZs.

Unlike the Chinese zones, early Indian SEZs contributed little to domestic human or economic development in and of themselves. China's SEZs were instrumental as part of a set of broader reforms and policy initiatives which allowed their increased activity to spark transformation in the Chinese economy, but the Indian zones received no broader policy or administrative support. India's EOUs, on the other hand, seem to have been an almost unwitting success story, both in terms of policy-driven export generation as well as developmental influence.

1.3. Study objectives

The Indian context provides a unique opportunity for the study of the developmental effects of SEZs. By embracing both the traditional SEZ model as well as the unorthodox EOU scheme, the nation provides a novel basis for comparison and the opportunity for the investigation of an exciting (and potentially influential) permutation on traditional zone theory.

This paper will seek to investigate the relationships between SEZs, EOUs, and development through the following two inquiries:

1. “Have India's EOUs been more successful at facilitating structural transformation than its SEZs?”
2. “What are the characteristics of the most successful EOU distributions, in terms of geographical and sectoral distribution?”

Given this paper's logistical constraints it will not be possible to analyze in an absolute sense India's structural transformation against the impact of its EOUs (as would be ideal). Instead, this paper aims to explore how the Indian zone models relate to each other and their local economies in order to draw conclusions about their respective contributions to structural transformation. This paper will rely on the comparison of individual states' developmental experiences in light of their respective SEZ and EOU distributions.

Both schemes are expected to have impacted India's structural transformation via a mesh of secondary, or *catalytic*, effects. As outlined primarily by Johansson (1994),

Box 1.1. Introduction to SEZs. Source: FIAS, 2008.

Key Policy Elements

- geographically delimited
- single management body
- benefits granted based of physical location
- separate customs area
- streamlined procedures

Common Benefits/Incentives

- export duty exemption
- import duty exemption
- infrastructure support
- streamlined procedures

SEZ catalytic effects are defined by interaction with the domestic economy: specifically they deal with industrial spillovers and the establishment of zone-domestic linkages.

Because SEZ catalytic effects involve interaction with the domestic economy, elements of geography play an important role in their effectiveness. It will be useful to look at EOUs' geographical "attributes" to explain and investigate their effects on structural transformation. The body of work known as the "New Economic Geography" suggests that forces of economic condensation and dispersion are likely to be important to the developmental performance of either scheme, and has been used to guide this paper's investigation.

Generally, I expect to find that states with a highly-dispersed (but sufficiently urbanized) pattern of sectorally-diverse EOUs will have experienced larger change in employment and production structure than states with poorly-distributed EOUs or weakly-performing EOUs and a strong SEZ.

1.4. The significance of this study

The scholarship on India's EOUs is severely lacking in both rigor and breadth. The scheme has received little attention outside of GOI publications, and official documents typically reference the EOU scheme as merely a subset of its SEZ scheme despite substantial policy differentiation between the two.

As mentioned, high-level statistics and the EOUs' theoretical background merit a harder look at the scheme and its effects on structural change. It may be beyond the limits of this paper to make widely relevant policy recommendations in terms of the implementation of an EOU-like policy, but it stands to reason that the EOU scheme may be a viable alternative to the traditional SEZ model for many developing-world countries. If nothing else, this paper aims to illuminate some of the important reasons for continued investigation of the EOU scheme and its potential to be implemented internationally.

Next, SEZs (and other zone-like policies) have too seldom been assessed explicitly as tools for development. This paper will discuss the causes of this ignorance and attempt to show that SEZs generally – and the EOU scheme specifically – beg renewed investigation of the potential for zones to make a contribution to processes of economic development. The consideration of zone developmental effects is especially important in light of the continuing drive to implement zone-like policies around the world.

And finally, this paper will seek to reinforce the importance of geographic considerations for economic and develop-

mental processes. While the geographical components of *economic* success in SEZs may reflect some basic parameters – governing distance from urban centers, access to productive resources, and/or interactions with world trade – the geographic elements of zone *developmental* effects are much more complex. In the context of development, SEZs carry an inherently more localized set of determinants and effects.

The structure of this paper is as follows. Chapter two contains a preliminary outline of the broad Special Economic Zone model as well as the specific Indian SEZ variant and Export-Oriented Unit scheme, highlighting strengths and weaknesses and outlining history, past performance, and administrative structure. Chapter three will use lines of relevant background literature to craft a conceptual framework for the understanding of SEZ developmental effects, covering scholarship on SEZ theory and assessment, the patterns of structural transformation, as well as the relevance of economic geography and linkage theory to this paper's analysis. Chapter four will cover this study's analytical framework and methodology for assessment. The fifth chapter will discuss the findings of this assessment. The sixth and final chapter will draw general conclusions, make policy recommendations for the evolution of the SEZ model, and suggest opportunities for future research.

2. SEZs: History, Performance, and Structure

2.1. International context

The concept of a free trade zone – a geographically-distinct area governed by a differentiated economic policy designed to attract foreign manufacturing and trade – is not a new one. The first zones were established some centuries ago: among the many historical zone-like policies are the free trade zones established in 1704 in Gibraltar, and in 1819 in Singapore (FIAS, 2008). These earliest zones were focused on the attraction of shipping trade, and were successful due to strategic geographical location; they were powerful as manufacturing hubs due to their location near a critical mass of shipping traffic (FIAS, 2008).

Current discussion of free zones, however, focuses on the modern SEZ model first set up in Shannon, Ireland in 1959. The Shannon zone was constructed in a rural area near what is now one of Europe's busiest passenger and freight airports (Shannon, IATA code 'SNN'). The zone has been successful in terms of employment generation and the attraction of foreign business: currently the Shannon Free Zone hosts 100 companies, generates 6,500 high-skill jobs, and does €3bn in annual trade (Shannon Development, 2011).

Since 1959, the modern zone has spread internationally, notably in the developing world (FIAS, 2008). This spread is partially attributable to a string of well-known and well-studied SEZ success stories which took place during the 1970's and 1980's (Madani, 1999). Two of the most successful SEZs are that of China and Mauritius, both of which stand – though not uncontroversially – as examples of zone implementation leading to positive economic development (Chen and de'Medici, 2009; Zeng, 2010; Sawkut et al. 2009).

2.2. Basic zone structure

SEZs can be concisely defined as “geographically delimited areas administered by a single body, offering certain incentives...to businesses which physically locate within the zone,” (FIAS, 2008; p.2). While there exists great diversity in the specific policy platforms implemented in various countries and to various ends over the past 50 years, most zones adhere to a basic set of policy guidelines reminiscent of the Chinese implementation. The follow-

ing section discusses basic zone administrative structure and aims. (NB: Please see FIAS, 2008 for a full discussion of zone typology. In this paper, the terms *zone*, *special economic zone*, and *SEZ* are used interchangeably, except with regard to EOUs.)

2.2.1. Zone aims. SEZs are typically geared to one or more of the following economic (or, in the case of e., political) goals (cf Madani, 1999; FIAS, 2008; Zeng, 2010).

- a) Attraction of foreign direct investment;
- b) Increased foreign exchange earnings;
- c) Employment generation;
- d) Stimulation of the domestic economy via spillover and linkage effects, technological and human capital upgrading, and cultivation of non-traditional exports;
- e) Experimentation with (or gradual embrace of) liberal economic policies.

A. Attraction of foreign direct investment. Foreign direct investment has been identified as an important growth enabler in developing economies, which often lack physical infrastructure, the elements of productive capital, and well-developed skills and training schemes (Markusen and Venables, 1997). SEZs allow developing nations to leverage low labor and resource costs by providing stable and favorable investment climates.

B. Increased foreign exchange earnings. Exports have long been linked to the broader process of development (cf Chow, 1987). Catering to international demand has been proven an effective way to generate increased and increasingly varied production opportunities; as such, an increase in export generation is an important goal for many developing nations in and of itself. In addition, general deficiency in domestic factor intensity and the quality of human capital can force reliance on the import of intermediate and/or consumer goods, whose financing is aided by exports earnings. As a result, in many developing economies productive strength is dependent on the ability to finance external consumption. Hosting foreign productive activities in SEZs has been one means of boosting exports and strengthening a nation's terms of trade.

C. Employment generation. SEZs address another perennial developing-world problem: unemployment in the waged sector. Considered against other means of

boosting waged employment in primary economies, foreign investment can siphon off excess labor with relative speed (Ge, 1999). Despite frequent criticism as to the conditions of zone-based labor (cf Ramtohul, 2011), it is the prevailing attitude that zone performance in terms of working conditions depends most on the policy framework in use and the commitment of the host economy to its own labor force (FIAS, 2008). Over the past five decades, many zones' labor and environmental conditions have attracted considerable criticism; but, conditions of abuse are by no means the norm (nor will they be formally analyzed here).

D. Stimulation of the domestic economy. In addition to the basic economic rationales above, SEZs have the potential to create powerful catalytic effects within surrounding domestic areas. These effects include spillovers, the creation of backward and forward linkages, the transfer of skills and technology, and others (cf FIAS, 2008; Johansson, 1994; Johansson and Nilsson, 1997). Spillover and linkage effects refer to the process by which zones come to rely on their surrounding area to different degrees, whether directly – as in the sourcing of industrial inputs from domestic producers, for example – or indirectly – as in the satisfaction of basic needs for accommodation, consumer services, and other place-specific non-zone activities. In addition, the transfer of technology and skills make an important contribution to the cultivation of non-traditional outputs (Radošević, 1999).

E. Experimentation with (or gradual embrace of) liberal economic policies. Lastly, zones have been used (most notably in the Chinese context) as laboratories for experimentation with free-market policies. As part of a larger, long-term drive to gradually mesh elements of liberal and command economies (Zeng, 2010; Nishataten, 1983), Chinese zones allowed for the controlled spread of capitalist policy. In the Indian case, SEZ legislation is not explicitly tied to liberalization – indeed, the Indian SEZ scheme and economy more generally were characterized by hefty controls well into the 2000's (Aggarwal, 2004). The EOU scheme, alternatively, was a liberalization policy: it sought to boost SEZ activity by decentralizing approvals procedures and activity generally.

2.2.2. Zone Policy Framework. In order to accomplish the above goals, zones typically employ a rather standard set of policy elements. Depending on context-specific policy and economic goals, however, similar policy items may often be implemented differently and to quite diverse ends. For example, the import of industrial inputs from abroad may either be encouraged or forbidden, leading to zone dependence on cheap international wares or, alternatively, domestic products. The basic zone “toggles” are (FIAS, 2008; Aggarwal, 2010):

- a) 'Extra-territoriality'
- b) Geographic restrictions
- c) Taxation avoidance
- d) Infrastructure provision
- e) Export restrictions
- f) Import restrictions
- g) Ownership restrictions
- h) Logistics and administration

A. 'Extra-territoriality'. SEZs are traditionally rooted in the concept of “extra-territoriality,” which signals that they are meant to be treated as outside the country's borders in some respects: many zones maintain border controls so that the flow of people and goods may be tightly monitored. This concept serves as the basis for all other zone policy elements, and is an important distinction between true special economic zones and the more common “re-vitalization zone,” “enterprise zone,” or “business zone.”

B. Geographic Restrictions. Traditional SEZs delineate benefit-eligible activities based on location, for logistical and administrative reasons: limitation to one area facilitates shipping efficiency (which is of primary concern for export-oriented enterprise) and simplifies administrative procedures. Notably, the Indian EOU scheme does away with this restriction, allowing enterprises to enjoy some or all incentives regardless of location within a larger area.

C. Taxation avoidance. Avoidance of duties is the key offering of many SEZs (FIAS, 2008). Taxes can be waived on the export and import of all or certain kinds of goods, as well as on productive elements. In some zones, tax holidays are employed, allowing zone enterprises to avoid some or all taxation for a fixed time period after commencement of operation. The tax holiday approach has been linked to suboptimal SEZ performance: some studies have shown that “footloose” international capital is likely to abandon SEZ locations for greener pastures (in other zones, most likely) as tax holidays expire (Rolfe et al., 2004).

D. Infrastructure provision. Many zones provide for the infrastructural needs of incoming investment, either through dollar-for-dollar (or rupee-for-rupee, or yuan-for-yuan) expenditure matching or outright provision. Depending on initial infrastructure and development levels, the provision of infrastructure may not be necessary for business attraction, and many zones (especially in recent years) have sought to locate near existing air- or seaports in order to minimize the need for new construction. But due to the general state of productive infrastructure in developing countries, infrastructural quality is a question of inherent importance when it comes to the usefulness of zones for development. The cost of infrastructure provision can be one of the most important factors in terms of a zone's short- and long-term feasibility, as the construction of roadways, railways, storage/productive space,

and other physical shared-use productive elements can be hugely expensive (cf Nishatatenno, 1983; Chen and de'Medici, 2009).

E. Export restrictions. Most zones restrict the sale of zone enterprises' output to the international market. In most cases, allowing domestic sale of zone outputs would result in cheap manufacturing at no tangible benefit (and considerable cost) to the domestic economy (or scare off potential investors). As a result, most zones prohibit the domestic sale of SEZ output, though some (like the Indian EOU scheme) permit up to a certain percentage of products be sold domestically upon payment of local duties.

F. Import restrictions. In order to increase zone cost-effectiveness, many zones seek to force the consumption of resources and capital goods on the international market. Some zones (like the Indian EOU scheme) allow importation of some or all kinds of domestic goods, encouraging zone enterprises to consume inputs locally.

G. Ownership restrictions. Many zones allow 100% foreign ownership of zone activities, while others require at least nominal local cooperation. This consideration was a major element of the Chinese zone model, but (depending on the nation in question) it has become less important over time (Aggarwal et al., 2008).

H. Logistics and administration. Zone administration – which includes enterprise approvals, performance quantification, and the daily monitoring of export and import activity, is typically handled on a per-zone or regional basis. SEZs typically stress their ability to streamline and simplify business practices, as, essentially, they also compete for FDI based on their logistical competitiveness (FIAS, 2008). Indian zones employ a “single-window” process, which enables goods to pass through only one “window” in order to be certified with regard to all taxation and procedures.

2.3. Key historical zone implementations

2.3.1. Chinese Zones. Established in 1979, China's SEZs were the first zones to receive widespread international attention. Carefully delimited and closely monitored, the zones of Shenzhen, Zhuhai, Shantou, and Xiamen were created on the country's southwestern coast in areas with easy access to world trade and existing conurbations – most notably the emerging powerhouse in Hong Kong (Zeng, 2010; Nishatatenno, 1983).

