Abstract

The competition for capital is a key facet of the global economic system. Countries increasingly use special economic zones (SEZs) to attract foreign direct investment (FDI) and achieve other economic objectives. China’s Shenzhen is often cited as the original SEZ model but China has over 1,500 zones and more than seven different zone programs. This paper addresses several key research questions. First, what are the characteristics of China’s various zone programs? Are there substantive differences between these programs and, if so, what are they? To answer these questions, I conducted a review of China’s zone programs and compared zones within one province, Zhejiang. By properly characterizing zones and conducting an intra-provincial comparison, this paper provides a foundation to assess the effects of SEZs on FDI, capital formation, and other economic outcomes. As such, it directly engages two key themes of the ISA Asia-Pacific conference: the rise of China and the nature of global economic transformation.

1 Introduction: Why China?

Shenzhen is easily China’s most famous SEZ but using Shenzhen as a development model is problematic. Shenzhen’s attributes during its period of enactment are incredibly unique - not every SEZ has a financial hub as well-developed as Hong Kong right next door - but Shenzhen is also only one model in a country with vast internal variation in SEZs. According to a senior economist at...
the World Bank, “Many academics, practitioners, and policymakers cite Shenzhen as the exemplar of zone policies but the single-minded focus on this one example belies the tremendous heterogeneity of outcomes in China.”¹ There is no question that China is often cited as a model for other developing and emerging market countries but is China’s development path generalizable? What is the lesson other countries should take from China? Are individual zone models replicable and, if so, which ones? Within China, development zones have been a magnet for FDI but this has been much more important in the post-1992 period.² By the mid-2000s, it is estimated that development zones in China accounted for “about one third China’s FDI stock.”³

China is a key case for the study of SEZs for three reasons. First, China has the most variation along the dependent variable both spatially and temporally. There are over 1,500 zones and seven distinct zone programs within China. Second, China is a microcosm of the global competition for investment and has gone through periods that resemble the “race to the bottom” theorized in the cross-national context. By examining subnational differences within one country we are able to hold international factors, such as regime type, currency system, preferential trade agreements, and membership in international organizations, constant. Third, China is now “exporting” its model of zone development, most clearly in Africa.⁴ However, it is not clear what internal model (or models) best correspond to theses overseas development zones. Thus, understanding China’s internal zone programs helps us better understand how Chinese-run overseas zones may evolve.

This paper will proceed as follows. The next section will discuss both the China-specific and

¹ Author interview; Washington, DC; July 2015.
² Huang (2003).
³ Fu and Gao (2007, 22).
then the broader SEZ literature to address why the under-emphasis on origins and characteristics of zone is problematic for our understanding of their effectiveness. I will conclude this section with a discussion of the data problems unique to China and discuss why establishing these descriptive details is vital. The third section will review China’s seven distinct national-level zone programs focusing on their enactment goals and other characteristics, such as size. The fourth section is the Zhejiang intra-provincial study. The unique dataset created for this analysis is a pilot study to evaluate the efficacy of conducting a nationwide analysis of China’s provincial-level economic development zones.

2 Theory and Methods

2.1 Origins Before Effectiveness

A key question for any incentive policy is whether the policy is effective. This debate remains far from settled at the cross-national level but studies based on China seem promising. Wang (2013) finds that within China, SEZs increase FDI and total factor productivity. Alder, Shao and Zilibotti (2013) find differing effects among zones types and level of analysis but argue that state-level zones have a positive effect on GDP levels even if some categories of zones have distinct effects. For example, Economic and Technological Development Zones (ETDZs) and High-Tech Industrial Development Zones (HIDZs) have a positive effect on GDP but traditional export-processing zones (EPZs) have no effect on growth. This finding is puzzling but may also be a facet of the

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5 Most single-country studies find mixed results (Warr (1987); Kearney (1990); Dowla (1997)) and cross-national comparisons have been primarily qualitative or are limited in the number of countries examined quantitatively (World Bank (2008); Farole (2011)).

6 The zone terminology within China is not necessarily consistent with zone terminology used in the literature or by organizations such as the ILO. In this paper, I will use the China specific nomenclature for distinct programs
methods used. When EPZs were created in 2000, the national-level guidance stated that all EPZs should be placed within the confines of an existing ETDZ. Thus EPZs should, by default, be within the confines of an ETDZ, resulting in policy-derived spatial overlap. Statistical tests with this sort of spatial and temporal overlap are problematic, limiting our ability to rely on statistical models alone to identify the mechanisms causing the economic outcomes. I argue that if we are to understand which policies are causally-related to the economic outcomes of interest, we must integrate qualitative and quantitative analysis of these policies over time. By doing so, we can develop a mechanisms-based approach to analysis of the origins, evolution, and effects over time.

For instance, using the Alder, Shao and Zilibotti (2013) study on the role of Chinese zones on GDP, if the pathway to higher growth is via public goods provision and building of infrastructure, then it is likely that the ETDZs are the reason for the growth and would explain why EPZs alone do not show much of an effect. Alternately, if the source of the increased GDP was related primarily to technological and knowledge spillovers from export manufacturing then the EPZ could be the root cause but the results are showing up as an effect of an ETDZ because of the spatial overlap in the two types of zones. Or, a third possibility is that both mechanisms are required for growth, in which case the presence of both an ETDZ and an EPZ would be necessary for the growth outcomes observed in this study. To disaggregate these distinct mechanisms, I believe we must more closely examine the origins of zones in order to combine qualitative context with quantitative data to fully flesh out the mechanisms that lead from a policy choice to an economic outcome.

As such, this paper will discuss both the origins of national-level zone programs and the

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7 Guo Ban Han 2005, No. 53
8 Gingerich (2013) discusses a mechanism-based approach to institutional analysis on pages 51-54.
characteristics of provincial-level zones in China. However, to put the China-specific analysis in context, it is necessary to first review the overall literature on SEZs. The China scholarly community already has extensive knowledge on the role and use of SEZs (in China) but it is the broader political economy literature that is lacking in a refined theory and the attendant empirical tests necessary to fully evaluate the effects of these policies. Moreover, economic, business, and policy-oriented studies have neglected the origins of zones in favor of a focus on the effects of zones.

2.2 Literature Review

There are at least four bodies of scholarship that address various facets of SEZs, including economics, political science, business-oriented studies, and urban planning. If you include the China-specific scholarship then there are at least five distinct literatures. Within economics, and especially the FDI literature, the focus has been on aggregate outcomes and explicit policy measures have been less readily available and thus under-examined. Studies of FDI incentives focus heavily on regime type and other country characteristics but pay less attention to measures of policy.

In terms of economic theory, SEZs are viewed as a “second-best” policy option. The policy-oriented analysis takes the notion of SEZs as “second-best” without fully addressing why

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9 I include policy-oriented research from the World Bank and IMF in this category since they are derived primarily from economic theory.

10 For early accounts of Shenzhen, see Vogel (1989) and Chen (1993). For analysis of zones more broadly, see Ge (1999). For an example of the urban planning literature based on a Chinese case, Wenzhou, see Wei, Li and Wang (2007).

11 In the case of China, Huang (2008) argues that economists focus too much attention on GDP as a measure while cross-national political economy studies of FDI are often limited to national-level FDI data.

