The Institutional Foundation of Foreign-Invested Enerprises (FIEs) in China

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Abstract

Foreign-invested enterprises (FIEs) are now an important component of the Chinese economy. Since 1992, the growth of FIEs has been exponential. However our understanding of the institutional factors driving the FIE growth remains limited. This paper uses data from 39 industries in China for a period of three years (1995-1997) to explore the institutional foundation of the FIE growth. Our findings suggest that the debt obligations on the part of the SOEs and the local control of the SOEs promote the growth of FIEs and that some of the foreign direct investment (FDI) inflows result in acquisition of existing assets and shift asset controls from SOEs to FIEs.

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Introduction

In the 1990s, foreign direct investment (FDI) has grown explosively in the Chinese economy. Between 1979 and 1997 the gross FDI stock was US$220 billion on the materialized or paid-in basis. Much of this FDI stock was invested since 1992. Between 1992 and 1997 the total FDI inflow was a whopping US$196.8 billion, which put China as the largest FDI recipient among developing countries and second only to the United States. By the mid-1990s, the foreign-invested enterprises (FIEs) have become a significant force in the Chinese economy. The importance of their role is first seen in their growth. The compound annual growth rate of FDI between 1990 and 1997 was 44 percent; the most dramatic increase occurred in 1992 and in 1993 period when the FDI grew by 142 percent and 146 percent respectively. In 1997, the Chinese government reported a foreign capital inflow of 64.4 billion dollars and an FDI inflow of 45.3 billion dollars. In 1998, despite the widespread financial turmoil in East and Southeast Asia, FDI inflows into China continued at a strong pace, defying the growing pessimism about China in the Western business community. For the first nine months in 1998, the FDI inflows stood at 31.4 billion dollars, unchanged from the year before (Smith 1998).

Foreign investment is most commonly defined as “direct” when the investment gives rise to “foreign control” of domestic assets. Thus according to IMF, FDI “is made to acquire a lasting interest in an enterprise operating in an economy, other than that of the investor, the investor’s purpose being to have an effective voice in the management of the enterprise.” In the United States, the Department of Commerce defines inward FDI when a foreign investor’s stake exceeds 10 percent. In China, the legal and definitional hurdle is set at a higher level—25 percent. The ostensible purpose is to preclude “fake” FIEs from enjoying many of the policy benefits granted to FIEs but to establish “an effective voice in the management of the enterprise” also requires a higher foreign equity stake in China as most of the Chinese joint venture partners are SOEs, whose shares, like closed corporations, are not traded.

Starting de novo in 1980, foreign-invested enterprises (FIEs) have become a sizable player in the Chinese economy. The FIEs have accumulated a large capital base and their investment activities account for an increasing share of China’s capital formation. Their ability to raise funds and to import and export capital quickly has a strong influence on China's

macroeconomy. Increasingly, FIEs are making China the manufacturing base of Asia. They can be found in virtually every part of China and in every economic sector. In a number of sectors, FIEs have established dominant positions in Chinese industry, especially in soft drinks, toys, cosmetics, automobiles, etc. FIEs' foreign trade activities account for a large share of China's overall trade balance; in 1996, they accounted for 40 percent of China's foreign trade and for 30 percent of Chinese export.[1]

This paper explores the institutional foundation of the growth of FIEs in the Chinese economy. By institutional foundation, we mean the performance and institutional characteristics of SOEs in the Chinese economy. Because of the policy and legal restrictions, most of the FIEs in China take the form of joint ventures with Chinese shareholding firms and most of the Chinese shareholding firms are SOEs. The shareholding ties to the SOEs would suggest the importance of SOEs' performance and institutional characteristics as factors affecting the growth of FIEs.

Most of the existing accounts of FDI in China—and by extension, of FIEs—are, surprisingly, institution-free. The existing studies are of two kinds. First, FDI inflows into China are modeled as "locational" decisions on the part of the MNEs. The usual variables in this type of studies are market size (proxied by GDP), per capita income, geographic distance and literacy rates. This framework is used to account for the fact that more FDI flows into China rather than, say, into Uganda because China offers more attractive market opportunities and a better skill base to MNEs among a cross-section of countries. Another type of studies focuses on the equity structure of FIEs and seeks to identify those factors that have led to majority vis-à-vis minority status of MNEs in joint venture relationships. The independent variables are a set of industry-specific variables and nationality of investing firms chosen to illustrate the bargaining power of the MNEs and the differences in ownership preferences among foreign investing firms. Although host country factors are taken into account, these factors are restricted to such variables as diplomatic ties and China's FDI policy evolution.[2]

This paper differs from these studies in two critical aspects. It takes a demand perspective on FDI rather than a supply perspective. The aforementioned studies typically model FDI or equity stake decisions as those that best maximize profits of the MNEs. Left unaccounted for is the motivation on the part of the Chinese SOEs to seek alliances with MNEs, a significant omission considering the fact that most of the FIEs are joint ventures with Chinese firms. Second, this paper differs from the locational choice genre of FDI studies in that it takes the locational choice of MNEs as given and proceeds to examine those factors that lead to the variance of the FIE presence across industries. This affects the choices of our independent

variables. Variables such as market size and profitability prospects are omitted in this paper because they are presumed to exert an equal impact on MNEs and Chinese firms and thus would not affect the cross-industry variance of the FIE presence. Although this paper in spirit is closer to studies on equity choices of MNEs, it takes as its premise that the alliance motivations are also a function of the performance and a set of institutional characteristics of the Chinese shareholding firms, in addition to industry characteristics and FDI-specific policies.

The paper has five sections. The second section outlines the empirical strategy of our research. The third section describes data sources and operationalization of variables. The fourth section presents the estimation results and the last section concludes with some comments on the policy implications of our findings.