The Chinese SEZs owed some of their immediate notoriety to the fact that they represented a departure (albeit a highly-controlled one) from the command system in place at that time (Nishatatenno, 1983). In later years, however, the Chinese zones have attracted attention because of

their perceived contribution to China's long-term industrialization and development (Gupta et al., 2010). In the early 1980's, China's zones accounted for up to 60% of FDI in the country, and in 2006 its 5 largest SEZs contributed 5% of the nation's real GDP (Zeng, 2010). As conduits for foreign investment and sources of employment and export earnings, China's SEZs were an important contributor to the development of China's industrial sector, and facilitated major improvements in standards of living and human development (Zeng, 2010).

Early negative assessment of the Chinese zones focused on the fact that national and regional governing bodies – which, in the Chinese model, were heavily involved in all aspects of zone implementation and management – incurred huge costs in the provision of infrastructure and maintenance of administrative procedures (Wong and Chu, 1984). Shenzhen, for example, was a fishing village at the time of its transformation in 1979, and the zone's incentive framework promised either outright provision of infrastructure or expenditure matching for new enterprises (Chen & de'Medici, 2009; Nishatatenno, 1983). In addition, China's zones have also attracted what has become a somewhat uniform battery of criticisms, centering on issues like workers' rights and lax environmental protections.

Judgments of the Chinese model's welfare or cost-effectiveness will of course vary, but in terms of broader goals – generation of employment and exports, the gradual intermingling of Chinese and foreign trade interests, and protected experimentation with the capitalist model – the zones have been extremely successful (Zeng, 2010). As a result, the first Chinese zones have been used as a model for similar projects in developing nations around the world, and the Chinese policy platform has become something of a standard zone model (cf Aggarwal, 2004; Brautigam, 2011).

2.3.2 The Mauritian Zone-like Policy. The tiny island nation of Mauritius enacted a national zone policy in 1980, in what is considered another net success for the zone as a development tool (Sawkut et al., 2009).

The Mauritian example is best referred to as a *zone-like* policy because it differed from the standard model in one crucial measure: it allowed productive activities to function as export enclaves regardless of location within the country. In China (and, later, India) zone sites had been carefully chosen at the national level; the Mauritian zone policy did not specify available locations in any way (Sawkut et al., 2009).

This de-spatialized model was feasible in Mauritius because of the nation's geography and initial economic status: in sum its land mass amounts to around 2,000 km² (roughly 1.3 times the size of the London metropolitan area) and at the time of policy implementation it was

largely dependent on primary-sector production (Sawkut et al., 2009). Though not referenced in Indian documents or discussion, the Mauritian experiment can be seen as a precursor to the Indian EOU scheme, which also uses a despatialized, opt-in framework.

In economic terms, the Mauritian policy was quite successful: unemployment dropped from 23% in 1979 to 2% in the 1990s (it is even reported that at some points during the 1990's there were actually labor *shortages*) and the nation's exports increased in both volume and diversity (Aggarwal, 2004). But, like the Chinese zones, the policy was not devoid of criticism: some reports claim that the policy's net costs outweighed its benefits, citing abuses of workers' rights and environmental damage as major costs (cf Sawkut et al., 2009; Ramtohul, 2011).

2.4. The Indian context

India has been chosen as the focus of this paper because it has embraced both geographically-delimited and geographically-free export zones, and because both of those schemes have been at least moderately successful. The nation has maintained two distinct systems of export enclaves, known as Special Economic Zones (alternatively export processing zones, free processing zones, or free zones) and Export-Oriented Units (EOUs).

The country's initial SEZs – 7, dispersed around the country's coasts and in Delhi – were established during the 1960's under strict mandates from the national government. This number has grown to more than one hundred by 2011, though SEZ exports continue to be dominated by the oldest (and largest) publicly-supported SEZs.

In response to criticisms of bureaucratic procedures which were limiting the performance of its SEZs, the GOI instituted the EOU scheme in 1981; they did not truly “come

on line” until the 1990's due largely to lack of support and continued administrative issues (Aggarwal, 2004). Today India's EOUs comprise more than 8% of its national exports – surpassing India's SEZs, which produce between 2% and 3% (GOI data).

2.4.1. Basic timeline. The Indian special economic zone model is more than 40 years old at this point; it has undergone numerous iterations and terminological shifts. More importantly, however, its underlying structure and policy aims have changed since its first implementation (Aggarwal et al., 2008). The broad Indian SEZ policy encompasses traditional SEZs, smaller, diversified (and newer) export processing zones, and Export-Oriented Units (EOUs).

The first Indian zone (Kandla), established and maintained entirely by the GOI, was located in the western coastal state of Gujarat in a rural coastal area for reasons of local development and access to international trade (Aggarwal et al., 2008). The Santa Cruz zone (in Maharashtra) followed eight years later, further south along the western coast.

Between the 1960's and 1990's, the Indian domestic economy was governed by a complex system of government controls; these restrictions (and the bureaucratic hindrance which accompanied them) extended to the country's nascent SEZ policy (Aggarwal et al., 2008). As a result, the performance of India's first zones was not spectacular: despite considerable government investment (on the order of 15MM INR by the year 1982) the SEZ contribution to India's output actually *declined* from 9% in 1975 to 1.5% in 1982 (Aggarwal et al., 2010).

In 1981, the GOI instituted the EOU policy platform in response to an independent commission's suggestions to

Table 2.1. Government-run SEZs in India. Source: Tantri, 2011.

SEZ	State	Sector	Est. in
Kandla (KSEZ)	Gujarat	Multi-product	1965
Santacruz (SEEPZ)	Maharashtra	Electronics, Gems	1975
Noida (NSEZ)	Delhi	Multi-product	1986
Falta (FSEZ)	West Bengal	Multi-product	1986
Chennai (MEPZ)	Tamil Nadu	Multi-product	1986
Cochin (CSEZ)	Kerala	Multi-product	1986
Vizag (VSEZ)	Andhra Pradesh	Multi-product	1994

decentralize its exports-promotion system; it also green-lit 5 more full-size SEZs in Delhi, West Bengal, Kerala, Tamil Nadu, and Andhra Pradesh in 1985 and 1989 (Aggarwal et al., 2010).

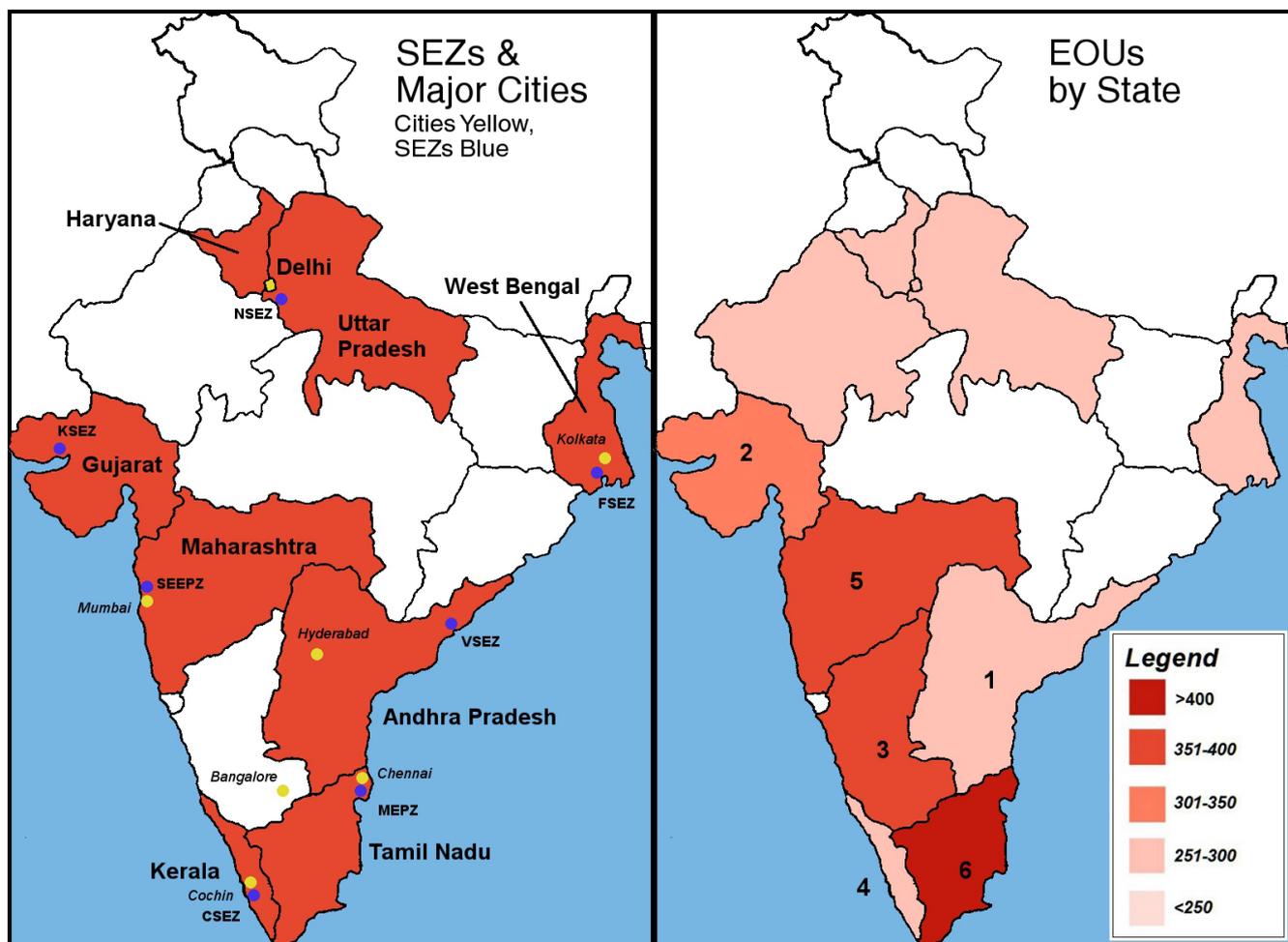
In 1991, the Indian economy underwent a massive liberalization, characterized by a shift of focus from import substitution to export production. Given this new aim (and new policies aimed at cutting down bureaucratic obstacles) the SEZ/EOU scheme received new emphasis as a driver of growth. A second phase of liberalization took place in 2005; this change allowed the creation of private and partnership SEZs, and soon thereafter converted all existing export processing and business zones to “Special Economic Zones” (Aggarwal et al., 2008). (NB: This shift did not include its EOUs; the change amounted to a standardization of policy and nomenclature not including the EOU program.) India's SEZs did not truly open up until after this point, but its EOUs had already begun to experience positive results soon after implementation (Aggarwal, 2010).

2.4.2. EOU and SEZ Policy Platforms. Table 2.2 illustrates selected elements of the Indian SEZ and EOU policy platforms as of 2010; these policies have change subtly over the years, but the most important distinctions have been in place since creation of the EOU scheme.

The two key differentiators between the SEZ and EOU schemes are:

- EOUs can be located anywhere in the nation, while SEZs are allowed to be set up only in areas carefully selected at the national level (Aggarwal, 2010)
 - EOUs are able to export up to 25% of output to the domestic economy upon payment of applicable duties, and are not excepted from imports duties
- Geographically, SEZs have been placed with regard to urban centers, trade infrastructure (i.e. ports, etc.), and developmental goals; this is not true of EOUs, whose placement reflects the ad hoc nature of EOU enterprise approvals: existing businesses must apply for EOU status

Figure 2.1. SEZ & Eou Distribution. Source: EPCES data.



(Aggarwal, 2010), and are approved *in situ*.

In addition, the more lenient export and imports controls imposed on India's EOUs force them to take a different approach to production. EOUs are eligible for exemption

of exports duties, but they are (unlike SEZs) able to sell up to ¼ of their products to the domestic economy upon payment of duties; this gives them greater flexibility and also generates the possibility for forward linkages between EOUs and domestic enterprise. In addition, EOUs

Table 2.2. SEZ & Eou Policy platforms. Source: Aggarwal et al., 2010

Policy Element	Special Economic Zone (SEZ)	Export-Oriented Unit (EOU)
Administrative Supervision	Individual Development Commissioners	Grouped under statewise Development Commissioners (See Appendix 1)
Establishment Approval	By GOI	By regional Development Commissioners; automatic upon satisfaction of basic requirements
Trade Approval	Single-window	Single-window
Minimum startup capital	None	None
Ownership requirements	None	Max foreign equity 51%
Geographical Limitations	Location approved by GOI	None
Size Requirement	40-1000 ha min. depending on output	None
Sectoral Prohibitions	None	Trading (retail)
Value Added Requirement	Must have positive net foreign exchange	Must have positive net foreign exchange
Specific Item Prohibitions	Recycling; Used textiles; Chemicals, organisms, illegal substances and weapons, and other specific items	(same as SEZ)
Domestic Export Allowance	None	Up to 25% (upon payment of duties)
Domestic Import Allowance	None	Up to 100% (upon payment of duties)
Export tariff discount	100%	100%
Import tariff discount	100%	None
Other taxes liable for	Minimum Alternative Tax, Service Tax	same as SEZ; plus excises on raw materials and capital goods
Tax holiday	15 years	Up to 10
Environmental Controls	None aside from domestic laws; some prohibition of "water-intensive units"	None aside from domestic laws
Labor Laws	Liable to all Indian Labor laws; labor officer on-site	Liable to all Indian Labor laws

are not exempted from imports tariffs, meaning that they are encouraged to consume inputs from the domestic Indian economy. Due to the generally more advanced (industrialized, sectorally-diverse) nature of EOU enterprise, this creates the possibility for backward linkages between EOUs and the domestic economy.

These two differences provide the key basis for the logic of this investigation. As will be explained in the next part, the developmental potential for any SEZ relies on its ability to engage with the domestic economy; as EOUs are forced to forge an inherently stronger tie with the Indian host economy, it is expected that they will have also contributed more to its development in terms of structural change.

Though not supportive of true SEZs, the EOU scheme

does implement the basic SEZ concepts of incentivized export generation, and allows for the attraction of FDI. Thus, the EOU scheme serves as a valid comparison against India's SEZ scheme for the comparative purposes of this paper. And furthermore, because the EOU scheme accomplishes many of the goals of the SEZ scheme, it should be considered a viable policy alternative to the traditional SEZ.