12 See Pandya (2014b) for an exception.

13 This assessment is based on economic models of duty-free zones in the 1970s (Hamada (1974); Miyagiwa (1993)) but nearly every World Bank or OECD report on the subject uses exactly this vernacular; see Madani (1999); Engman, Onodera and Pinali (2007); World Bank (2008); Farole and Akinci (2011); Jenkins, Esquivel and Larraín B (1998) for examples.
this “suboptimal” policy has become so ubiquitous among developing countries. As of 2014, there are literally thousands of programs in 138 countries (Figure 1); in 1970, only 22 countries had SEZs.\textsuperscript{14} In the early 1980s, most reports on the subject were from the International Labor Organization (ILO) and thus focused on labor rights and labor relations within zones. Since the mid-1990s international development institutions have been more actively promoting zones despite asserting that the “first-best” option would be “full” economic liberalization.\textsuperscript{15} For example, one OECD report notes that while SEZs represent “an interim solution” to a poor business environment “EPZs should not be considered a substitute for general economic reform.”\textsuperscript{16}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{Figure_1.jpg}
\caption{Countries with Active Zone Programs, as of 2014}
\end{figure}

Political economists focus the bulk of their attention on the difference between democratic and non-democratic regimes but these studies have several deficiencies. First, as Pablo Pinto notes,

\begin{flushleft}
\textsuperscript{14} Author’s SEZ database (2015).
\textsuperscript{15} World Bank (2008); Farole and Akinci (2011).
\textsuperscript{16} Engman, Onodera and Pinali (2007).
\end{flushleft}
“these explanations treat host governments as passive actors”\textsuperscript{17} and ignore the active incentive policies that countries use to influence foreign investors. Second, by focusing on aggregate FDI flows, these studies often conflate political and economic fundamentals and pay insufficient attention to specific policies.\textsuperscript{18} Regime type and policy choices do not capture the same political concepts nor are they interchangeable. The related body of literature on political constraints, which acknowledges the importance of veto players and property rights, also focuses on macro-level institutions vice specific policy measures.\textsuperscript{19} A generic conception of property rights is not only problematic for the study of China but for emerging markets more generally.\textsuperscript{20} Focusing solely on GDP, as Huang (2008) notes, also underemphasizes the importance of distinct policy choices over time. Within the FDI literature, there has been a lack of explicit measures of policy so we know little about how policy effects FDI more broadly.

Geography and urban planning address two other themes in their analysis of SEZs. First, it is these literatures that deal most directly with issues of land and land rights.\textsuperscript{21} In particular, they grapple with the conversion of agricultural land to industrial enclaves and the “commodification of space.”\textsuperscript{22} This type of “spatially selective development”\textsuperscript{23} pits various localities against one another in a competition for resources and benefits from the central government. Some of these debates mirror the political economy theories of the global “race to the bottom” but may also be conceptualized as a “race to the top” for political patronage (i.e. which area or jurisdiction

\textsuperscript{17} Pinto (2013, 5).
\textsuperscript{18} Pandya (2014b); Pandya (2014a).
\textsuperscript{19} Henisz (2000); Henisz and Zelner (2010); North and Weingast (1989); Weingast (1995); Goldsmith (1995); Leblang (1996).
\textsuperscript{20} See Rithmire (2015) for defining property rights regimes in China. In my larger dissertation project I argue that these same issues with land rights influence the nature of SEZ policies in the Middle East as well.
\textsuperscript{21} Rithmire (2015) is an exception in the political science literature.
\textsuperscript{22} Cavanagh (2013, 235).
\textsuperscript{23} Debruyne (2013-2014, 209).
can garner the most benefits from national politicians). The second theme emphasized in the urban planning and some development literature is the concept of an SEZ “life cycle.” These debates are shaped by which patterns of industrial development are most conducive to growth. For example, geography scholars have reinvigorated debates about “Marshallian industrial districts” and what the “optimal” pattern of industrial areas should be. This debate is particularly relevant for any discussion of China since Reform-era modernization prompted a wide variety of distinct “models” of development.

2.3 My Approach

Current scholarship on SEZs neither integrates the unique perspectives described above nor acknowledges the importance differences between different types of zones and changes over time. In the 1970s and 1980s, traditional EPZs were focused on manufacturing, often in the textiles industry, but the latest iterations of SEZs have a entirely new set of goals and priorities, including use as a service-sector hub or as an environmental tourist destination. SEZ policies have changed dramatically emphasizing the importance of examining zone policies over time. For example, Shenzhen has shifted from a traditional export manufacturing hub to the an innovative enclave home to brand names such as Huawei, Tencent, Vanke, and Ping’an insurance. As such, this project is meant to not only shed light on the vast internal variation in China but to provide a set of measures and techniques to analyze SEZs across different countries. China scholars may find the zone program

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26 For example, the three most well-known models in China are the Pearl River Delta or Shenzhen, Sunan, and Wenzhou models. See Chen (1993); Shen et al. (2000); Naughton (2007); or Wei, Li and Wang (2007) for more on these individual models.
27 Huang (2008) characterizes both Guangdong and Zhejiang as “entrepreneurial” provinces.
summaries familiar but the purpose is to systematically review the China experience in order to
determine which patterns are generalizable to other countries, and thus to the political economy
literature more broadly, and which are unique to China. As such, the larger purpose of this analysis
is to inform the international and comparative political economy literature \(^{28}\) while also developing
more explicit measures of policy within China.

The primary differences between national and provincial-level zone programs in China are
the level of incentives and the sectoral focus. Both provincial and state-level zones \(^{29}\) are officially
approved by the central government but each has distinct forms of management, depending on the
location of the zone. To my knowledge, no studies have been conducted on the sectoral compo-
sition of zones at either level but, theoretically, the provincial-level zones should be much more
focused and less comprehensive than national zones. Since national-level zones are meant to foster
comprehensive economic growth, national zones should be larger in size and offer more generous
incentives packages. The program origins section below will focus on the first variable, size, in
order to compare national-level zone programs to one another but also to compare their scale with
provincial-level zones.

I am pairing the intra-provincial case study with the cross-program analysis for several rea-
sons. First, I think we need to more accurately assess the variation in China’s zone programs over
time. In the international context, the EPZs of the 1970s are not the same as today’s service-sector
or other niche SEZs. \(^{30}\) I argue that this same phenomenon exists in China; the zones of the 1980s

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\(^{28}\) Kennedy (2011).

\(^{29}\) I use the terms state and national-level zones interchangeably but differentiate between provincial and local
zones to make the level of analysis clear and explicit. See Figure 2 for a summary.

\(^{30}\) For example, the United Arab Emirates is now specializing in “media” free zones and countries such as the
Philippines are experimenting with eco-SEZs that focus on protecting the environment alongside encouraging
tourism.
Figure 2: National, Provincial, and Local Zones in China

are not the same as urban-centered enclaves of the 1990s nor the latest round of new zones. Following a comprehensive, three-year long audit by the National Development and Reform Commission (NDRC), it appears that provincial-level zones also came under far more scrutiny. To understand this over time variation we must examine the impetus for the creation of the zone programs. As such, the cross-program analysis examines the approximately 225 national-level zones and summarizes their size, origins, and basic characteristics.

Second, national and provincial-level zones are not the same so we must better understand their similarities, differences, and administrative overlap. I think this step is necessary to inform the broader political economy literature and evaluate what programs are comparable across countries. However, given the vast number of provincial zones, 1355 as of 2006, it is not possible to examine all these zones in depth. Thus, the Zhejiang intra-provincial study is the first step of what is envisioned as a larger project to characterize all provincial-level zones in China. Provincial zones
are supposed to be more industry-specific and only maintain incentive programs for certain sectors but, to my knowledge, the sectoral composition of zones has not been examined empirically. Many of the infrastructure-related incentives are the same in provincial zones but other preferential policies are supposed to be more limited. According to the State Administration of Taxation, “policies given to the province-level development zones should not be comparable to those given to the state-level ones.” This first cut analysis is designed to build a measure of industrial policy to more accurately understand the range and scope of zones. The focus on size helps us compare across zones and zone programs but is also relevant to debates about land-use. The sectoral composition measure is being evaluated as potential policy measure that can later be used to test theories related to agglomeration effects and knowledge spillovers in industrial enclaves.

In terms of locational choice, one of most prominent debates is about the balance between urban and rural interests. Wallace (2014) argues that the urban bias has gone through several phases in China and helps explain the emergence and evolution of the hukou system, noting that these policies are also a kind of Faustian bargain for authoritarian regimes. Huang (2008) draws a strict bifurcation between reforms in the 1980s as rural and entrepreneurial whereas the 1990s were a shift back to urban-focused industrial policy. Huang’s explicit comparisons are Guangdong and Zhejiang as exemplars and Shanghai as a “heavy-handed” interventionist as well as the city with “the most blatant anti-rural bias in its policy orientation in the country.” Instead of allowing

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31 Alder, Shao and Zilibotti (2013, 8).
32 As noted above, both Huang (2008) and Pandya (2014) note the dearth of explicit policy measures in the economics, political economy, and FDI literature. By coding zones at the provincial, prefecture, and county levels we can attempt to narrow-in on the potential overlapping effects of zones described above.
33 Mattingly (2016); Rithmire (2015); Baland and Robinson (2008).
34 Branstetter (1998); Branstetter (2000); Alfaro and Chen (2014); Wellhausen (2013).
35 Huang (2008).
36 Huang (2008, Chapter 4). Naughton (2016) provides an alternate reading of stalled reforms, arguing that competition between the State Council, lead by Premier Li Keqiang, and the Party-led organs (Leadership Small
the growth of private entrepreneurship, Huang argues that Shanghai’s focus on FDI and external financing generated more entrenched state-owned enterprises (SOEs) and is more a sign of structural economic weakness than strength. As such, the Zhejiang pilot study will include a set of urban-rural variables as a proof of concept to examine zones are urban bias in other jurisdictions.