2.5. EOUs, SEZs, and the Indian Economy

2.5.1. Export performance. India's SEZs have tended to perform poorly as a driver of foreign exchange earnings (Aggarwal, 2010). This is largely due to the general strictness of Indian economic regulation and zones' ini-

Figure 2.2. EOU/SEZ Share of National Exports, 1992-2008. Source: EPCES, GOI data.

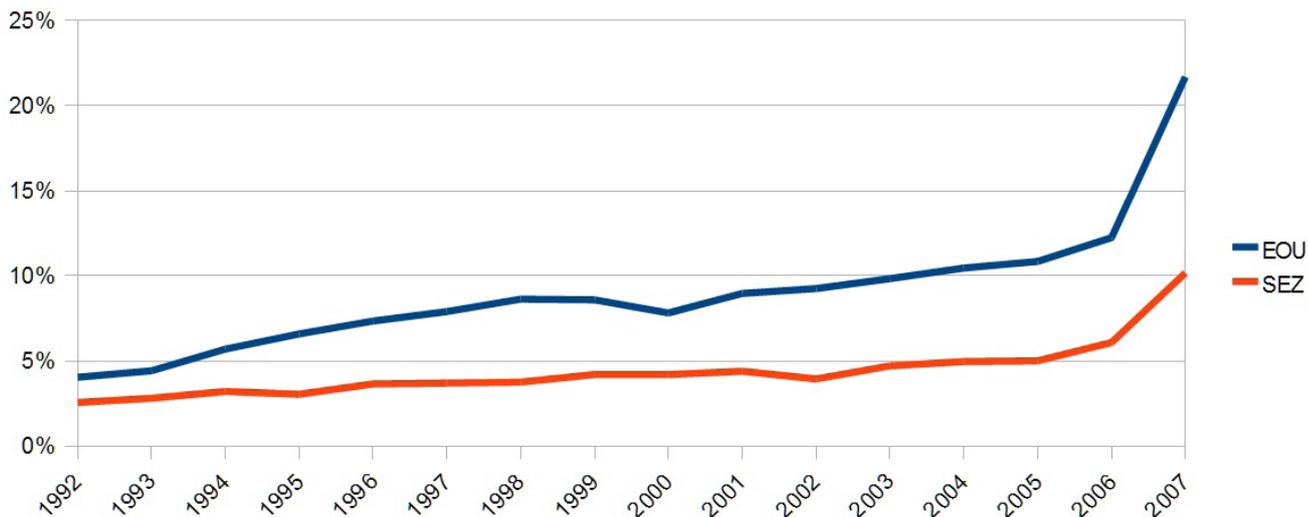
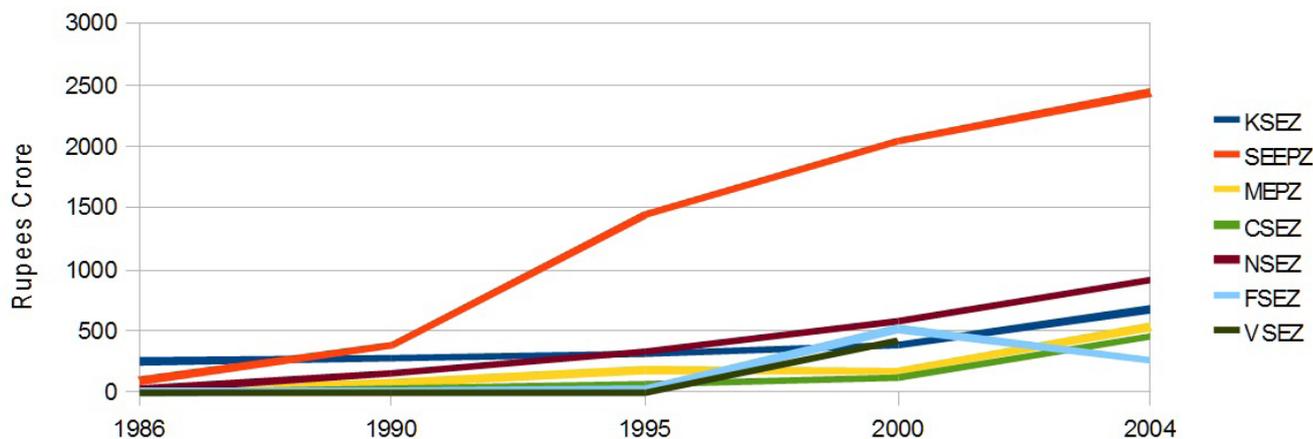


Figure 2.3. SEZ Net Foreign Exchange, 1986-2004. Source: Tatri, 2011.



tial focus on low-skill manufacturing in SEZs (Aggarwal, 2004; Gokarn & Gulati, 2008). The former have only been lightened in recent years, but increased sectoral diversity in SEZs has followed (Aggarwal, 2010). SEZs' share of national exports hovered between 3% and 5% during the 1990's and 2000's, while EOUs' share of exports rose modestly – but steadily – during this period. Poor performance was also signaled by SEZs' lackluster gains in foreign exchange. A notable exception is the Santacruz SEZ/EPZ (commonly, SEEPZ) in Maharashtra, which has been consistently more successful than its peers in terms of exports earnings, employment, and investment, likely due to its strict focus on electronics and software.

Since 2005, SEZ exports have grown radically: by 2008 SEZ exports showed twice the rate of growth as that of India's domestic exports, and EOUs have experi-

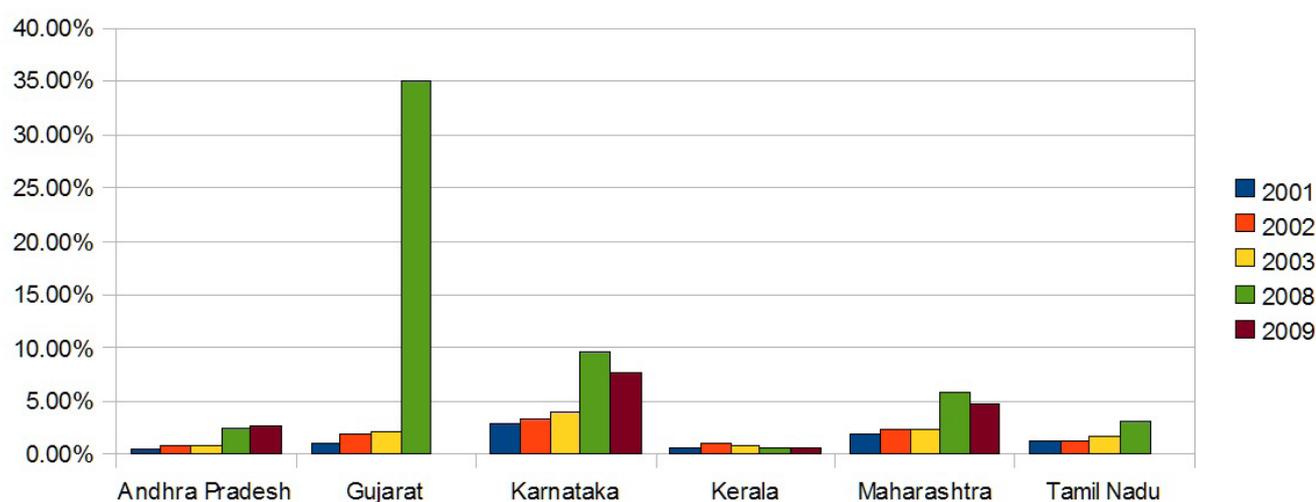
enced a similar boost (Aggarwal, 2010; p26). Similarly, employment in SEZs grew by 70% between 2000 and 2006, and then by 250% between 2006 and 2009 (GOI data).

At the state level, the EOU and SEZ schemes have developed quite differently. In the state of Gujarat, for example, EOU exports comprise one third of total state output, while in Karnataka they generate less than 1%. This difference can in part be attributed to differing levels of development in these states at the time of the EOU and SEZ schemes' implementation: Gujarat was largely unindustrialized at the time of the EOU scheme's establishment, while the domestic economies of Karnataka and Tamil Nadu were more diversified (GOI Economic Census data). Figure 2.4 shows change in EOU contributions to domestic activity over time.

Table 2.3. EOU Share of State Output, 2008. Source: GOI, EPCES data.

State	Total Output	EOU Output	EOU as % of Total
Andhra Pradesh	335658.26	7893.09	2.35%
Gujarat	294709.36	98582.38	33.45%
Karnataka	200694.77	1216.6	0.61%
Kerala	139053.22	16480.6	11.85%
Maharashtra	503603.68	13340.53	2.65%
Tamil Nadu	259665.73	14915.73	5.74%

Figure 2.4. EOU Output as Share of State Output. Source: RBI, EPCES data.



Data on employment in EOUs are variously reliable, making conclusions from them tenuous. That said, one report from the Indian Department of Commerce cites (ambiguously) that between 1991 and 2003, the states referenced above employed, on average, 150 workers per EOU, and that EOUs employed between 0.6% and 1.6% of the domestic workforce.

Table 2.4 chart indicates that the states above made up the bulk of India's EOU activity over this period, comprising 66% of units and 65% of employment across all EOUs. This chart also suggests that India's EOUs boast higher per-worker productivity than domestic workers, given their outsized contribution to state activity. Additionally, differences in EOU employment by state reiterate the effects of initial development levels: states like Tamil Nadu, Andhra Pradesh, and Kerala which have developed more independently of the EOU and SEZ scheme show smaller proportions of EOU contribution to all employment.

2.5.2 Sectoral Identity. EOU aggregate sectoral identity reflects the sectoral distribution of the domestic economy: this is most likely caused by the EOUs' unique registrations process. Up until the mid-2000's, EOU exports were dominated by low-skill and low-intensity output, namely textile production and mining (mostly production of granites). As the below chart indicates, over time EOUs began to engage more heavily in higher-order activities, notably pharmaceuticals and chemicals, engineering, and electronics. All in all, the sectoral change exhibited by India's EOUs follows that of its overall output.

Across states, EOU sectoral composition also tends to reflect non-EOU domestic activity. The outlier in this case is, again, the state of Maharashtra: its EOUs focus on high-technology electronics and chemicals/pharmaceuticals, while its domestic economy is among the less-developed in this selection of states. Why this divide? The cause is likely to do with the fact that the SEEPZ was

the first electronics-focused EPZ in India, and one of the earliest established: it would have drawn the majority of electronics-focused FDI to India, getting a head start on building competency in this area. And, given the isolation of its SEZ during the earliest stages, this industrial advantage was unlikely to have had an effect on the domestic economy until recently.

Government-run SEZs were typically founded with a specific focus on low-skill manufacturing and trade. With subsequent liberalization measures, however, SEZs have diversified, also beginning to reflect local economies. Figures 2.7 and 2.8 show the sectoral breakdown in the major SEZs; notable is the increase in earnings from gems & jewelry (a sector heavily reliant on local mining and low-skill manufacturing), and electronics, supported by a separate drive within the Indian economy aimed at developing its IT/ITES sector. This increase cannot be explained by general increases in productivity or technology: it is a case of local economic activity being funneled through SEZs as an exports.

This phenomenon captures one of the fundamental confusions surrounding SEZ domestic welfare: do SEZs generate new activity, or simply reallocate existing activity via the promise of avoided duties? In the Indian case it would seem to be a mixture of both, as SEZ and EOU earnings only began to increase substantially as the rest of the economy developed. That said, the EOU scheme represents both risk and promise in this context: EOUs do provide means and encouragement for domestic enterprise to focus on the international market rather than the domestic. But, they also allow domestic and capital unprecedented access to cheap inputs and foreign investment.

2.5.3 Interaction with the Domestic Economy. The data in Figure 2.5 suggest shifting relationships between SEZs and EOUs and the domestic economy.

Table 2.4. Employment in EOUs. Source: DOC, RBI data.

State	EOUs (#)	Empl. (#)	EOU % of Total	Empl/EOU
Andhra Pradesh	458	71961	0.58%	157.12
Gujarat	509	64948	1.18%	127.6
Karnataka	473	84493	1.33%	178.63
Kerala	82	10129	0.18%	123.52
Maharashtra	607	92815	0.97%	152.91
Tamil Nadu	676	109253	0.92%	161.62
Selected States	2805	433599	0.85%	154.58
India	4261	671177	1.64%	157.52

Differences in levels of sectoral resemblance suggest the incorporation of traditional and domestic enterprise into SEZ and EOU enterprise (among others, the inclusion of mining (granites, gems, jewelery), textiles, and food processing.

Overall, the two schemes are defined by their policy frameworks. Until 2005, SEZs were only instituted as government-managed exports instruments, with focuses on basic manufacturing (notwithstanding SEEPZ). After

that point, they began to reflect the domestic economy in terms of sectoral output.

Alternatively, it would seem that output from EOUs was more directly influenced by the composition of domestic enterprise, suggesting both resemblance of and greater integration with the domestic activity.

One key finding speaks to the potential development of the relationships between EOUs and domestic activity.

Figure 2.5. EOU Sectoral Output, National, 1999-2009. Source: EPCES data, compiled by author.

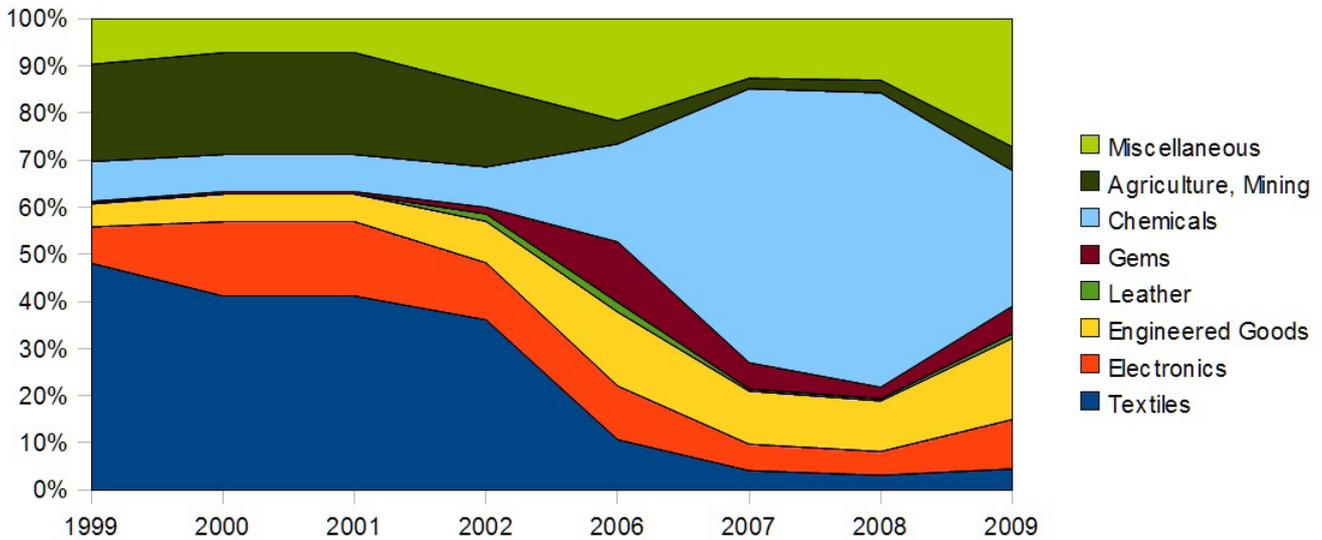
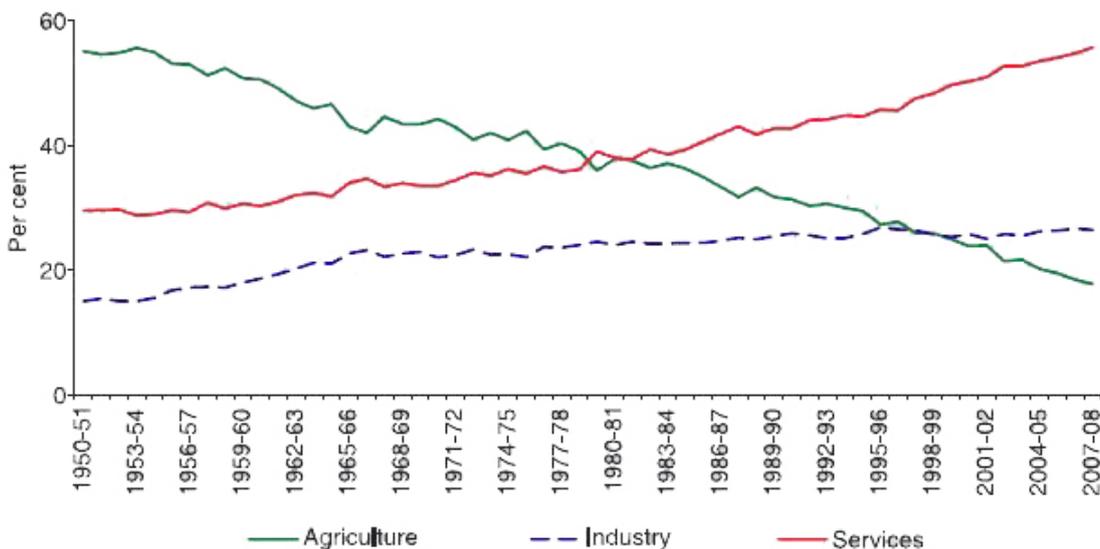


Figure 2.6. India Sectoral GDP. Source: Kaur et al., 2009.



The data in Table 2.5 are taken from a 2009 study published by the RBI which analyzed the strength of linkages between sectors of the Indian economy.

Table 2.5 indicates the strength of production and demand linkages as a function of the other-sector outputs which each sector required in order to produce one unit of output. Thus, in 2003-2004, industrial activities sourced on average 3% of their inputs from the agricultural sector, etc..

These findings show an increasing intensity of linkages between sectors in India over this period. These data suggest the technical intensification of agriculture: their increased use of industrial products would involve technological upgrading. Industrial production also became less reliant on agricultural output, suggesting industrialization and productive diversification. Data on EOUs do not allow a specific analysis of their performance in this regard, but because of their special exports and imports allowances, they would be expected to have participated in this process.

Figure 2.7. EOU Sectoral Identity, Selected States (2008). Source: EPCES data, compiled by author.

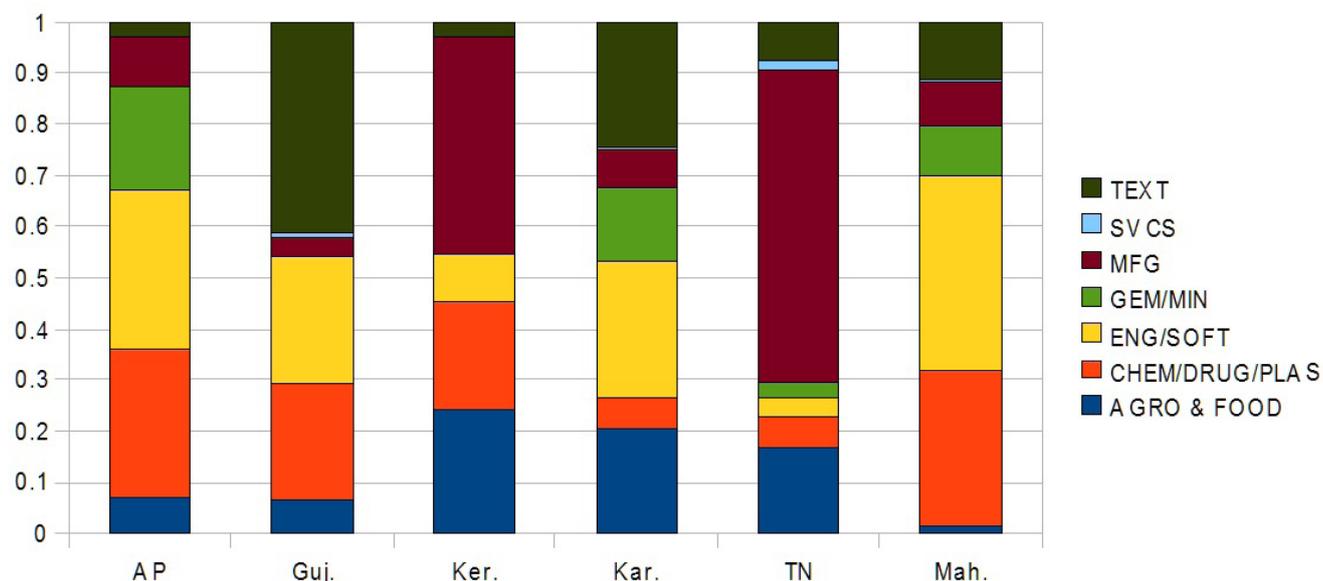


Figure 2.8. State Sectoral Output, 2005. Source:GOI data, compiled by author.

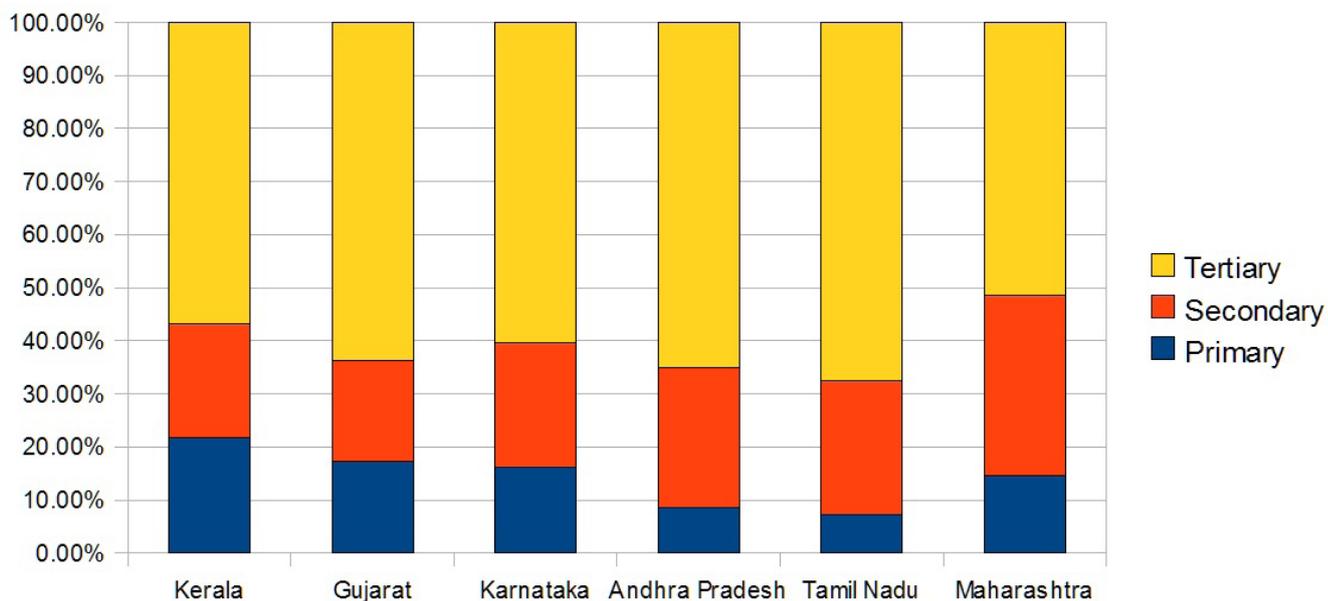


Figure 2.9. SEZ Sectoral Output, 1999 and 2002. Source: GOI data, compiled by author.

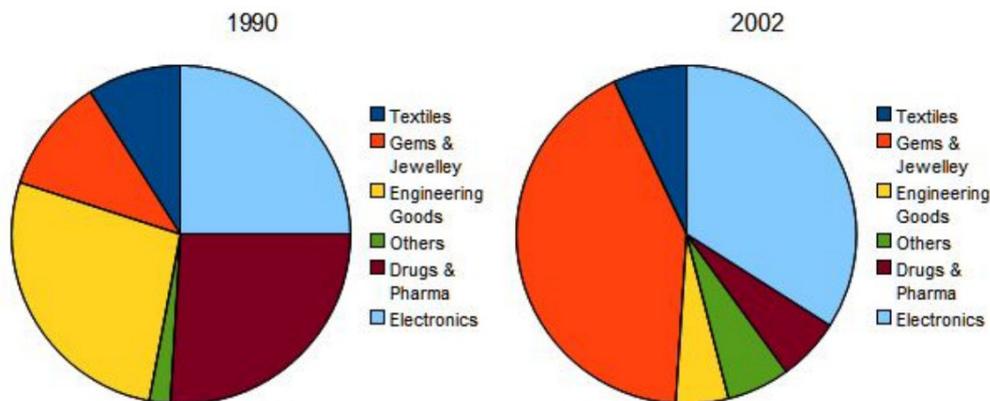


Table 2.5. Change in Intersectoral Linkages. Source: Kaur et al., 2009.

Production Linkage Strength			
1968-69	Agr.	Ind.	Svcs.
Agriculture	0.18	0.13	0.02
Industrial	0.04	0.33	0.13
Services	0.02	0.14	0.1
1979-80			
Agriculture	0.16	0.13	0.04
Industrial	0.07	0.35	0.11
Services	0.02	0.15	0.1
1989-90			
Agriculture	0.17	0.04	0.04
Industrial	0.14	0.37	0.17
Services	0.05	0.19	0.19
1993-94			
Agriculture	0.15	0.04	0.04
Industrial	0.14	0.42	0.23
Services	0.03	0.1	0.12
1998-99			
Agriculture	0.12	0.03	0.03
Industrial	0.2	0.42	0.21
Services	0.03	0.1	0.13
2003-04			
Agriculture	0.2	0.03	0.03
Industrial	0.18	0.46	0.22
Services	0.05	0.11	0.13

Consumption Linkage Strength			
1968-69	Agr.	Ind.	Svcs.
Agriculture	1.23	0.25	0.06
Industrial	0.09	1.56	0.23
Services	0.04	0.24	1.14
1979-80			
Agriculture	1.21	0.26	0.08
Industrial	0.14	1.6	0.19
Services	0.05	0.27	1.14
1989-90			
Agriculture	1.22	0.1	0.07
Industrial	0.32	1.73	0.38
Services	0.14	0.4	1.32
1993-94			
Agriculture	1.19	0.09	0.07
Industrial	0.33	1.84	0.5
Services	0.07	0.21	1.19
1998-99			
Agriculture	1.15	0.08	0.05
Industrial	0.42	1.83	0.46
Services	0.09	0.22	1.21
2003-04			
Agriculture	1.27	0.08	0.06
Industrial	0.47	1.96	0.5
Services	0.12	0.25	1.21

3. Literature Review and Conceptual Framework

This section will outline streams of scholarly discussion relevant to the analysis at hand. Namely:

- a) Theory of special economic zones
- b) SEZ Analysis: methods and outcomes
- c) The links between zones and structural transformation
- d) SEZs, linkages, and unbalanced development
- e) Geography and its implications for zones' developmental effects

3.1. SEZ Theory

The literature surrounding special economic zones can be divided into two broad themes. The first, which I call “zone theory,” theoretically assesses the mechanisms of zone functionality, seeking to identify key relationships and processes. A second vein, which I call “zone analysis,” attempts to generate objective assessments of zone functionality via a various methods of analyses. Most frequently these analyses weigh concrete costs and benefits – infrastructure costs, administration, foregone tax revenue, export earnings, etc. – within an abstract framework or against zone stated aims. These strains are best treated as distinct in the sense that zone theory seeks to refine the understanding of specific elements of the zone model, while the second seeks to apply some form of the zone model in order to draw objective conclusions on zone effectiveness.

3.1.1 Slow-moving foundations. Zone theory has consistently lagged behind real-world implementation, and the body of work which has emerged is characterized by disagreement (Johansson, 1994). A coherent body of theory only emerged during the 1980's, and remained paltry into the 1990's (cf Grubel, 1982; Johansson, 1994), many years after the first zones were established.

Early analysis of zone performance focused on zone assessment via static economic metrics from within traditional models of international trade: the Hecksher-Ohlin model has been a workhorse for zone measurement (Guang-wen, 2005; Jayanthakumaran, 2003). In consideration of the special nature of the SEZ, this is not entirely unmerited: by judging the the zone concept as a permutation of trade barriers, it could be meshed with the

dominant methodologies of trade theory, and this practice continues today.