Thus, the hypotheses to be examined will focus on the size, location, and changes over time and are as follows:

- H1: National-level zones, since they are intended to be more comprehensive in scope, should be larger in size than provincial-level zones.
- H2a: Over time, the size of zones has decreased. Specifically, zones created in the 1990s will be larger in size than zones created after 2003.
- H2b: Industrial parks will be smaller in size, on average, than other economic development zones.
- H3: Zones in Zhejiang are primarily rural, consistent with the literature that entrepreneurial provinces fostered both urban and rural economic development.

3 Program Origins

The purpose of this section is two-fold. First, as already discussed, political economy and policy analysis of SEZs has under-emphasized SEZ variation both spatially and temporally. As such, this section is written primarily for non-China scholars who want to understand the origins and differences between China’s national-level zones. For China scholars, this may serve as a useful summary but is not likely to introduce fundamentally new information, with the size discussion

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Groups) are generating uncertainty and thus limiting reform. However, Naughton’s analysis applies to the Xi Jinping era and does not necessarily explain reform tendencies in previous administrations.

Huang (2008) discusses Shanghai in “Chapter 4: What is wrong with Shanghai?” For the distorting effects of FDI in the Chinese system more generally, see Huang (2003). Branstetter and Feenstra (1999) find a similar bifurcated system where foreign firms benefit to the detriment of their domestic counterparts in their analysis of trade and FDI and the balance between SOEs and consumer interests.

Since the audience is the broader IPE/CPE community, I have excluded Mandarin translations from the main text. For a summary of both English and Chinese terms, see Appendix A.
being one potential exception. Second, in order to make the case that the impetus for zones has changed over time we must establish the descriptive facts about origins and evolution over time. I will briefly describe each program, including the enactment dates, administrative structure, and some key examples where appropriate. The program comparisons allow us to more systematically address the appropriateness of program comparisons within China and across countries. At present, there are at least seven distinct zone programs currently in operation in China. The following nomenclature will be used for these programs:

- Comprehensive special economic zones (SEZs)
- Economic and technological development zones (ETDZs)
- High-tech industrial development zones (HIDZs)
- Border economic cooperation zones (BECZs)
- Export-processing zones (EPZs)
- Bonded zones (BZs)
- “Pilot” free trade zones (PFTZs).

3.1 SEZs: The Original

The first four SEZs in China were created in Guangzhou and Fujian Provinces. These four, Shenzhen, Zhuhai, Shantou, and Xiamen, are the ones most often referenced in the collective imagination of economists. These zones serve as the typical comparison, either implicit or explicit, when scholars are discussing China’s “SEZs.” There is an enormous literature on these early zones. A

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39 Some older zones were also termed FTZs but in practice were actually one of the other zones categories. PFTZs are those approved in 2013 and thereafter.

40 The first three were in Guangzhou while Xiamen was established in Fujian. Hainan is an SEZ as well but the Hainan SEZ was not established until the mid-1980s. but given its later enactment date I do not categorize it as one of the four “originals.”

41 For the canonical work on Guangzhou’s zones, see Vogel (1989). For a legal summary of the enactment policies, see Fenwick (1984).
A cursory search of “Shenzhen special economic zone” (in both English and Chinese) returns over 23,000 articles. A search for Xiamen SEZ returns about 14,000 articles.42

To summarize, the legal regulations governing the original SEZ grew out of a series of decisions focused primarily on the zones in Guangdong and were officially promulgated in August 1980. The “Regulations on Special Economic Zones in Guangdong Province” were approved during the Fifth National People’s Congress and addressed labor management, administrative organization, and autonomy of the newly created zones.43 The zones were expressly intended to “encourage foreign citizens, overseas Chinese, compatriots from Hongkong and Macao . . . to open factories and set up enterprises.”44 Key provisions in the early zones were the ability for foreign investors to establish operations, more flexible labor market rules, and lower corporate taxes.45

The average size of the original SEZs (at their outset) was approximately 85 square kilometers.46 This is enormous when compared to the average size of EPZs in the developing world at that time, which was approximately 2 square kilometers. However, the SEZ figure for China is heavily skewed because of Shenzhen. In 1980, Shenzhen was 327.5 square kilometers. The other three zones ranged from between 1.6 square kilometers (Shantou) and 6.8 square kilometers (Zhuhai), which is more consistent with the size of EPZs in the rest of the developing world, although larger

42 “New Areas”, such as Shanghai’s Pudong are a hybrid of SEZs and other industrial policies approved by the State Council. While addressed separately in some studies (Zhong 2010), the purpose and intent of the new areas (if not the results) are similar to SEZs.
43 Vogel (1989); Fenwick (1984); Ge (1999).
44 English translation of original regulations obtained from the Asian Legal Information Institute, http://www.asianlii.org.
45 For the latter, the corporate tax rates were 15 percent within SEZs whereas joint ventures elsewhere were taxed at 33 percent (Fenwick 1984, 383).
46 Author’s calculation based on data from Vogel (1989) and Naughton (2007).
than Taiwan’s early zones. Prior to the creation of Shenzhen, the largest EPZ in the developing world was the Phividec Industrial Estate created in Mindanao in the Philippines in 1974, which was approximately 30 square kilometers. Five years later, Shenzhen remained the same size but each of the other original zones had grown so that the average size was now approximately 132 square kilometers. By 1990, that number had grown to 158 square kilometers not including Hainan Island. The largest expansion in size among the original four was Xiamen in Fujian province, increasing from 2.5 to 131 square kilometers; Xiamen is now home to several other types of zones in close proximity to one another.

3.2 ETDZs and Open Cities

The next major set of officially-designated development zones in China are the coastal open cities. In 1984 the first round of 14 cities were designated, although some did not become fully operational until the late 1980s. Legally, these zones are now officially known as “economic and technological development zones” (ETDZs). The policy guidance for ETDZs was released in April 1988 by the Customs Administration. Following the initial round of approvals, there were two additional waves of expansion, in period from 1992 to 1994 and from 2000 to 2002. The second wave

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47 The Taichung EPZ was only 0.23 square kilometers (Fröbel, Heinrichs and Kreye 1980) and “Taiwan’s three export-processing zones . . . together constituted less than 3.0 square kilometers” (Vogel 1989, 127).
49 The total area of Hainan is 33,900 square kilometers so this figure is not included in the size averages for the original zones. If Hainan was included, the average size would be approximately 6900 square kilometers.
50 The original cities are referred to as “port,” “open,” or “coastal economic” cities and include Dalian, Tianjin, Qinhuangdao, Yantai, Qingdao, Lianyungang, Fuzhou, Guangzhou, Shanghai, Zhanjiang, Nantong, Ningbo, Wenzhou, and Beihai.
includes additional coastal locations but also more inland locations while the third wave consists primarily of inland and western areas. The expansion in the early 1990s brought the total number of national-level ETDZs to 49.\textsuperscript{53} According to a 2012 report by Renmin University, the total number of ETDZs is now 128.\textsuperscript{54}

Tax rates in the ETDZ depend on both the type of enterprise, the amount of exports, and several other factors\textsuperscript{55} but on average are around 15 percent.\textsuperscript{56} Prior to 2000, the share of China’s total FDI inflows into ETDZs was around 8 percent; thereafter it rose greatly reaching a peak of nearly 16 percent of FDI.\textsuperscript{57} Unsurprisingly given the pattern of China’s economic development and opening, the coastal eastern ETDZs account for over 87 percent of total FDI stock in ETDZs (in 2005).\textsuperscript{58} In terms of size, ETDZs are smaller than HIDZs, both in terms of total proportion and on average. The largest ETDZ is the one established in Beijing, which is nearly 40 square kilometers, but on average ETDZs are typically close to 12 square kilometers in size.

### 3.3 High-Technology Zones

The official nomenclature for this category of zone program is High-Technology Industrial Development Zone (HIDZ). This program developed in the 1980s under the purview of the Ministry of Science and Technology and the first such zone was established in Beijing.\textsuperscript{59} As of 2011, there

\begin{itemize}
  \item \textsuperscript{53} State Council (2006).
  \item \textsuperscript{54} Zeng et al. (2012, 4).
  \item \textsuperscript{56} Nominal business tax rates outside of zones are around 33 percent (Fu and Gao 2007). Fu and Gao (2007) also estimate that the real average tax rate in ETDZs is approximately 11 percent.
  \item \textsuperscript{57} Fu and Gao (2007, 20), see Figure 3.
  \item \textsuperscript{58} Fu and Gao (2007, 21).
  \item \textsuperscript{59} Zeng (2011). The area is known as Zhōngguǎncūn.
were 54 HIDZs with zones in both coastal and inland provinces but the distinction between these zones and the ETDZs described above seems to have blurred over the years.\textsuperscript{60} Despite only representing 0.01 percent of China’s land area,\textsuperscript{61} HIDZs make an outsized contribution to the economy. For example, “nearly 5 percent of China’s total industrial labor market” is within an HIDZ, the value of their exports increased over 12 percent in the period from 1995-2005, and HIDZs account for nearly 11 percent of China’s FDI stock (as of 2006).\textsuperscript{62}

In terms of incentives, tax policies are somewhat similar to other zones but the comparative advantage for HIDZs appears to be research and development (R&D) expenditures. Corporate tax rates for foreign-invested enterprises range from 7.5 to 15 percent, depending on a variety of characteristics associated with the company.\textsuperscript{63} R&D expenditures in 2002 were over 31 billion RMB, nearly 25 percent of total R&D expenditures in China.\textsuperscript{64} Skilled workers are also an important attraction for foreign-invested firms to operate in these zones. Scientists and technicians represent 6.4 percent of China’s labor force but they are over 22 percent of the workforce in HIDZs.\textsuperscript{65}

When comparing the size and make-up of these zones there are some issues with comparability. The first zone, Zhongguancun in Beijing, is now made up of eight different enclaves such that the grand total of the area within the confines of the zone is now over 230 square kilometers.\textsuperscript{66} None of the other HIDZs are nearly this large with the average size of an HIDZ reaching about 18 square kilometers.\textsuperscript{67} There are also some discrepancies in the official start date of Zhongguancun.

\textsuperscript{60} Zeng (2011).
\textsuperscript{61} Fu and Gao (2007, 20).
\textsuperscript{62} Fu and Gao (2007, 21).
\textsuperscript{64} Fu and Gao (2007, 28).
\textsuperscript{65} Fu and Gao (2007, 28).
\textsuperscript{66} State Council (2006).
\textsuperscript{67} Author calculations. The smallest is only 2 square kilometers; a technology park located on Hainan Island.
Zeng (2011) states that the zone began in 1988 but the State Council Directory (2006) claims the zone was officially inaugurated in November 1992. According to the NDRC, all zones but two were approved in either 1991 or 1992. However, as is often the case in China, the initiation of economic policies often precedes the official promulgation of formal legal regulations, as seems to be the case with the initial swath of HIDZs.\textsuperscript{68}

While the substantive policies associated with ETDZs and HIDZs are quite similar the slightly better innovation incentives in HIDZs may have a discernible effect on economic growth for the city in which the zone resides. Mendoza (2014) finds that cities with ETDZs and HIDZs have higher incomes and lower income inequality than cities without these programs. With respect to HIDZs, using cross-sectional household income data for 1995 and 2002, cities with HIDZs saw a decrease in inequality. However, there may be a point of diminishing returns since Mendoza also finds that cities with only one zone, whether it be an ETDZ or HIDZ, “have higher income and lower inequality measures than cities that have both.”\textsuperscript{69} This could indicate that having multiple zones in one city creates competition between them thus dampening the positive economic benefits of these zones. However, additional research on the mechanisms leading to these outcomes needs to be done for this assertion to be evaluated.

\textsuperscript{68} State Council (2006) lists the approval dates for the first 53 HIDZs. The Yangling Agricultural Demonstration Area was created in 1997 (State Council 2006). The Ningbo HIDZ (for the grand total of 54) was approved in January 2007 (Zeng 2011, Footnote 4).

\textsuperscript{69} Mendoza (2014, 1).
3.4 Border Zones

During Deng Xiaoping’s Southern Tour, the coastal south received the bulk of attention and much of the focus for continued reform and opening\textsuperscript{70} but, concurrently, 15 border economic cooperation zones (BECZs) were also established.\textsuperscript{71} BECZs were managed directly by the State Council until 2007 but are now under the purview of the Ministry of Commerce. Given the preferential coastal policies of the 1980s, Chung (1998) argues that inland provinces developed two strategies for their own economic development. The first strategy was to create their own set of incentive policies to attract investment while the second focused on “collective efforts to compete against their coastal counterparts by forming regionally-based organizations.”\textsuperscript{72} Chung notes that in 1994, party officials in Shaanxi, Gansu, Qinghai, Ningxia, and Xinjiang “held a ‘summit meeting’ where they agreed to join in efforts to obtain more preferential policies from Beijing.”\textsuperscript{73} These efforts continue today; in 2012, a joint meeting was held in Kunming to discuss measures to promote these areas.\textsuperscript{74} Despite modest gains over the past several decades, the re-emphasis on the western regions under the purview of Xi Jinping’s One Belt, One Road (OBOR) strategy may provide renewed resources for at least a subset of these border zones.\textsuperscript{75}

\textsuperscript{70} Zhao (1993).
\textsuperscript{71} For a full list of the 15 BECZs, see Appendix A, Figure 5.
\textsuperscript{72} Chung (1998, 434).
\textsuperscript{73} Ibid.
\textsuperscript{75} Most likely the Xinjiang zones but other zones could benefit from infrastructure financing associated with the overall policy. For more on OBOR, see National Development Reform Commission (2015) and Herlevi (2016).
<table>
<thead>
<tr>
<th>Province</th>
<th>Number of Zones</th>
<th>Average Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xinjiang</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Yunnan</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Guangxi</td>
<td>2</td>
<td>5.6</td>
</tr>
<tr>
<td>Heilongjiang</td>
<td>2</td>
<td>6.3</td>
</tr>
<tr>
<td>Inner Mongolia</td>
<td>2</td>
<td>3.7</td>
</tr>
<tr>
<td>Liaoning</td>
<td>1</td>
<td>6.3</td>
</tr>
<tr>
<td>Jilin</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 1: Border Economic Cooperation Areas

3.5 EPZs

Like most reform programs in China, the export processing zone (EPZ) program initially began as a “pilot” project in 2000. After a conference which included eight ministries and commissions, EPZs were established “on a trial basis in an effort to regulate processing trade from the existing scattered operation to a closed, centralized management.”  

Essentially, an EPZ in China is “a special industrial zone marked off in [an already] built developing zone . . . whose functions are limited to processing trade for export.” Then, in 2005, a large expansion in the number of zones occurred. As of 2006, the State Council listed 58 nationally-approved active EPZs across the country. Despite the official program start date being recognized as 2000, there are a couple anomalies such as the Shanghai Caohejing EPZ, which began operations in 1992.

Unlike many other developing countries where the EPZ nomenclature and concept was com-

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77 Zeng et al. (2012, 4).