That said, the lack of a standalone, coherent zone theory has negatively impacted the scholarship's ability to understand and assess zones' special merits: early analyses of zone functionality almost completely ignored secondary (catalytic) effects (Johansson, 1994). Lack of focus on the geographic elements of trade and development was a key contributor to the application of existing trade models to the study of SEZs (Hamada, 1974; Johansson, 1994; Jayanthakumaran, 2003).

Grubel's 1982 analysis of developed-world zones discussed the economic and development implications for different types of free zones – among them free banking zones, free insurance zones, and free enterprise zones. He identified a potentially positive welfare effect in the possibility for more highly-targeted local economic policy, and a negative welfare effect in the 'locational diversion' of trade and investment (a neoliberal viewpoint which would come to dominate many other pieces on SEZs). After stating that, theoretically, the welfare effects of zones would be universally indeterminate (i.e. dependent on individual circumstances), Grubel went on to explain via the Hecksher-Ohlin model that deregulation would lead to increased local activity, which would cause its own particular set of positive and negative aspects.

Though they would not be taken up in earnest for another ten years, Grubel's analysis identified some key elements for future zone analysis. Most important among these were zone secondary (catalytic) effects, which he stated would exist due to interactions with local economic activity. Though he predicted these secondary effects might be negative, these concepts would later come to dominate discussions of SEZ developmental effects.

Subsequent inquiries subdivided elements of the zone phenomenon, focusing in turn on specific mechanisms of zone functionality. This vein is quite broad, and has teased out many specific relationships between zone functionality and various economic or development goals (cf Young, 1986; Din, 1993; Jones & Marjit, 1995; Devereux & Chen, 1995, Hamilton & Svensson, 1982).

Yuan & Eden (1992) put forth one basic – but comprehensive – framework for the understanding of SEZ success, replicated in Figure 3.1.

3.1.2. Zones as catalysts. As early as the mid-1980's, the focus of SEZ theoretical analysis had begun to shift to the aforementioned secondary effects, which included linkages, technology and skills transfer, and others. Miyagiwa (1986) interpreted zones in terms of the process of development, finding that they could be welfare-producing for nations in the process of industrialization; Johansson (1994) called into question earlier analysis which did not account for secondary effects, coining the term "catalytic" to refer to zones' secondary effects.

The vein of scholarship had begun to contemplate the potential for zones to act as *catalysts* for economic development (cf Johansson, 1994; Johansson and Nilsson, 1995; Litwack and Qian, 1997; O'Flaherty, 2008; Din, 1994). It is at this point that zones became a theoretical topic in terms of economic *development*: until this point much of SEZ theory sought to justify their use as a policy alternative, but afterward more time was spent attempting to elucidate zones' potential to act as stimulants for development.

Zones' catalytic effects, which are characterized by interaction with the domestic economy (as opposed to the international economy), include:

- Backward and forward linkages: depending on zone policy, enterprises within the zone may be allowed to export some or all produce to the domestic economy, and source some or all inputs from it. Thus, policy measures can either inhibit or encourage the creation of demand and supply links with the domestic economy.

- Key mechanisms: backward linkages (creating demand for intermediate inputs from domestic economy); forward linkages (creating supply of intermediate inputs for domestic enterprise) (Rodriguez & Clare, 2008)

- Industrial spillover: a zone's ability, via training of and demonstration, to lead to upgrading of practices and technology in domestic activities

- Key mechanisms: human capital upgrading via the demonstration effect and training; technology transfer (Omar & Stoeber, 2008)

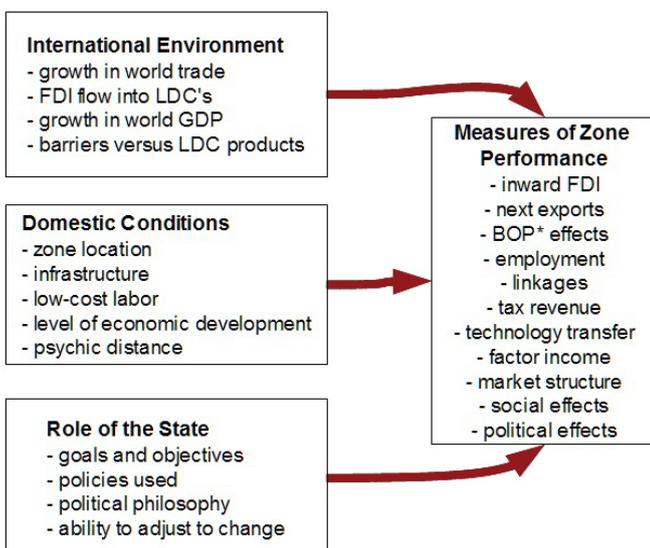
Zones have traditionally gathered criticism for their *failure* to contribute to these secondary processes. Their very nature as export-oriented enclaves – isolated economically and physically – tends to hamper linkage effects and the spread of technology via supply and demand mechanisms, while a frequent concentration in light (low-skill) manufacturing and shipping limits the spread of higher-level skills among the domestic workforce (Aggarwal, 2004). Over time zones have developed towards a less enclave-oriented policy scheme, and the Indian SEZs and EOUs – initially isolated like many other zones – have expanded towards higher engagement with the domestic economy.

The more recent emphasis placed on zone developmental effects is due in part to the fact that processes of industrial spillovers driven by FDI had begun to receive attention from major international development organizations around this time (Johansson, 1994). Additionally, the fact that many developing nations had succeeded in kick-starting the process of development (whether through SEZs or not) led to a broadening of the discussion concerning those processes and policies involved (Cheney, 1975; p135).

Zone theory has continued this line of reasoning: most zone studies and analyses now integrate zone catalytic effects and many modern zone policies (including the Indian) emphasize and support development-inducing secondary effects (Aggarwal, 2004). This new focus makes plain the links between processes of structural transformation and zone developmental effects: it lays out the ways in which zones may begin to attack the problems laid out by the longer-established development theories. Of particular note to the purposes of this paper is the mesh between structuralism and zone theory, which will be explored shortly.

In a more modern appropriation of zone contribution to basic human development, Aggarwal (2004) lays out key determinants of zone effects (reproduced in Figure 3.2). Subsequent elements of this chapter will both broaden and shift this framework, to include linkage effects (which are not explicitly dealt with in much of Aggarwal's work)

Figure 3.1. Yuan & Eden's SEZ Performance Framework (* Balance Of Payments).



and to focus on the processes of structural transformation.

3.2. SEZ Analysis

Evaluation of SEZ performance has received a great deal of attention. Due in part to the fact that zone theory remains murky, the scholarship has had difficulty in distilling a model for the developmental zone and, as a result, the analytical literature reflects no widely-accepted conclusions as to zones' merits: considerable controversy continues to surround SEZ implementation.

Given continued disarray in this vein of discussion, this section will simply trace general lines of analytical reasoning and their respective conclusions, rather than grant support for any of the final assessments championed by the divergent streams involved. Analysis of SEZs can be divided into three categories: descriptive analysis, cost-benefit analysis, and theoretical analysis (Jayanthakumar, 2003).

3.2.1. Descriptive Analysis. Common descriptive analyses – most frequently compiled by international organizations and political bodies – dissect SEZs on a case-by-case basis, focusing on localized economic and developmental effects. Individually, descriptive analyses offer great depth of understanding, and some have been

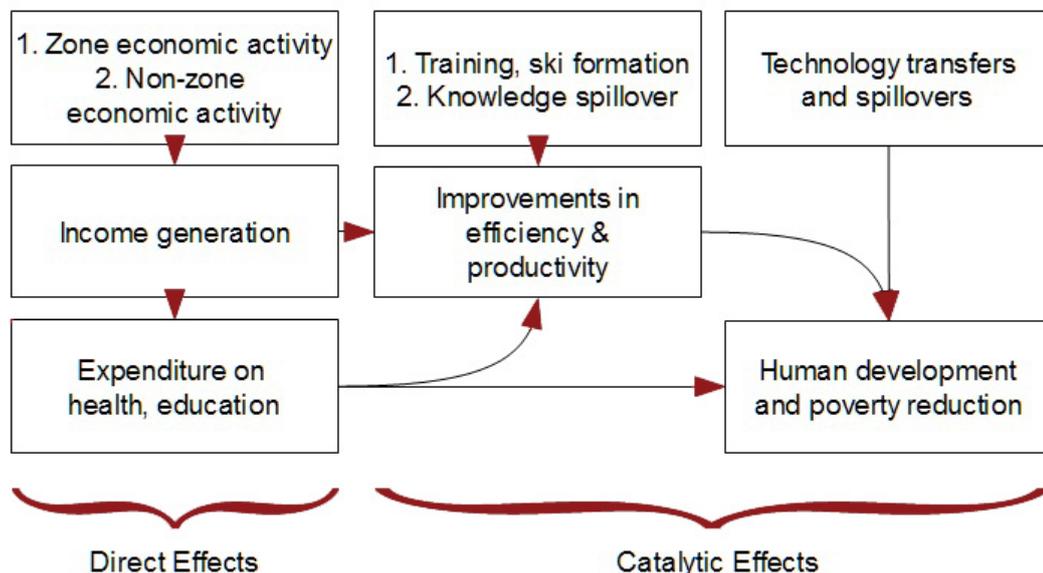
helpful in the completion of this report. Because of their specificity, they are especially helpful in contributing to a broader understanding of zone implementation and political economy. But the diversity of policy platforms and performance experiences make it difficult to draw broad conclusions from these studies.

Furthermore, these studies – especially reports by regional and national governments – are limited in their ability to contribute to a consensus on zone effectiveness because of a frequent failure to engage consistently with broader frameworks. As a result, these studies can be useful as documentary evidence, but they struggle to contribute to the broader understanding of the *theory* of special economic zones.

Studies of zones in the Indian context (cf Madani, 1999; Aggarwal, 2004; Aggarwal 2010) have been instrumental in the completion of this study. That said, they cannot be treated as necessarily internationally applicable; as a result effort will be made to tie these studies and their conclusions to broader frameworks of development and structural transformation.

3.2.2. Cost-benefit Analysis. Zone cost-benefit analyses follow Warr's key 1983 work, which assessed zone cost-effectiveness by weighing economic gains, maintenance and infrastructure costs, and token secondary effects (linkages, spillover, etc.) against a counterfactual. Setting forth a standard framework for the measurement of zone welfare, Warr's analysis of zones in Korea, Malay-

Figure 3.2. SEZ Developmental Effects (adopted from Aggarwal, 2004).



sia, Indonesia, and the Philippines produced a negative result: by his calculus, foregone tax revenue and negative social and environmental effects outweighed economic gains from foreign investment and export generation. It is notable that Warr defined secondary effects very narrowly.

Warr's study was the first to employ a cost/benefit framework for the analysis of SEZs. Unsurprisingly his methodology has come under fire in the years since it was published. One key criticism focuses on Warr's tendency to assess zones only in terms of static economic returns (Johansson, 1994). Additions to this vein of reasoning have sought to incorporate secondary, non-economic effects (including skills and technology transfer, linkage effects, as well as intangibles within the realms of social and environmental sustainability).

3.2.3. Theoretical Analysis. Theoretical analyses have traditionally made use of variants of the Heckscher-Ohlin model in order to assess the welfare effects of SEZs, after a seminal piece by Hamada (1974). Rooted in the neoclassical logic prevalent at the time, these studies have tended to condemn zone prospects (at times almost out of hand) citing zone policies as an example of distortions to terms of trade. In the most benign interpretations, zone gains would *exactly* equal foregone tax revenue and infrastructure expenditure; in more severe assessments, distortions caused by zone policy would substantially worsen the host nation's economic prospects (Hamada, 1974).

At its base, the neoclassical argument against SEZs depends on a claim of zones' "second-best" nature (second to national free-market reforms, that is) (Farole, 2010; Rodrik, 2008). It has been acknowledged, however, that the neoclassical take on zones' possible welfare effects is, essentially, missing the point: "the neo-classical [theoretical approach]... effectively assume(s) away the reasons for...EPZs," (Johansson, 1994) by arguing that zones cannot be more effective than national free-market reforms, in terms of zones' specific trade goals as well as broader developmental progress.

Furthermore, the neoclassical interpretation draws criticism based on its failure to acknowledge that zone implementation is often appealing specifically *because* wider reforms are impossible or undesirable. As such, some scholars have asserted that in light of the non-economic factors which may affect a nation's decision to embrace neoclassical liberalism, limited implementation of free-market practices may indeed be the preferred route (Farole, 2010; Rodrik 2008). The Chinese SEZ implementation would seem to be a prime example of the staged approach working quite well (though, of course, one must assume that early neoliberal zone assessors intended some indirect criticism of the Chinese model).

The neoclassical approach to SEZs has become less visible today, for two main reasons. First, waning interest in the neoclassical platform has led to alternative interpretations of zones and their effectiveness. Second, and perhaps more influentially, empirical performance in many developing countries has debased the outright dismissal of zone policy, instead honoring more open technical and theoretical investigations.

3.2.4. Conclusions? It is safe to say that the scholarship has had difficulty in reaching consensus as to the appropriateness or effectiveness of zones for economic or developmental ends. This is mostly due to the literature's struggle to determine a precise framework for measuring zone success: formal methods tend to miss the secondary effects which often end up being the root of zone success in many real-world implementations. In the future, the drive to theoretically justify zone suitability is likely to continue to encounter difficulty, as the landscape continues to grow in complexity.

That said, the literature has developed understanding of SEZs' facilitation of developmental processes. This understanding covers catalytic effects: those processes whereby the SEZ may interact with the domestic economy to improve local skills and technology, and generate non-zone economic activity. The rest of this chapter will link SEZ developmental effects to processes of structural transformation, as well as geographic determinants of SEZ functionality and linkage theory.

3.3. Structural Transformation

The study of structural transformation focuses on changes to elements of economic and social structure which accompany increases in income: broadly, structuralists seek to understand the fundamental economic changes which accompany patterns of human development (Chenery and Sryquin, 1975; p.3). Some elements of economic and social structure which have been correlated with economic development include accumulation processes (savings, government revenue, and education), resource allocation (domestic demand, production, and trade), and demographic and distributional processes (labor, urbanization, demographics, and income) (Chenery and Sryquin, 1975; p. 20-21).

3.3.1. Patterns of Structural Change. Basic structuralist theory asserts that changes to standards of living and indicators of human development are most sustainably and equitably achieved via broad changes in economic structure (Chenery & Sryquin, 1975); broad patterns of structural transformation include changes in economic composition, output, and employment.