78 State Council (2006).

79 Caohejing is both an ETDZ and an EPZ (State Council 2006). In total, there are 41 development zones in Shanghai, 15 state-level and 26 provincial or city-level (Shanghai Editorial Committee 2010, 6).
monly applied in the 1970s, EPZs arose much later in China. Elsewhere in the world, EPZs were typically smaller with a much more limited scope; in fact, many EPZs were literally only a single factory.\textsuperscript{80} In contrast, China began with the comprehensive SEZ concept but later chose to enact a form of EPZs to streamline export procedures. This raises questions both about the comparability of China’s programs to other EPZs globally but also the larger question of why enact this specific program when it already had a successful, much more comprehensive, economic development zone model. Unlike EPZs meant to leverage cheap labor and promote export-oriented growth, I argue that later programs, EPZs in particular, may actually be an indication of the state attempting to re-assert control rather than further promoting reform and opening. In various policy documents, the issue of smuggling and tax collection are raised as issues of concern and the desire to streamline administration and prevent smuggling may be behind the origins of this particular program. The Hong Kong Trade and Development Council (HKTDC) notes that Customs supervision across localities is not been unified stating that “some use ‘registration handbooks’ as the official record, and some use ‘tax collection and exemption certificates,’ [and] there are yet others who simply put their comments on the approval document.”\textsuperscript{81}

\begin{table}
\centering
\begin{tabular}{|c|c|}
\hline
Year & Number of Zones \\
\hline
1992 & 1 \\
2000 & 15 \\
2001 & 3 \\
2002 & 8 \\
2003 & 13 \\
2005 & 18 \\
\hline
Total & 58 \\
\hline
\end{tabular}
\caption{EPZ Start Dates}
\end{table}

\textsuperscript{80} Fröbel, Heinrichs and Kreye (1980) include single-factory programs in their review of early EPZs.
Moreover, despite the fact that it is ostensibly a separate program, “processing zones can only be set up in existing ETDZs that have been approved by the State Council, and must not be established elsewhere.”\textsuperscript{82} Thus, one problem with studies attempting to disentangle the effects of various programs on FDI, employment, inequality, and other economic outcomes is this spatial and temporal overlap. EPZs will, by design, have geographic overlap with an existing ETDZ; thus, it is difficult to isolate the mechanisms leading to various outcomes. Future empirical analysis should more fully address these issues of spatial overlap.

3.6 Bonded Zones

In the category of “bonded zones,” there are actually three different programs, which ostensibly all attempt to serve the same purpose and are all run by the customs authorities. Bonded zones began in 1990, bonded logistics zones in 2003, and bonded port areas were enacted in 2005.\textsuperscript{83} The average size of the initial bonded zones is approximately 2.64 square kilometers.\textsuperscript{84} As would be expected for a bonded zone, these areas are quite small and nearly always located within the confines of some other type of development zone. For example, the original SEZs all now have bonded zones within their confines. The bonded port areas created in the mid-2000s, are slightly larger with an average size of 7.82 square kilometers.\textsuperscript{85}

\textsuperscript{82} This policy is laid out in \textit{Guo Ban Han} 2005, No. 53. The quote is from HKTDC, “China Establishes 15 Processing Zones,” 2000.
\textsuperscript{83} Zeng et al. (2012).
\textsuperscript{84} Average size is based on author dataset coded from State Council (2006). Zhong (2010) reports size according to both “program” area and “development area.” Using the 2010 figures, the average size is approximately 3 square kilometers.
\textsuperscript{85} For a list of bonded zones and bonded port areas, see Appendix A.
### 3.7 “Pilot” Free Trade Zones

The latest addition to the family of zone programs is the pilot free trade zone (PFTZ), with the first approved in Shanghai (SPFTZ) in 2013. At the outset, “senior policymakers indicate[d] that there [would] be no other FTZs of the same type” but recently more have been announced. In 2015, eight additional PFTZs were approved, often encompassing areas previously established as other types of national-level zones. Three other provinces have also submit applications for approval to the central government. This policy reversal has made some observers question whether the latest zone program is “hope or hype” but is likely a facet of continuing debates about the pace and nature of reform.

Arguably, the goals of the FTZ are different from previous zone programs and speculation is two-fold. First, some believe the zone is about building a platform for Chinese firms to export and engage with economies outside China. A second argument is that this latest zone is a way to “test” reforms proposed as part of bilateral investment treaty (BIT) negotiations with the US. A third view is that Shanghai is actually one of the least “reformed” economic markets in China and thus most in need. If the third perspective is accurate then this latest zone program may simply be an indication of the stagnation of previously-proposed reforms, especially since much of the

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86 Huang (2013, 1).
89 Or, as Naughton (2016) and others argue a stagnation of reform (see Kennedy (2016) for a recent debate).
90 This perspective is based on discussions with academics based primarily in Europe. Changing Asia Conference: Perspectives on Regional and Global Cooperation; German Institute for Global & Area Studies (GIGA), Hamburg, Germany; April 2015.
91 Author interviews; Shanghai, China; April 2016.
92 Huang (2008).
rhetoric sounds strikingly similar to the language used to promote the original Pudong development project. Or, consistent with Huang (2008), it could be an attempt at consolidation by local authorities to shape the next stage of Shanghai’s industrial policy.

4 Zhejiang Comparison

Zhejiang Province was selected as a case for several reasons. First, Zhejiang has over 100 different SEZs within the province and thus provides a large amount of variation on the dependent variable. Zhejiang as a whole is also understudied compared to provinces such as Jiangsu and cities such as Beijing and Shanghai. Second, a cross-provincial study comparing zone policies is the longer-term goal of this research project but feasibility demanded a more limited scope initially. The overall pilot study examines the origins, type, size, location, and sectoral composition of zones and could be expanded to encompass all provinces with provincial-level zones. Third, the “Wenzhou model” is an important example of economic development within China and, as such, there is a secondary literature on Wenzhou to draw from. While there is not an equally developed literature on other jurisdictions within the province, the availability of materials on Wenzhou provides a solid foundation to explore issues in the broader development literature, such as the nature and character of an SEZ “life cycle.” Finally, focusing on a province vice a direct-controlled municipality provides a better foundation for generalizability to other provinces.

93 See Appendix B for the number of zones per province and their distribution in 2006.
94 Huang (2008).
95 The original pilot also included coding of the provincial-level zones in Hainan and Qinghai because the small number of zones in each of these provinces was easier to tackle as a proof of concept.
96 Omar and Stoever (2008).
97 Rithmire (2014) argues that selecting a large, urban metropolis may be problematic given the unique status of these cities within the Chinese political economy.
After describing some basic background details, I will address the pilot study characterizing the case study specific hypotheses followed by a description of the coding schemes for size, location, and sectoral composition of zones. I will then conclude with some initial observations on the hypotheses described above.

Figure 3: Map of Zhejiang

In terms of overall GDP, Zhejiang Province is similar in size to Austria even though the province’s population is roughly equivalent to Myanmar.\textsuperscript{98} Using GDP per capita vice total GDP, Zhejiang is closer to Azerbaijan and Zhejiang’s exports, at least in 2009, were roughly equivalent to Thailand.\textsuperscript{99} Some may argue that Zhejiang is not a good case because it is a high FDI performer and one of the wealthiest coastal provinces.\textsuperscript{100} However, since the level of analysis is the zone,

\textsuperscript{98} The Economist, “All the parities in China: Comparing Chinese provinces with countries,” http://www.economist.com/content/chinese_equivalents.
\textsuperscript{99} Ibid.
\textsuperscript{100} Sauvant, Zhao and Huo (2012).
we are not comparing Zhejiang’s ability to attract FDI to other provinces, at least not at this stage. Instead, we are trying to learn about the spatial and temporal composition of zones in the province to better understand the differences in investment across space and time. One of the key reasons for focusing on one province is feasibility but doing so also avoids several other pitfalls. First, Zhejiang is in the eastern coastal region which means that reform and opening has a longer history there than in the central or western regions. Moreover, Zhejiang represents an example of one of China’s “regional economic fiefdoms.” Thus, while the patterns in Zhejiang may not be perfectly generalizable to other provinces I think they are more generalizable than findings from one of the direct-control municipalities.

As with the national-level study, the Zhejiang hypotheses are focused on size and other characteristics but the provincial-level study also includes a set of variables to examine sectoral and industrial composition. In terms of expectations, Wenzhou is famous for its leather products and shoe manufacturing so these industries may factor prominently. However, I have no other strong analytic priors about the industrial composition of zones. Regardless, creation of this variable is important for later examination of the agglomeration effects of FDI. In terms of data coding, the information is for a one-year cross-section based on the 2006 Directory of Development Zones. The following items were derived directly from this source:

- Numeric and Directory Codes

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101 I would like to examine hypotheses about zone placement and FDI in the next iteration of the project. FDI data from the provincial Statistical Yearbook begins in 1995; ideally we would have data both before and after zone enactment so I am currently exploring the availability of supplementary data.