The seminal 1975 work *Patterns of Development* statistically outlines a set of structural processes which accompany economic development across a range of countries in different stages of development. Of most interest to this study are the authors' analyses of structures of production, employment, and trade (investment would also be of interest, but is not included because of limitations in available data and the isolated, FDI-focused nature of special economic zones). These broad patterns will be of interest in order to understand the effects of India's SEZs and EOUs on its processes of structural transformation. The graphs below illustrate the work's measured change for the three elements of concern to this paper.

Fig. 3.3 charts the gradual shift from a production scheme dominated by the primary sector to one more heavily skewed toward secondary and tertiary output (Chenery also assesses the presence of utilities, but this sector is considered extraneous to this study). The shift in production makeup charted here resonates throughout development theory, and will be a key measure of SEZs in this study. Fig. 3.4 charts change in employment, mirroring change in output and accounting for changes to productivity levels.

3.3.2. Drivers of Structural Change. The literature

Figure 3.3. Change in Output. Source: Chenery & Sryquin, 1975.

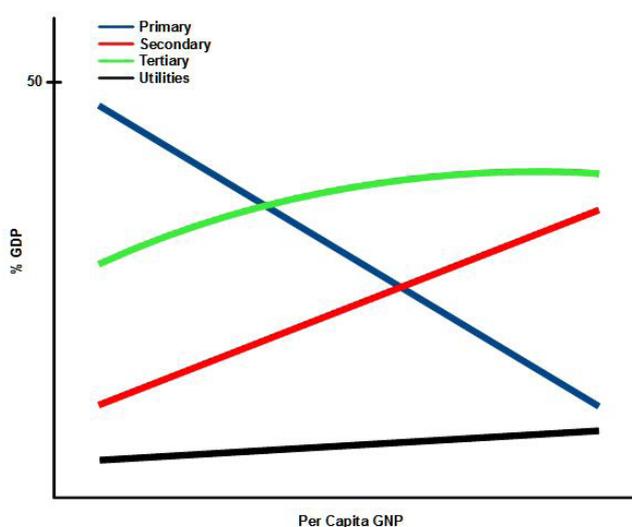


Figure 3.4. Change in Employment. Source: Chenery & Sryquin, 1975.

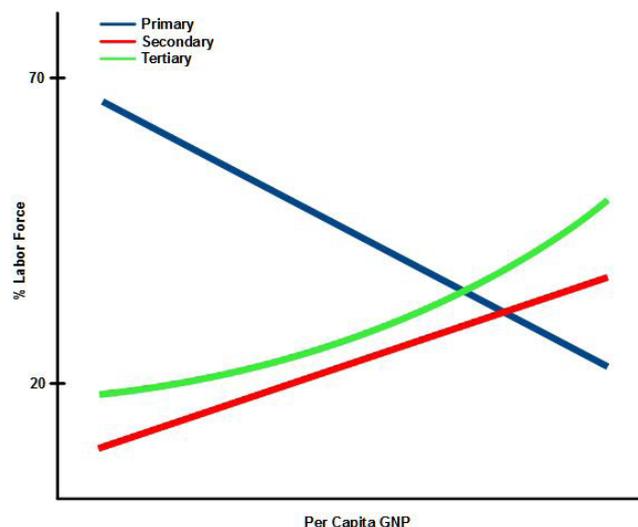


Table 3.1. Mechanisms of Structural Change. Source: Author's elaboration.

Mechanism	Effect on Economic Structure
Stage 1	
Income increase	Support for economic growth and diversification via increased demand; increased standards of living due to improved purchasing power
Productivity increase	Increased supply, especially of higher-level goods; lowered commodity prices and increased standards of living
Stage 2	
Increased demand	Economic diversification, technical intensification, increased productivity
Increased supply	Facilitation of higher-level enterprise via production of inputs and commodities; reductions to cost of business

on structural transformation identifies a handful of key mechanisms which drive the development of a diversified economic structure. Four mechanisms relevant to the purposes of this paper include increased income, increased productivity, increases to demand and supply for higher-level goods and services, and increased backward and forward linkages (Chenery & Sryquin, 1975).

3.3.3. SEZs and Structural Change. Special economic zones have traditionally been criticized for their performance in terms of generation of structural change. Some zones are simply not designed for this purpose, and many policy elements favor the simple generation of exports earnings and the attraction of FDI. SEZs' direct effects – employment and income generation, isolated as they are – have been cited as playing a minimal role for human development and structural change (cf Warr, 1983; Hamada, 1974; Johansson, 1994).

Still others, however, fail at this goal despite containing policy elements intended to increase influence on the domestic economy. Though some examples of zone-driven structural change do exist – as in Mauritius, the Dominican Republic, and China) they are generally rare (Johansson, 1994).

While the Indian zones were initially designed to act as simple export enclaves, with the evolution of Indian SEZ policy they have become more supportive of processes which interact with the domestic economy. The establishment of the EOU scheme in 1981 represents (though perhaps unwittingly) a substantial shift toward the support for SEZ catalytic effects.

Zone primary and secondary effects are linked to processes of structural transformation. The processes of skills upgrading, technology transfer, and linkages con-

tribute to the diversification of employment and output. Table 3.2 lays out a few of these relationships.

Figure 3.5, modified from Aggarwal's human development-focused framework, illustrates direct and secondary SEZ effects on structural transformation.

3.4. Linkages and Unbalanced Development

The literature on linkages and economic development contains two main strains which are relevant to the purposes of this paper. These are Hirschman's foundational work (1958) on the definitions of linkages, and the effects of foreign investment on the generation of linkages, mainly dependent on Rodriguez-Clare (1996).

Hirschman defined economic linkages in two ways: as either *backward* or *forward*, depending on the direction of the movement of goods or services along them.

“The input-provision, derived demand, or backward linkage effects, ... will induce attempts to supply through domestic production the inputs needed in that activity.”

And,

“The output-utilization or forward linkage effects, ... will induce attempts to utilize its outputs as inputs in some new activities.” (Hirschman, 1958; p. 100)

Linkages are key to Hirschman's overall concept of economic development. His is a model of *unbalanced*

Table 3.2. Structural Change and SEZ Catalytic Effects. Source: Author's elaboration.

SEZ effect	Intermediary	Effect on Structural Change
New activity/employment	Increased income	Increased demand for higher-level goods and services
Knowledge Spillover	Skills formation, human capital upgrading	Increased supply of higher-level labor
Technology Spillover	Capital upgrading	Increased productivity, especially in higher-level activities
Backward Linkages	Increased income, demand for higher-level production	Diversification; productivity increase; skill upgrading
Forward Linkages	Access to higher-level goods and services	Productivity increase; support for diversified activity in both production and consumption

growth – that is, he supports the potential for an under-developed economic system to grow and develop in spite of structural deficiencies, so long as linkages between and from important sectors are allowed to function freely (Hirschman, 1958). This concept has clear relevance here: linkages are identified as a key component of the developmental effect of the special economic zone, and Hirschman supports sectoral diversity in economic enterprise (Hirschman, 1958).

Hirschman's emphasis on linkages' contribution to development is important for an understanding of EOUs and SEZs, in two ways. First, EOUs are naturally more prone to the creation of linkages via their policy platform. Second, EOUs are also more likely to reflect and enhance existing skills and resource endowments than they are to support alien production methods, thus serving as a starting point for his model of unbalanced development.

In general, SEZ theory meshes well with Hirschmanian unbalanced/linkage-dependent development. Rodriguez-Clare (1996) wrote on the effects of foreign investment on linkages and development, in another relevant study. He found that three conditions predict positive developmental effects for FDI in a developmental context: a) inputs-intensive production; b) high communication costs between host and headquarters; and c) similar intermediate goods produced in both host and headquarter countries. The EOU and SEZ schemes reproduce these three criteria to differing degrees.

3.5. The New Economic Geography

Given this study's partial focus on location as an interlocutor in the process of economic development, it will

Figure 3.5. Conceptual Framework. Source: adapted from Aggarwal, 2010 and Johansson, 1994.

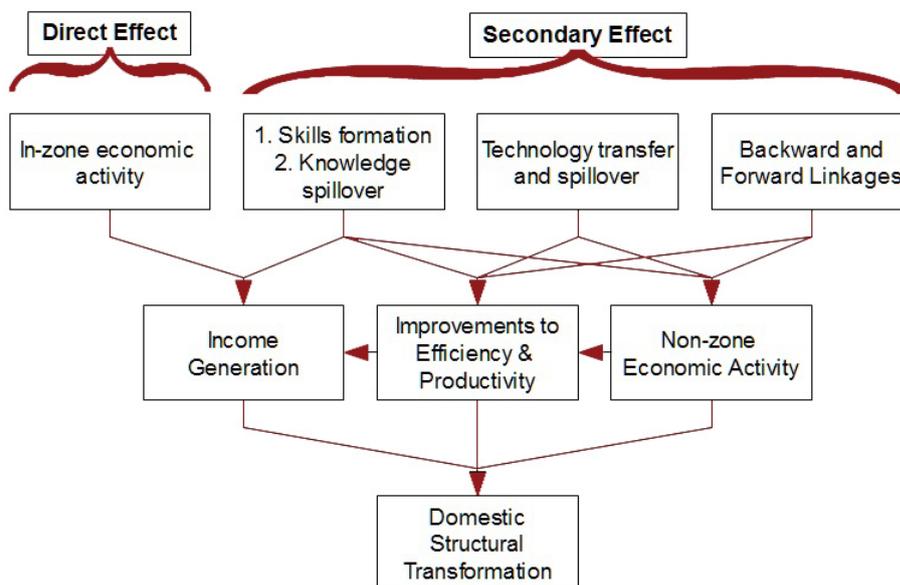


Figure 3.6. NEG: Clustering and Dispersion. Source: adapted from McCann, 2001.



rely upon the body of work known as the “New Economic Geography” (NEG) in order to understand the effectiveness of India's SEZs and EOU.

The NEG seeks to incorporate elements of geographical concern into economic theory and modeling. By shifting the focus of theoretical and empirical analysis from a study based in comparative advantage (a la Hecksher-Ohlin) to one based in spatialized economies of scale, the NEG seeks to illuminate the ways in which spatial matters (resource allocations, policies and regulations, transport,

existing trade, etc.) affect economic outcomes (the movement of goods, people, firms, etc.) and vice versa.

Of crucial importance to this piece, the NEG proposes to understand the relationship between geography and economic activity through the interactions of forces of condensation and repulsion, which work simultaneously to influence firm placement (McCann, 2001). As an example for illustration: transport costs are a key clustering force. In a scenario involving frictionless (free) transport, one would expect to see a firm dispersion outcome with a high number of less-populous urban centers (Fujita,

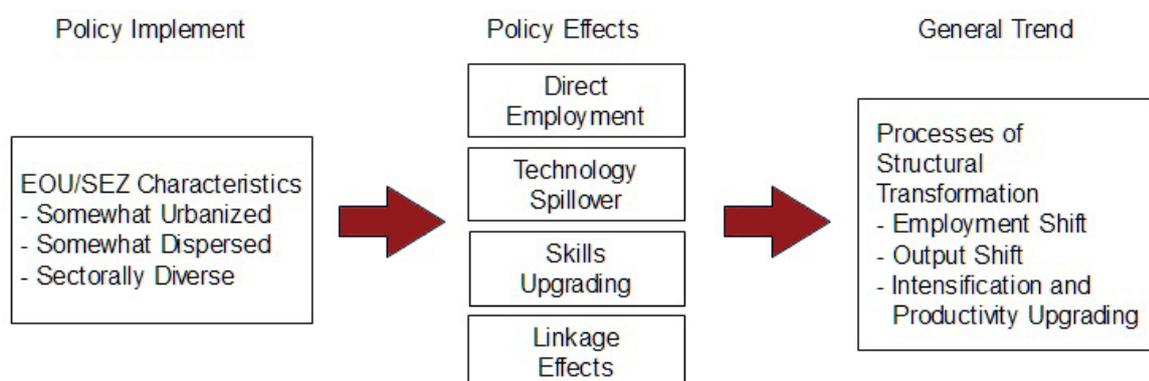
Table 3.3. Catalytic Effects and Geographical Forces. Source: Author's elaboration.

Catalytic Effect	Optimizing Force	Mechanism
Skills spillover	Clustering	High-density areas facilitate diffusion of skills (economies of scale/agglomeration)
Technology spillover	Clustering	High-density areas facilitate transfer and adoption of new technologies (economies of scale/agglomeration)
Linkages	Balanced clustering/dispersion	Potential linkages are greatest in urban areas, but may be exhausted. Also, more linkages with non-urban economy aids sectorally diverse development and structural change

Table 3.4. EOU and Geographical Forces. Source: Author's elaboration.

EOU Distribution Characteristic	Explanatory Remark
Urbanization/Dispersion Balance	Trade-off between optimal linkage creation via dispersion and optimal spillover effects via urbanization
Sectoral Diversity, favoring industrial activity	Optimization of linkage creation, breadth of spillover effects; facilitation of unbalanced development (Hirschman,1958)

Figure 3.7. Conceptual Framework.



Krugman and Venables, 1999). Because transport costs do exist, however, businesses choose to locate in a progressively smaller number of more populated urban centers, as directed by their own individual production constraints. Other clustering forces include returns to scale (agglomeration economies), knowledge spillovers, and benefits derived from dense labor markets (Henderson, 1988; Helshey and Strange, 1990).

Yet other forces act to push businesses *out* of urban agglomerations; these forces are primarily driven by competition for customers and inputs. Thus, given a limited allocation of unnecessary inputs or business opportunities per unit of space, firms must adopt strategies which allow them to optimize for location (McCann, 2001). Figure 3.6 illustrates this relationship.

These two concepts – clustering and dispersionary forces – are of special importance to this study, but they must be translated for use in this particular context: as EOUs are approved *in situ*, and traditional firm location theory may not adequately explain EOU distributions. Because this paper does not seek to explain placement of EOUs, but instead how EOU placement affects broader economic processes, these ideas will be useful in the construction of a concept of optimal EOU placement. “Optimal placement” in this case will be reconciled using an aggregate picture of individual states’ established units; “optimizing” EOU placement should seek to maximize the formation and function of SEZ catalytic effects.

The catalytic effects discussed earlier relate differently to the forces of clustering and dispersion; these relationships are explained in Table 3.5.

Highly urbanized EOUs will serve to maximize the po-

tential for skills and technology to diffuse from EOUs to domestic enterprise; as a result, an “optimal” EOU distribution taking into account only the processes of skills upgrading and technology transfer would seek to place all EOUs in urban settings. As the precise numerical nature of this tradeoff is beyond the means of this study this relationship is tested only as a “balance,” i.e. being “at least somewhat” urbanized or dispersed.

Linkage generation, on the other hand, presents a more complex relationship: linkage ‘markets’ (if they may be called that) can be saturated, and as a result, after a certain point EOUs and the domestic economy would derive no more benefit from locating in an area already dense with EOUs.

Furthermore, in order to maximize the ability for linkages to be generated between the EOU scheme and a sectorally diverse selection of domestic enterprise, it will be important for EOUs to have effective linkages with the non-urban domestic economy. Thus, it seems that there must exist some balance between clustering and dispersion in an optimal EOU distribution.

3.6. Conceptual Framework

Building on the concepts traced out above, Figure 3.7 illustrates the framework of forces contributing to an optimal EOU/domestic economy interaction pattern, which will be tested for in this study. The next section will discuss the methodology for analysis, tying this framework to a series of metrics and plotting potential relationships in available data.

4. Analytical Framework and Methodology

4.1. Study Objectives

This study aims to explore the connections between India's SEZs and EOUs and structural transformation, making a comparative judgment as to the effectiveness of each. In order to understand the developmental effects of India's EOUs, this analysis has related the condition of states' EOU distributions – in geographical and sectoral terms – to the processes of structural transformation which those states have undergone. Building on the NEG- and Hirschman-informed understanding of “healthy” EOU distribution laid out above, this analysis has tested whether a well-structured EOU distribution is more likely to have influenced the process of structural transformation via zone catalytic effects.

4.2. Questions for Analysis

This investigation has been designed to answer two separate questions: first, I will relate India's SEZs to its EOUs in terms of developmental effects, aiming to understand which has been more important in terms of India's structural transformation, as measured by a select group of economic statistics. Second, I will seek to understand which of India's state-wise EOU schemes have been more successful at driving structural transformation. To reiterate this paper's questions for analysis:

1. “Have India's EOUs been more successful at facilitating structural transformation than its SEZs?”
2. “What are the characteristics of the most successful EOU distributions, in terms of geographical and sectoral distribution?”

In the course of this paper's analysis, this study will aim to use the answers to these questions to illuminate the process of SEZ-led structural transformation, making a clear distinction between enclave zone development, and disaggregated zone development. Furthermore, this analysis will clarify the determinants of zone-led development more generally and use these insights to make policy recommendations for the implementation of disaggregated zone policy.

4.3. Analytical Framework

Figure 4.1 illustrates this study's framework for analysis; the following sections explain a set of Indexes which have been compiled as proxies for EOU distributional health, SEZ distributional health, and structural transformation.

4.4 Indexes

4.4.1. EOU_Geo Index. Informed by Hirschman's unbalanced and linkage-dependent theory of development as well as the new economic geography's forces of clustering and dispersion, this index will measure the “health” of EOU distributions. Each of the four following variables have been aggregated as 1/4 of a normalized index in order to present a composite value. (Table 4.1)

4.4.2. SEZ_Geo Index. In order to compare India's SEZs to its EOUs, it will be helpful to compile a similar SEZ Geo Index. Because SEZs are not subject to dispersionary and clustering forces, however, this index will simply measure SEZ host-district urbanization, sectoral diversity, and exports performance. Similar to the EOU index, each variable represents an equal portion of the final indexed value. (Table 4.2)

4.4.3. ST Index. I will use an index of structural transformation in order to determine the performance of each of India's states. In order to do this, I will compile three variables to give a broad picture of the changes to these states' economic structure. Variables are also equally weighted in the ST index (Table 4.3). All Indexes have been normalized to reflect states' performance against the average of all of the states in consideration here. Thus, some states will possess values greater than one for some Indexes; it was felt that this is the most accurate representation of comparative performance.

4.5. Correlation Analysis

The final step of my research has been a correlation analysis, in which I perform a basic regression for EOU_Geo and ST, and for SEZ_Geo and ST. The method of indexed analysis employed here is intended to give a sense for how the processes of structural transformation have relat-

ed to the conditions of EOU and SEZ distributions across the states involved. Analysis of the distribution of states against these metrics will judge states' performance in terms of structural transformation against the "health" of their EOU and SEZ schemes. Though certainly lacking in statistical significance and open to criticism based on the lack of available historical data, by relying on secondary research (Aggarwal, 2010; Aggarwal 2004; Tantri, 2011) it should be possible to reliably extend conclusions drawn in this report.

4.6. Data Resources and Logistics

Ideally, a study of this nature would be able to look at data

at the district level in order to understand specific EOU or zone dynamics. But, with the data readily at hand, it will be necessary to understand the progress of India's development from the state level.

Dates for EOU and SEZ placement and sectoral identity are taken from the period between 2005 and the present; solid data from earlier periods are unavailable. Data on ST are taken from a wider period – relying on the publication of standardized data from as early as 1981 – assuming more-or-less constant effects as a result of EOU and SEZ influence. This leaves open the possibility that India's EOUs have had a smaller or larger effect in the intervening years, but by relying on secondary research according to scholars (Aggarwal, 2010; Tantri, 2011) efforts have been made to minimize

Figure 4.1. Analytical Framework. Compiled from Aggarwal (2010), Johansson (1994).

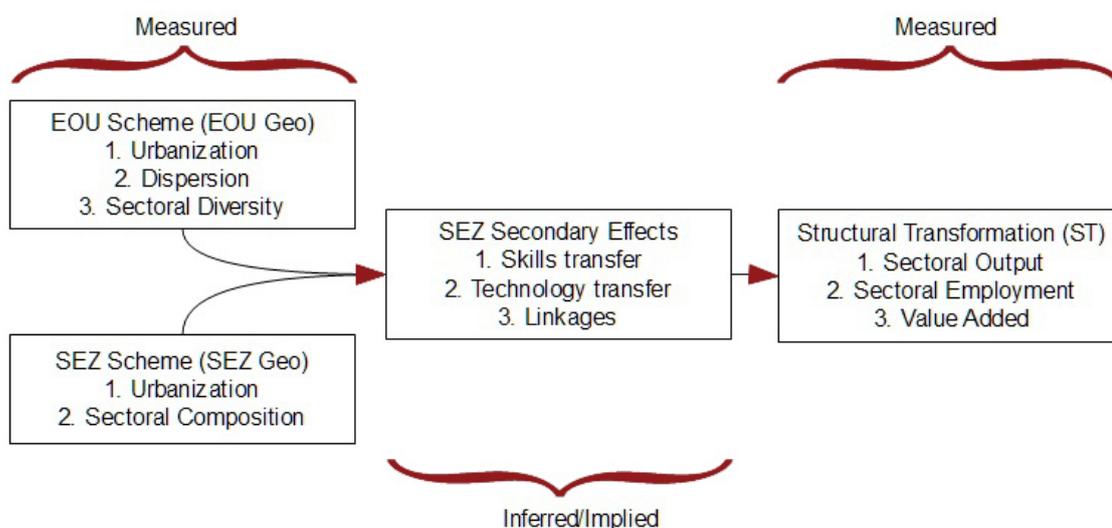


Table 4.1. EOU Index Components.

Index Component	Variable	Metric	Data Source
EOU Urbanization Context	EOU_1	Aggregated state-wise share of population classified as "urban" in EOU hosting districts	GOI Census 2001
State-wise EOU Dispersal Context	EOU_2	Average distance between EOUs calibrated for state area	EPCES; GOI administrative data
State-wise EOU Sectoral Composition	EOU_3	Aggregated EOU sectoral distribution	EPCES
EOU Output Growth	EOU_5	Change in EOU output 2001-2010	EPCES

unknowns.

Information on the geographical context of EOUs (EOU_1, EOU_2, EOU_3, EOU_5) has been taken from data available from India's national Export Promotion Council for EOUs and SEZs (EPCES). This data includes the physical context of relevant states' EOUs and their sectoral division. The limited nature of each EOU – each as a single bonded factory or production hub – and the lack of SOU-specific performance data makes it possible to aggregate EOU performance across states.

Information on India's SEZs is more widely available, but detailed information – specifically sectoral performance over a sufficient time series and employment data – are also lacking in reliability and depth. As a result, enterprise-specific sectoral identities are the most reliable means of approximating sectoral divisions (SEZ_2). Geographical information (SEZ_1) has been drawn from the respective development commissioners where possible, and EPCES where necessary.

The trends of India's state-wise structural change (ST_1, ST_2, ST_3) are widely available via its relevant statistical publications and studies based on this data. Sectoral output (ST_1) has been derived from a study by Gupta (2008); sectoral employment data (ST_2) has been taken from relevant GOI Economic Censuses; and data on value added (ST_3) are published as part of the Indian Annual Survey of Industries.

The states of Andhra Pradesh, Gujarat, Karnataka, Kerala, Maharashtra, and Tamil Nadu have been selected for

analysis based on a few factors. First, it was necessary that states under consideration possess a sufficiently high number of EOUs: this ruled out the majority of Indian states. Second, it was necessary that they also possess an SEZ, ruling out others (with the exception of Karnataka, which has been included to investigate EOU effects in a state without an SEZ).

Other states which might have been included were not based on a particular issue of data overlap. In the case of Haryana, Orissa, Delhi, and Uttar Pradesh: EOUs are clustered around the Noida Special Economic Zone (NSEZ) located in the suburbs of Delhi. It was concluded that these states' EOU distributions do not physically extend far enough from the central hub of the NSEZ in order to have had a sizable effect on either of the individual states involved. As data for the contiguous region most likely to have been affected by EOUs' presence are not published (and good data at the district level are also not published) it was necessary to remove these states from consideration. West Bengal was excluded for a similar reason: EOUs are clustered near the Falta SEZ and Kolkata.

This report has encountered general difficulty due to statistical methods in use by the GOI and MOSPIC. Indian employment and output data are frequently gathered by different bodies for different sectors such that statistics from different bodies may not be reliably compared: secondary sector data compiled in the Annual Survey of Industries are not reconcilable with primary sector information compiled by the census, for example. As a result, where necessary I have attempted to only rely on data

Table 4.2. SEZ Index Components.

Index Component	Variable	Metric	Data Source
SEZ Urbanization Context	SEZ_1	SEZ host district share of population classified as "urban"	GOI Census 2001
SEZ Sectoral Distribution	SEZ_2	SEZ sectoral composition	EPCES
Exports Growth	SEZ_3	Exports growth 2000-2008	Tantri, 2011

Table 4.3. ST (Structural Transformation) Index Components.

Index Component	Variable	Metric	Data Source
Sectoral Output	ST_1	Change in state-wise sectoral output in higher-level activities, 1999-2007	Gupta, 2008
Sectoral Employment	ST_2	Change in state-wise sectoral employment in higher-level activities, 1981-2001	GOI Economic Census, various years
Net Value Added	ST_3	Change in state-wise net value added, 1998-2009	GOI Annual Survey of Industries, various years

which have been compiled by one body or vetted by a third party, as in the case of the data taken from Gupta (2008), Tantri (2011), or Aggarwal et al. (2008).

And finally: the validity of this study's conclusions depends heavily on the extendability of its insights: in some of the states analyzed, it cannot be said with certainty that the local EOU distribution comprises a portion of constituent

activity large enough to have influenced structural change. I have attempted to mitigate this weakness in two ways: by focusing more heavily on states whose EOUs do make up a substantial part of state activity, and by incorporating EOU and SEZ earnings into the relevant Indexes. The states of Gujarat and Karnataka will receive special attention given the fact that EOU exports make up respectively 33% and 11% of those states' economic output.

5. Findings

This study sought to answer the following questions:

1. "Have India's EOUs been more successful at facilitating structural transformation than its SEZs?"
2. "What are the characteristics of the most successful EOU distributions, in terms of geographical and sectoral distribution?"

5.1. EOUs, SEZs and Growth

Analysis of trends between EOU and SEZ performance in *all* Indian states shows that states with higher numbers of EOUs and higher EOU earnings *both* showed lower levels of growth during the 2000's than states with few EOUs or states with poor EOU earnings. This unexpected finding could be interpreted in a few ways (though barring more intensive data they may all be mistaken). The most promising explanation relies on analysis of growth statistics going back to 1980, which shows a positive correlation between states with high EOU earnings and annual GDP. This finding suggests EOUs and SEZs are more likely to have had a positive effect on growth – and development – during this earlier period. As a result, the data available on the performance of EOUs and SEZs in these states – concentrated on the period since 2000 – are likely to reflect the tail-end of a processes of structural change.

Despite this weakness, there are some insights with regard to the relative performance of EOUs and SEZs. Unexpectedly, the results of this study show that it is more likely for SEZs to have had a positive developmental impact than EOUs. As shown below, states whose SEZ schemes were well-urbanized and high-earning showed better performance in terms of structural change than did states with well-positioned and well-performing EOU schemes. That said, the influence of EOUs should not be understated: it was strong, but less strong than the correlation between SEZs and structural change (Fig. 19).

5.2. Geography and Diversity

Figures 5.1 – 5.3 illustrate the results of this analysis' correlation analysis.

The series of conceptual relationships which have been tested for here yield some interesting results. Some initial

hypotheses have been supported – such as the importance of urbanization and dispersion for EOU contribution to structural transformation – while the other – sectoral diversity – must be called into question.

5.3. State Reflections

The results of this correlation analysis suggest that healthy SEZ structures have been more highly related to structural change than have EOUs, but that both contribute to the process of structural transformation. The following will cover some states' performance in this study.

5.3.1. Gujarat. Gujarat's EOUs produced almost 1/3 of the state's domestic activity in 2008, suggesting quite high levels of involvement between EOUs and the domestic economy. In terms of structural change, Gujarat has performed below the average for the states below but above average compared to the rest of India.

Levels of urbanization among EOU-hosting districts are moderate, but the state's EOUs are very poorly dispersed, and they contain relatively low sectoral diversity. Interestingly, there does however seem to be considerable overlap between the Gujarati domestic economy and its EOUs: EOUs engage heavily in textile manufacturing and food processing, which are dependent on the primary sector. Change in employment diversity in the state (which has been relatively low) further reflects this relationship.