103 Wei et al. (1999); Wei, Li and Wang (2007); Alfaro and Chen (2014).

104 The history of this directory and the comprehensive audit associated with it are fascinating in their own right. The audit is arguably related to the broader “development zone fever” of the 1990s (see Zhang (2011) for further discussion).
• Zone Name (Current and Previous Names, in Mandarin)
• Approval Mechanism (i.e. whether it is a State or Provincial-level zone)
• Approval Date (Official Founding)
• Approved Area (Size)
• Leading Industries
• Announcement Number (relevant NDRC policy guidance)

In terms of size, the directory listed the size in hectares so all figures were converted to square kilometers for consistency with the national-level program coding. Variables generated from other information include prefecture, type of zone, administrative level of the jurisdiction responsible for managing the zone, two urban-rural indicators, and the total number of industries in the zone. The approval mechanism variable in the directory only codes whether the zone is a national or provincial-level zone. To understand enactment and management of zones, I also coded the administrative level of the zone since the urban-rural variable does not provide much granularity for the scale between a tier two city and a township. To do so, I verified the location of the specific zone and then coded the prefecture and whether the zone was in a prefecture-level city, a county-level city, or county. After the initial coding, it became clear that so-called “industrial parks” became common after 2005. To assess whether industrial parks are qualitatively different from the other types of zones, promulgated primarily in the early 1990s, I coded a binary variable for whether or not the zone was an industrial park.

The urban-rural character of the zone is captured by both a binary and ordinal scale. The binary variable, urban, captures whether a zone is in proximity to a city (either tier one or tier two) or not. The second urban-rural variable is an ordinal scale, which seemingly runs in the opposite direction of the binary variable, but is done in order to capture tier one and two cities in the interests

105 Thus, the scale is 1 = Urban and 0 = Rural.
of eventually expanding the dataset to other areas. As such, the categorical scale equals one for a tier one city (major metropolitan area); two for a tier two city (smaller scale city) and three for all remaining areas.\(^{106}\) Since there are only tier two cities in Zhejiang (Hangzhou, Ningbo, and Wenzhou), the scaled variable is less important for this initial analysis but was included as a proof of concept for the longer-term project.

In terms of sectoral composition, there is an explicit category in the State Council audit for “leading industries.” I use this variable as a statement of the industrial composition of the zone. The Chinese was first translated into English, and then similar categories were grouped together for one consistent translation scheme. This descriptor was then used to match to the most appropriate International Standard Industrial Classification (ISIC) code.\(^{107}\) If at the level of requisite specificity, I used four digit codes but in many cases the description was so generic that I was only able to code at the 2-digit level. There are two main limitations with the data at present. First, the State Council audit contains information on “leading industries,” which means only two or three industries are typically listed for each zone.\(^{108}\) Thus, there could be other economic activities in these zones and future research should evaluate how accurately the State Council “leading industries” match up with reality. Second, the State Council audit only contains data for 2006. As such, this data source only offers us a very narrow slice in time. There is limited information on the sectors within each zone during the initial start-up period nor is there detailed information about the current composition of sectors in zones today. Given the possibility of an

\(^{106}\) To add more nuance to this scale, it could be possible to add a category for prefecture-level cities.


\(^{108}\) Data on sectors is drawn from the Leading Industries (zhǔdǎo chǎnyè) category within the inventory.
SEZ life-cycle and studies that have pointed out the changing composition of production in areas such as Wenzhou, the change in the sectoral composition of zones should be explored more fully.

4.1 Initial Analysis: Size and Composition

Consistent with the overall reform and policy process in China, there are standard set of dates associated with zone expansions but there are also some interesting anomalies. The bulk of economic zones began in the period between 1992 and 1994, consistent with Deng’s Southern Tour. However, nearly all industrial parks were created in 2006, with the exception of the areas specifically identified as HIDZs. In terms of distribution across the province (Table 3 below), the balance across prefectures is relatively even. The northern provinces (those in closer proximity to the border with Shanghai) have slightly more zones than areas in the south and east but the difference in number is not significant.

![Provincial-Level Zones in Zhejiang](image-url)

109 Zhao (1993); Author’s coding of Zhejiang zones based on State Council (2006).


<table>
<thead>
<tr>
<th>Prefecture</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jinhua</td>
<td>12</td>
</tr>
<tr>
<td>Jiaxing</td>
<td>11</td>
</tr>
<tr>
<td>Ningbo</td>
<td>11</td>
</tr>
<tr>
<td>Shaoxing</td>
<td>11</td>
</tr>
<tr>
<td>Taizhou</td>
<td>11</td>
</tr>
<tr>
<td>Lishui</td>
<td>10</td>
</tr>
<tr>
<td>Wenzhou</td>
<td>10</td>
</tr>
<tr>
<td>Hangzhou</td>
<td>9</td>
</tr>
<tr>
<td>Huzhou</td>
<td>7</td>
</tr>
<tr>
<td>Quzhou</td>
<td>7</td>
</tr>
<tr>
<td>Zhoushan</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>103</td>
</tr>
</tbody>
</table>

Table 3: Zhejiang Zones By Prefecture

For hypothesis one above, zones in 1990s were larger than in the post-2003 sample. In the period before the audit (prior to 2003), the average size of an economic development zone was 8.3 square kilometers. After 2003, the average size of zone is 4.9 square kilometers but the number of observations are roughly equivalent (58 versus 45, respectively). I attribute this both to the tendency to use industrial parks in the post-audit environment and because the Hu/Wen administration seemed more concerned about the conversion of rural land for industrial use.

In terms of zone type, nearly half of all zones in Zhejiang are industrial parks created in or after 2005. As compared to the other provincial-level zones, industrial parks are, on average, smaller than other economic development zones but do exhibit slightly more variability in size.\(^{110}\) The overall average size (for all time periods) is 6.8 square kilometers whereas industrial parks are, on average, about 5 square kilometers. Thus, hypothesis 2b is confirmed, but I attribute this primarily to the over time variation rather than zone type per se but the two are likely related. In

\(^{110}\) The standard deviation for industrial parks is 5.7, with a minimum size of 0.4 square kilometers and a maximum of 33.7.
the next phase of the analysis, I plan to examine the specific policy documents governing each of the program types to determine whether there is an explicit policy reason for this difference.\footnote{The directory contains data on which NDRC circulars are responsible for the rules associated with each individual zone but there is variability across zones. At present, no discernible pattern has yet to be identified.}

Only 13 of Zhejiang’s zones are in an urban center (hypothesis three) which is consistent with theories that Zhejiang’s economic growth has been a more broad-based and rural development model. Thirty-eight zones (37 percent) are at the prefecture-level and 63 percent are managed at the county-level (32 in county-level cities and 33 located in a county). If we examine zone size by prefecture, on average, the largest zones are in Shaoxing (11.7 square kilometers, with a standard deviation of 9) and the smallest are in Zhoushan. The fact that Zhoushan’s zones are small is unsurprising since Zhoushan is a prefecture constituted of a large number of small islands off the coast of Ningbo.

The purpose of the sectoral comparison is to determine whether we can systematically devise
a measure of the composition of zones. The initial pilot study confirms the validity of being able
to devise this measure but there were numerous discrepancies in the vernacular used to describe
industries so the second phase of this project will include further refinement of the industry coding
to ensure consistency both within the source data, as well as consistency with the ISIC coding
schemes. As Table 4 shows, leather products and apparel are prominent local industries in Zhejiang
but, at least as of 2006, not the most important sectors within zones. Machinery and machinery
manufacturing is by far the largest industry within zones in the province but given the limited
nature of the directory data, it is not clear whether this is a new phenomenon (industrial upgrading)
nor how early this trend began.

<table>
<thead>
<tr>
<th>Primary Industry</th>
<th>Number of Zones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machinery</td>
<td>18</td>
</tr>
<tr>
<td>Spinning and weaving</td>
<td>13</td>
</tr>
<tr>
<td>Auto parts and components</td>
<td>7</td>
</tr>
<tr>
<td>Electronics</td>
<td>7</td>
</tr>
<tr>
<td>Building materials</td>
<td>5</td>
</tr>
<tr>
<td>Clothing and apparel</td>
<td>5</td>
</tr>
<tr>
<td>Electrical appliances</td>
<td>4</td>
</tr>
<tr>
<td>Food products processing</td>
<td>4</td>
</tr>
<tr>
<td>Leather products</td>
<td>4</td>
</tr>
<tr>
<td>Other manufacturing</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 4: Zhejiang Zones By Prefecture

5 Comparisons and Further Research

SEZs, ETDzs, and HIDZs are all approved by the State Council but run by local administrative
committees. Bonded zones and EPZs are run by the General Administration of Customs. BECZs
were originally under the State Council (from 1992-2007) but are now run by the Ministry of
Commerce.\textsuperscript{112} Provincial-level zones are run by local governments at various administrative levels. In some ways, all the various zones are distinct ways for government agencies to have control over different elements of China’s industrial policy. The timing of expansions of several zone programs coincides with major leadership transitions so as Shirk (1993) noted, these policies allow leaders to take “a more active and direct role” in economic reform while still claiming that their policies are innovative or new.\textsuperscript{113}

Table 5 below summarizes the size for all of China’s national-level zone programs.\textsuperscript{114} Two caveats need to be made with respect to the size comparisons across programs. First, size data for the SEZs is based on 1990 but does not include Hainan Island despite the entirety of the island being designated as a zone in 1988.\textsuperscript{115} The second caveat is the size figure for the PFTZ is only for the Shanghai zone. All other data is based on the size of zones in 2006. Bonded areas includes size estimates for bonded zones (early 1990s) and bonded port areas (established mid-2000s). Per the size hypotheses above, the original SEZs are by far the largest and subsequent zone programs were much smaller in size. The PFTZs may be reversing that trend as their purpose seems to be consolidation of zones into one larger administrative structure. However, it is too early to assess the administrative structure of PFTZs as many are still taking shape.

In terms of whether or not zones “cause” FDI, in the case of Zhejiang, increases in FDI preceded the spike in industrial zones in the mid-2000s but it is possible that this is a result of

\begin{itemize}
\item \textsuperscript{112} Dezan Shira & Associates,“China to Support Development of Border Economic Cooperation Zones, \textit{China Briefing}, 10 December 2012.
\item \textsuperscript{113} Shirk (1993, 68).
\item \textsuperscript{114} Data compiled by author based on NDRC Directory of Development Zones. SEZ size data is for 1990 and is derived from Vogel (1989) and Naughton (2007).
\item \textsuperscript{115} Concurrent with its upgrade in status to a separate province; if the total land area of Hainan was included, total land area for SEZs would be 34,532 square kilometers and the average size of an SEZ would be 6906 square kilometers.
\end{itemize}
<table>
<thead>
<tr>
<th>Zone Type</th>
<th>Total Land Area</th>
<th>Average Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEZ</td>
<td>632</td>
<td>158.1</td>
</tr>
<tr>
<td>ETDZ</td>
<td>575</td>
<td>11.7</td>
</tr>
<tr>
<td>HIDZ</td>
<td>964</td>
<td>18.2</td>
</tr>
<tr>
<td>BECZs</td>
<td>78</td>
<td>5.6</td>
</tr>
<tr>
<td>EPZ</td>
<td>170</td>
<td>2.9</td>
</tr>
<tr>
<td>Bonded Areas</td>
<td>147</td>
<td>5.4</td>
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<tr>
<td>Pilot FTZs</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>ZJ Provincial Zones</td>
<td>702</td>
<td>6.8</td>
</tr>
</tbody>
</table>

Table 5: Program Size, area in square kilometers

A virtuous cycle whereby initial investment attracted firms to the area thereby prompting local officials to expand the number, size, and scope of zones. Also, one deficiency of the current Zhejiang dataset is that it only codes provincial-level zones so as to avoid double-counting with the national-level programs. In the next iteration of the project, I plan to include the national-level zones approved within Zhejiang in the dataset in order to evaluate the balance of national versus provincial-level zones in the province. This is especially important for understanding the political economy of tier two cities such as Ningbo and Wenzhou, which have both national and provincial-level zones.

In terms of further research, I am evaluating whether to expand the dataset cross-sectionally or temporally. In terms of sectoral composition, this current data only captures the leading industries as present in 2006. If the dataset is expanded cross-sectionally, i.e. to other provinces, then it may be necessary to further breakdown the urban-rural ordinal scale. Is contrasting between tier one and tier two cities sufficient or is examination of prefecture and county-level scales warranted? Future research could examine whether there are any substantive differences between the size, sectoral composition, or character of prefecture and county-level economic development zones.

Previous studies have noted that less one percent of China’s land area is part of an SEZ
despite these zones outsized contribution to FDI. However, these studies only include national-level zones. The land area dedicated to zones in one province exceeds the total land area contained in all other national-level programs, other than the HIDZ program. More land is dedicated to HIDZs than the provincial-zones in Zhejiang but the scale of provincial-level zones in what is considered to be an entrepreneurial province begs the question of how much total land area is dedicated to provincial-level zones nationwide. Moreover, the 2006 directory captures the time period after a large number of zones were closed in what is described as China’s “development zone fever” of the 1990s. Thus, additional research needs to be done to be understand how widespread these industrial policies were in the 1990s and how influential they remain today.

References


URL: http://www-management.wharton.upenn.edu/henisz/


6 Appendix A: National-Level Zones

<table>
<thead>
<tr>
<th>Chinese</th>
<th>English</th>
<th>Acronym Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>经济特区</td>
<td>Special Economic Zone</td>
<td>SEZ</td>
</tr>
<tr>
<td>经济技术开发区</td>
<td>Economic and Technological Development Zone</td>
<td>ETDZ</td>
</tr>
<tr>
<td>高新技术产业开发区</td>
<td>High-Tech Industrial Development Zone</td>
<td>HIDZ</td>
</tr>
<tr>
<td>高科技园区</td>
<td>High-Tech Park</td>
<td>n/a</td>
</tr>
<tr>
<td>边境经济合作区</td>
<td>Border Economic Cooperation Zone</td>
<td>BE CZ</td>
</tr>
<tr>
<td>出口加工区</td>
<td>Export Processing Zone</td>
<td>EPZ</td>
</tr>
<tr>
<td>自由贸易区</td>
<td>Free Trade Zone</td>
<td>FTZ</td>
</tr>
<tr>
<td>保税区</td>
<td>Bonded Zone</td>
<td>BZ</td>
</tr>
<tr>
<td>自由贸易试验区</td>
<td>Pilot Free Trade Zone</td>
<td>PFTZ</td>
</tr>
<tr>
<td>省级经济开发区</td>
<td>Provincial-Level Economic Development Zone</td>
<td>n/a</td>
</tr>
<tr>
<td>省级高新技术产业园区</td>
<td>Provincial-Level High-Tech Industrial Park</td>
<td>n/a</td>
</tr>
<tr>
<td>省级特色工业园区</td>
<td>Provincial-Level Special Industrial Park</td>
<td>n/a</td>
</tr>
<tr>
<td>计划单列城市</td>
<td>Central Economic Cities</td>
<td>CEC</td>
</tr>
<tr>
<td>中关村</td>
<td>Zhongguancun</td>
<td>n/a</td>
</tr>
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</table>