Special note must also be made of Gujarat's SEZ, Kandla. As India's first SEZ (and one in which developmental initiative was at least a partial factor in its establishment) it is likely to have contributed hugely to the state's structural change *and* the success of its EOU scheme, even trumping Gujarat's EOU performance as a facilitator of catalytic effects.

5.3.2. Karnataka. Karnataka's EOUs make up more than 10% of its domestic activity, and it has also performed above-average in terms of structural change. According to the logic of this paper, Karnataka's EOU distribution is more ideal than Gujarat's: it is more moderately urbanized, more highly dispersed, and similarly sectorally

diverse. But it also lacks an SEZ, which in the case of Gujarat, was a major component of its success in this analysis. Interestingly, Karnataka's EOU sectoral distribution is also highly reflective of its domestic economy: EOUs are reliant on engineering, agricultural processing, and manufacturing. Overall, Karnataka's EOU scheme has performed well in this analysis, and the degree to which it resembles the domestic economy suggests strong linkages are present.

5.3.3 Maharashtra. Maharashtra's EOUs make up only 3% of its domestic activity, but it is worth noting because it has performed extremely well in terms of the metrics employed here. It leads the pack in terms of structural transformation trends, and has also done very well in terms of the health of its SEZs, specifically (though also with regard to its EOUs).

Maharashtra is home to SEEPZ, one of India's oldest SEZs, and one focused explicitly on high-value, high-technology activities. Data from EPCES suggest that this

sectoral concentration has influenced the composition of its EOUs, which are concentrated in similar areas. This would support the existence of strong linkages between the state's SEZ and EOUs; this expectation is supported by the fact that the state's EOUs are very highly dispersed and moderately urbanized, although lacking in sectoral diversity.

5.4. Variable-based Analysis

Figures 5.2 and 5.3 relate each of the components of the EOU index to the process of structural transformation. The relationships between EOU_1 (urbanization) and EOU_2 (dispersion) and structural transformation are moderate but positive, supporting the initial expectations of this study. However, given that neither of these traits was unambiguously related to structural transformation – the states of Gujarat and Tamil Nadu showed moderate EOU urbanization but robust structural change – one must assume that the level of urbanization of EOUs is a secondary concern. Dispersion of EOUs falls into a similar category.

Figure 5.1. EOU/SEZ Index Performance. Source: GOI, EPCES data; own calculations. Note: Red shapes indicate SEZ Index, and blue indicate EOU index.

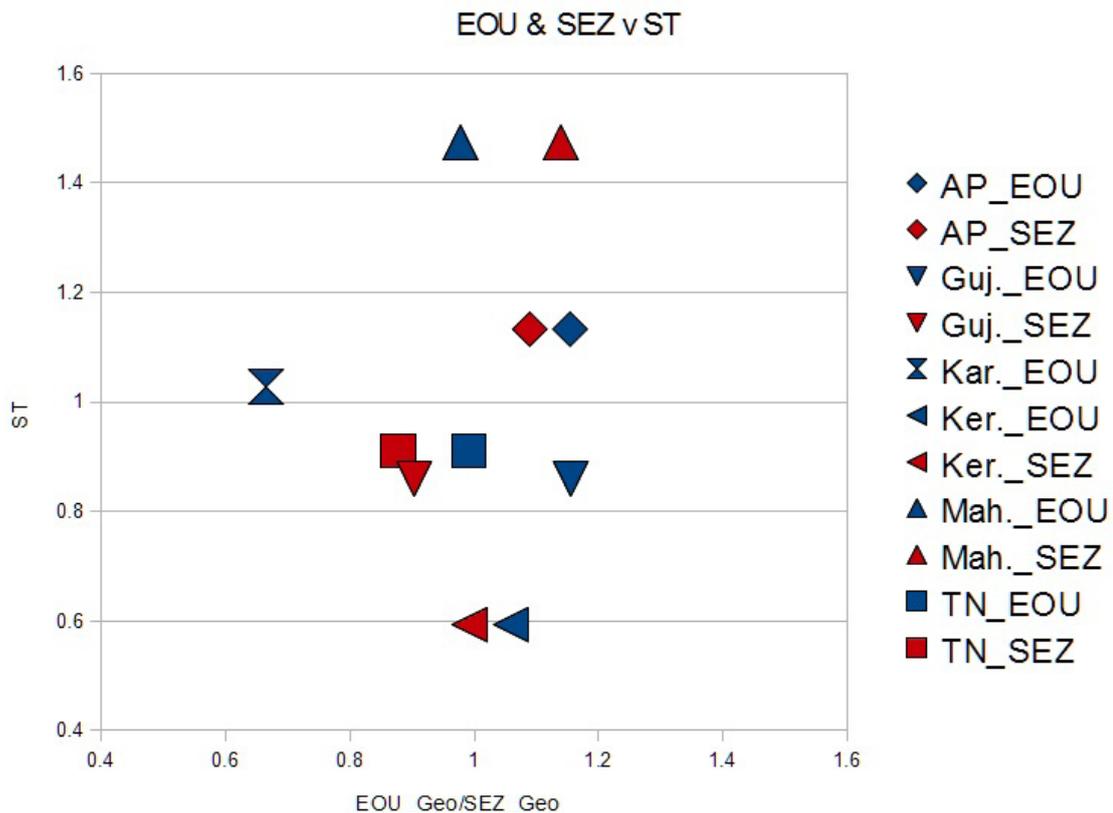


Figure 5.2. EOU_Geo (Left) and SEZ_Geo v ST (Right). Author's Calculations.

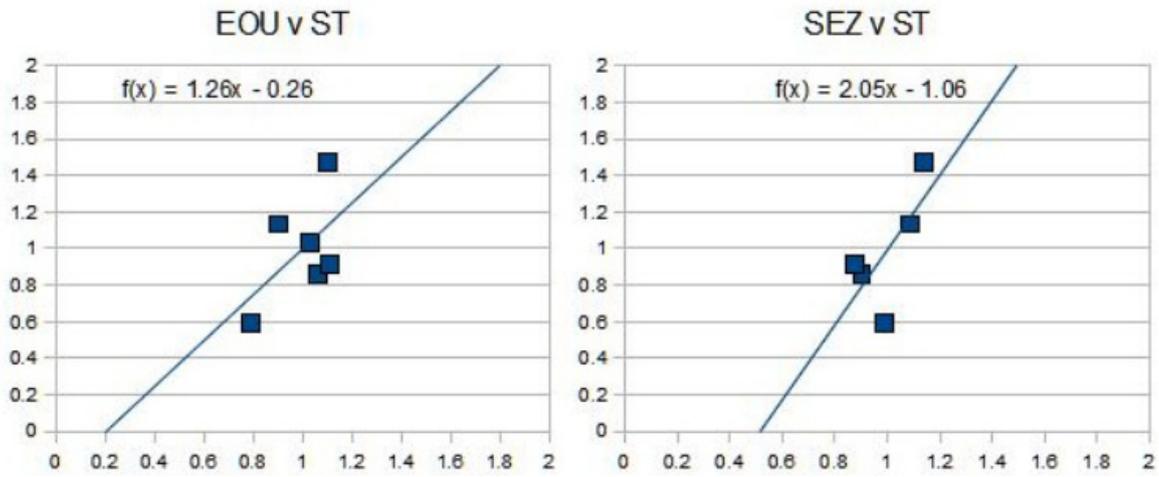
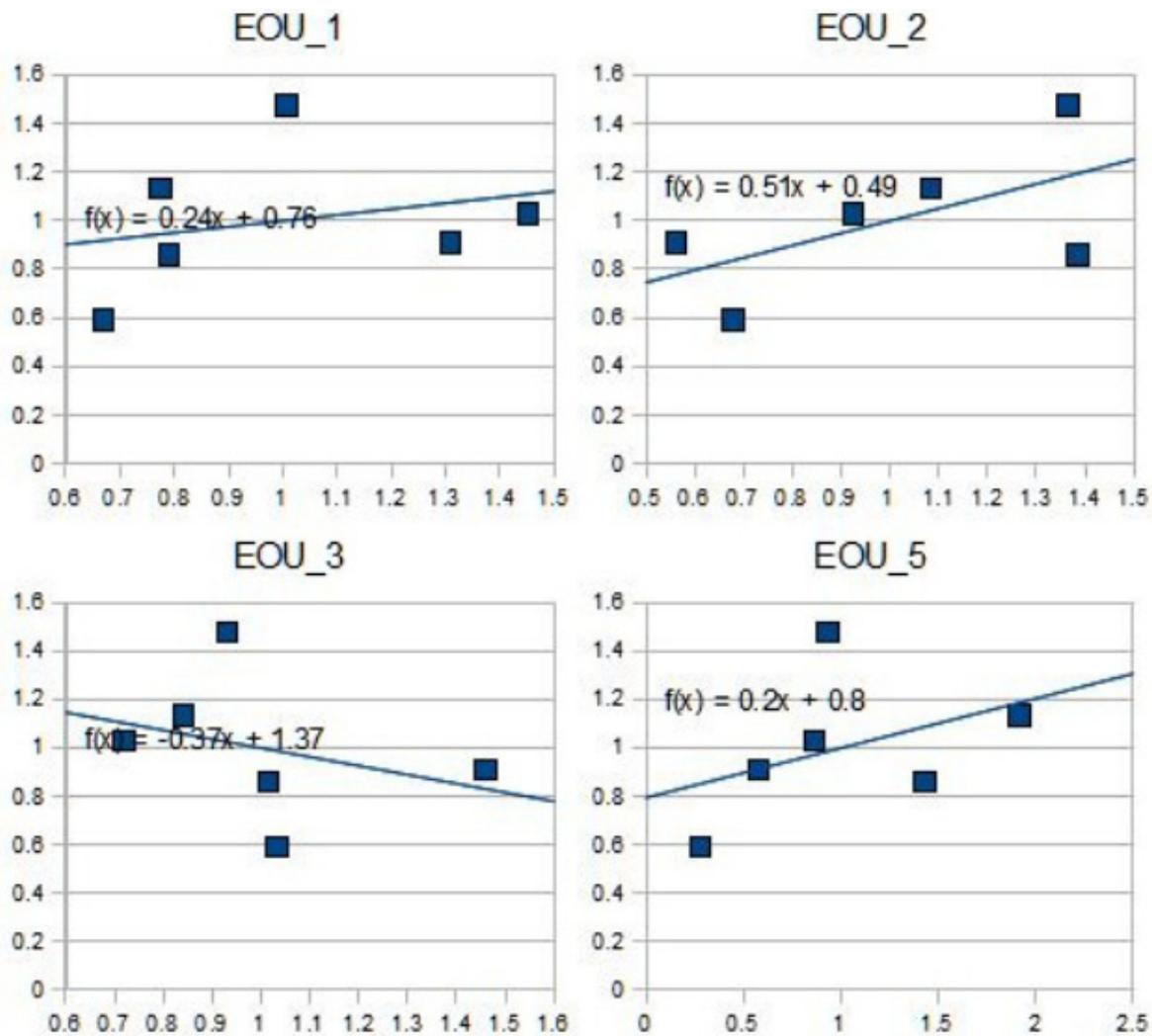


Figure 5.3. EOU Components and ST. Author's calculations.



Interestingly, however, the relationship between sectoral diversity (EOU_3) and structural change is modestly negative, going against this study's expectations. Upon reflection and analysis of other trends mentioned above, it seems that it may be more important for states' EOUs to reflect the domestic economy and the performance of local SEZs – as in the cases of Gujarat or Maharashtra – than simple sectoral diversity.

5.5. EOUs, SEZs, and Catalytic Effects

The above findings that EOUs are most successful when

they mirror local state economies, and support granted to the associated importance of the forces of urbanization and dispersion, reinforce the concept that EOUs' usefulness as a developmental tool revolve around their ability to generate linkages with the domestic economy. This finding also falls into line with the importance of spillover effects as a facilitator of development: it may be prudent to make the case that spillover effects are most likely to “take hold” where the local economy is ready to accept them. Being “ready” to accept linkages in this case would imply sectoral resemblance between FDI-fueled enterprise and the domestic economy, a trainable labor force, and the availability of resources, among other factors.

6. Conclusion

6.1. Conclusions

The founding concept of this paper was that EOUs – spatially disaggregated export enclaves with strong linkages to the domestic economy – could play an important role in structural transformation. In the Indian context this has been shown to be partially true: some states are likely to have experienced a positive structural boost from their EOU schemes, while others have experienced lesser influences. All in all, however, it did not find substantially different developmental possibilities for EOUs or SEZs: instead, this report's findings show that traditional SEZs and EOUs have been used in tandem to facilitate structural transformation in the Indian context.

This paper has also sought to tease out some of the key factors which govern states' EOU experiences. Most notably, it has shown that EOU distributions have the highest potential to contribute to structural transformation when they resemble the sectoral output of the domestic economy. High levels of urbanization and dispersion have also been shown to have a positive effect on EOU placement, but by the nature of this paper the exact (statistical) nature of this relationship is yet to be identified.

6.2. Policy recommendations

If nothing else, the results of this paper add weight to the growing body of literature which suggests that, in order for export enclaves to contribute positively to structural change and economic development, they must work synergistically with their domestic economies. In the Indian context, both SEZ and EOUs perform best when they are closely tied to the domestic economy, as shown by findings in terms of zones' geographic placement and sectoral distributions. In the Indian context, indulgence of this recommendation would include policy which selects for new EOUs and SEZs based on criteria for urbanization, distance to other units, and sectoral identity, seeking to both support and diversify existing activity.

This paper has also attempted to support the prospect that EOU-like policies may be considered in lieu of (or at least in collaboration with) SEZ policy in the developmental context. Insofar as SEZ developmental effects depend on catalytic effects, EOUs may be better-poised to maximize them if employed properly.

6.3. Directions for future research

Future study of the topic of EOUs could avail itself of a few opportunities. Primarily, a district-level analysis of similar questions would most certainly yield more detailed results. Additionally, analysis of the precise nature of the geographical trade-offs between urbanization and dispersion could be illuminating. And finally, specific case studies – at the state-, district-, or unit-level – would be instructive to future policy and study.

Overall, the EOU scheme remains significantly understudied. This interesting permutation of the SEZ model proposes a potentially influential new model for the implementation of export-generation or foreign investment-attraction, especially where the criteria of domestic development is concerned.

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