Figure 4: China’s Development Zone Terminology

<table>
<thead>
<tr>
<th>Zone</th>
<th>Province</th>
<th>Founded (Year, Month)</th>
<th>Size (sq km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manchuria</td>
<td>Inner Mongolia</td>
<td>1992 3</td>
<td>6.4</td>
</tr>
<tr>
<td>Erenhot</td>
<td>Inner Mongolia</td>
<td>1992 3</td>
<td>1</td>
</tr>
<tr>
<td>Dandong</td>
<td>Liaoning</td>
<td>1992 7</td>
<td>6.3</td>
</tr>
<tr>
<td>Hunchun</td>
<td>Jilin</td>
<td>1992 3</td>
<td>5</td>
</tr>
<tr>
<td>Suifenghe</td>
<td>Heilongjiang</td>
<td>1992 3</td>
<td>5</td>
</tr>
<tr>
<td>Heihe</td>
<td>Heilongjiang</td>
<td>1992 3</td>
<td>7.63</td>
</tr>
<tr>
<td>Pingxiang</td>
<td>Guangxi</td>
<td>1992 9</td>
<td>7.2</td>
</tr>
<tr>
<td>Dongxing</td>
<td>Guangxi</td>
<td>1992 9</td>
<td>4.07</td>
</tr>
<tr>
<td>Ruili</td>
<td>Yunnan</td>
<td>1992 9</td>
<td>6</td>
</tr>
<tr>
<td>Wanting</td>
<td>Yunnan</td>
<td>1992 6</td>
<td>5</td>
</tr>
<tr>
<td>Heikou</td>
<td>Yunnan</td>
<td>1992 6</td>
<td>4.02</td>
</tr>
<tr>
<td>Bole</td>
<td>Xinjiang</td>
<td>1992 6</td>
<td>7.82</td>
</tr>
<tr>
<td>Yining</td>
<td>Xinjiang</td>
<td>1992 12</td>
<td>6.5</td>
</tr>
<tr>
<td>Tacheng</td>
<td>Xinjiang</td>
<td>1992 12</td>
<td>6.5</td>
</tr>
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</table>

Figure 5: Border Economic Cooperation Zones
<table>
<thead>
<tr>
<th>Zone Name</th>
<th>Province or Municipality</th>
<th>Year Founded</th>
<th>Size (sq km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xiamen Xiangyu Bonded Zone</td>
<td>Fujian</td>
<td>1992</td>
<td>1.8</td>
</tr>
<tr>
<td>Fuzhou Bonded Zone</td>
<td>Fujian</td>
<td>1992</td>
<td>1.8</td>
</tr>
<tr>
<td>Shenzhen Shatoujiao Bonded Zone</td>
<td>Guangdong</td>
<td>1991</td>
<td>0.37</td>
</tr>
<tr>
<td>Shenzhen Futian Bonded Zone</td>
<td>Guangdong</td>
<td>1991</td>
<td>1.68</td>
</tr>
<tr>
<td>Guangzhou Bonded Zone</td>
<td>Guangdong</td>
<td>1992</td>
<td>2</td>
</tr>
<tr>
<td>Shantou Bonded Zone</td>
<td>Guangdong</td>
<td>1993</td>
<td>2.34</td>
</tr>
<tr>
<td>Shenzhen Yantian Port Bonded Zone</td>
<td>Guangdong</td>
<td>1996</td>
<td>0.85</td>
</tr>
<tr>
<td>Zhuhai Bonded Zone</td>
<td>Guangdong</td>
<td>1996</td>
<td>3</td>
</tr>
<tr>
<td>Haikou Bonded Zone</td>
<td>Hainan</td>
<td>1992</td>
<td>1.93</td>
</tr>
<tr>
<td>Zhangjia Port Bonded Zone</td>
<td>Jiangsu</td>
<td>1992</td>
<td>4.1</td>
</tr>
<tr>
<td>Dalian Bonded Zone</td>
<td>Liaoning</td>
<td>1992</td>
<td>5.7</td>
</tr>
<tr>
<td>Qingdao Bonded Zone</td>
<td>Shandong</td>
<td>1992</td>
<td>2.5</td>
</tr>
<tr>
<td>Shanghai Waigaoqiao Bonded Zone</td>
<td>Shanghai</td>
<td>1990</td>
<td>10</td>
</tr>
<tr>
<td>Tianjin Port Bonded Zone</td>
<td>Tianjin</td>
<td>1991</td>
<td>5</td>
</tr>
<tr>
<td>Ningbo Bonded Zone</td>
<td>Zhejiang</td>
<td>1992</td>
<td>2.3</td>
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</table>

Figure 6: Bonded Zones

<table>
<thead>
<tr>
<th>Zone Name</th>
<th>Province or Municipality</th>
<th>Year Zone Founded</th>
<th>Size (sq km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chongqing Cuntan</td>
<td>Chongqing</td>
<td>2008</td>
<td>8.37</td>
</tr>
<tr>
<td>Xiamen Haicang</td>
<td>Fujian</td>
<td>2008</td>
<td>9.51</td>
</tr>
<tr>
<td>Shenzhen</td>
<td>Guangdong</td>
<td>2008</td>
<td>3.71</td>
</tr>
<tr>
<td>Guangzhou Nansha</td>
<td>Guangdong</td>
<td>2008</td>
<td>7.06</td>
</tr>
<tr>
<td>Guangxi Qinzhou</td>
<td>Guangxi</td>
<td>2008</td>
<td>10</td>
</tr>
<tr>
<td>Hainan Yangpu</td>
<td>Hainan</td>
<td>2007</td>
<td>9.21</td>
</tr>
<tr>
<td>Zhangjiagang</td>
<td>Jiangsu</td>
<td>2008</td>
<td>4.1</td>
</tr>
<tr>
<td>Liaoning Dalian</td>
<td>Liaoning</td>
<td>2006</td>
<td>6.88</td>
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<tr>
<td>Qingdao Qianwan</td>
<td>Shandong</td>
<td>2008</td>
<td>9.72</td>
</tr>
<tr>
<td>Yantai</td>
<td>Shandong</td>
<td>2009</td>
<td>7.26</td>
</tr>
<tr>
<td>Shanghai Waigaoqiao</td>
<td>Shanghai</td>
<td>2005</td>
<td>8.14</td>
</tr>
<tr>
<td>Tianjin Dongjiang</td>
<td>Tianjin</td>
<td>2006</td>
<td>10</td>
</tr>
<tr>
<td>Ningbo Meishandao</td>
<td>Zhejiang</td>
<td>2008</td>
<td>7.7</td>
</tr>
</tbody>
</table>

Figure 7: Bonded Port Areas
7 Appendix B: Provincial-Level Zones

The histogram below summarizes the number of provincial-level zones by jurisdiction. For a summary of the number of zones in each province, see Table 4 on the final page.

Figure 8: Provincial Level Zones Per Province, 2006

Source: State Council Audit (2006)
<table>
<thead>
<tr>
<th>Province</th>
<th>Number of Zones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shandong</td>
<td>155</td>
</tr>
<tr>
<td>Jiangsu</td>
<td>109</td>
</tr>
<tr>
<td>Zhejiang</td>
<td>103</td>
</tr>
<tr>
<td>Hubei</td>
<td>89</td>
</tr>
<tr>
<td>Jiangxi</td>
<td>88</td>
</tr>
<tr>
<td>Anhui</td>
<td>85</td>
</tr>
<tr>
<td>Hunan</td>
<td>73</td>
</tr>
<tr>
<td>Guangdong</td>
<td>69</td>
</tr>
<tr>
<td>Fujian</td>
<td>65</td>
</tr>
<tr>
<td>Hebei</td>
<td>45</td>
</tr>
<tr>
<td>Chongqing</td>
<td>43</td>
</tr>
<tr>
<td>Liaoning</td>
<td>42</td>
</tr>
<tr>
<td>Inner Mongolia</td>
<td>39</td>
</tr>
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<td>Sichuan</td>
<td>38</td>
</tr>
<tr>
<td>Jilin</td>
<td>35</td>
</tr>
<tr>
<td>Gansu</td>
<td>34</td>
</tr>
<tr>
<td>Heilongjiang</td>
<td>29</td>
</tr>
<tr>
<td>Shanghai</td>
<td>26</td>
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<td>Tianjin</td>
<td>25</td>
</tr>
<tr>
<td>Henan</td>
<td>23</td>
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<tr>
<td>Guangxi</td>
<td>23</td>
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<td>Shanxi</td>
<td>22</td>
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<tr>
<td>Shaanxi</td>
<td>17</td>
</tr>
<tr>
<td>Beijing</td>
<td>16</td>
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<tr>
<td>Yunnan</td>
<td>15</td>
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<td>Ningxia Hui</td>
<td>15</td>
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<td>Guizhou</td>
<td>13</td>
</tr>
<tr>
<td>Xinjiang</td>
<td>11</td>
</tr>
<tr>
<td>Hainan</td>
<td>5</td>
</tr>
<tr>
<td>Qinghai</td>
<td>3</td>
</tr>
<tr>
<td>Tibet</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1355</strong></td>
</tr>
</tbody>
</table>

Table 6: Provincial-Level Development Zones as of 2006, Descending Order by Total Number