Empirical strategy

By far, the dominant account of the cross-industry FDI distribution is the industrial organization (IO) explanation. The IO reasoning hinges on the notion that FDI, fundamentally, reflects the ability of profit-maximizing multinational enterprises (MNEs) to overcome market imperfections. The starting point of the IO reasoning is that foreign firms incur costs that domestic firms do not.[3] These costs range from the intrinsic difficulties of managing cross-border operations to the costs of gathering information and developing expertise about foreign markets, political, social and legal environments, etc. Political uncertainty also abounds in investing overseas. Much of these costs is large, fixed and up-front. To offset these extra costs, a foreign firm must possess internal, ownership-specific advantages over its domestic rival firms. These advantages take the form of R&D capabilities, managerial know-how, organizational skills, marketing expertise, and economies of scale, etc. Further, the idea that these advantages must be firm-specific is central to the IO perspective. These advantages are available to the MNEs, but not to others due to the structural impediments. The clearest examples here would be patent protection and brand name that yield rents to their holders.

The spirit of the IO explanation dictates that the inter-industry distribution of FDI be modeled as a function of the following characteristics of an industry: the degree of product differentiation, level of competition, scale economies, and research and development (R&D) intensity. MNEs are hypothesized to be more prevalent in those industries that are characterized by a significant degree of product differentiation, high concentration ratios, scale economies and deep R&D expenditures due to their superior market power over their domestic rivals. In general, IO-motivated research on inter-industry distribution of FDI in more developed economies such as

Canada and United Kingdoms has received more empirical validation than similar research on FDI in developing economies.[4]

Our empirical strategy is to take the IO explanation as the baseline model but to augment it with variables that are meant to track performance and characteristics of the Chinese SOEs. Whether IO hypothesis explains the inter-industry distribution of FDI in China is a fascinating topic in and of itself but is not the primary focus of this paper. The augmented IO model is to anchor the FDI determination in a standard explanation on FDI and to explore the institutional foundation of the cross-industry FDI distribution in the specific context of China's transitional economy.

The institutional foundation hypothesis postulates that, net of influences of the IO industry attributes, the cross-industry incidence of FIEs is a function of the performance and institutional characteristics of their Chinese shareholding firms. Vast majority of the FIEs are joint ventures between Chinese firms and MNEs and vast majority of the Chinese shareholding firms are SOEs. SOEs may view alliances with MNEs as an access to the deep financial and technological base of the MNEs either to launch new products or to gain new markets as the Chinese competitive landscape intensifies. Another related motive is to raise cash quickly to service the onerous social and policy burdens placed on the SOEs, such as funding pensions of retirees, medical expenses and unemployment contributions. Shares in FIEs may yield dividend payments that match better with SOEs' liabilities than their operations.

Our framework postulates that SOEs' institutional characteristics also bear on their incentives to create alliances with MNEs. Prominent of these characteristics is their decentralized management. Chinese SOEs are divided into "central" and "local" enterprises. A central enterprise falls under the supervision of the central government; a local enterprise falls under the supervision of local governments, i.e., the provincial governments and their subordinate levels. The Chinese economic system is often characterized as "Chinese style federalism," i.e., local governments play a prominent supervisory and financing role in the economy.[5] As of 1995, according to the 1995 Industry Census, there were 87,905 SOEs, of which 83,167 of them were local SOEs. Local SOEs accounted for 54 percent of the industrial value added and 65 percent of the assets in the state sector.

Local governments are often strongly motivated to form alliances with MNEs and at least anedoctal evidence suggests that local governments have approved FDI projects beyond central government's guideline and have conferred "excessive" benefits on joint ventures in order to attract FDI. One reason for such a strong FDI preference is to create employment

opportunities but the employment motivation does not explain why benefits should be conferred on joint ventures in excess of those on domestic firms. A more important reason is that FDI is more mobile than domestic capital and local governments compete with each other to capture a bigger share of the capital inflows.

Capital competition often prompts local governments to grant generous tax concessions, subsidized bank credits, and undervalue Chinese equity contributions (often in the form of heavily subsidized land usage charges). The tax benefit can be quite sizable. According to one study, in Beijing, the total tax concessions and exemptions granted to FIEs amounted to 521 million yuan in 1992, about 33 percent of the total municipal tax receipts levied on FIEs in Beijing.[6]

A major specification issue is the postulated causation in our institutional foundation framework. While our institutional foundation hypothesis posits that the poor performance of the SOEs motivates SOEs to seek out foreign partners, a plausible alternative conjecture is that the SOE performance is endogenous of the FIE presence. FIEs, for example, may pose a formidable competitive threat to SOEs and reduce latter's profit margins while increasing SOEs' liquidity constraints. The competition hypothesis posits an opposite causal link between inter-industry FIE distribution and SOE performance.

Two considerations bear upon our specification choices. First, it is not a priori clear why enhanced competition ought to make existing SOEs weaker. A number of studies have reported enhanced productivity growth among SOEs during the reform era either due to improved incentives or to increased competition.[7] One of the purported benefits associated with FDI is its "spillover" and, as demonstrated by a number of empirical studies on other developing economies, beneficial effect on domestically-owned firms. According to the "spillover" hypothesis, MNEs do not appropriate all the gains from their presence in a host economy and domestically-owned firms benefit from foreign presence via competition, adoption of best-practice management and organizations, and improvement in technical efficiency.[8]

Second and more importantly, FIEs are not the only competitive threat to SOEs. Despite the torrid growth of FIEs since 1992, FIEs are still dwarfed by the non-state firms—collective and individual firms--in the Chinese economy. As shares of industry sales, as of 1997, FIEs accounted for 19.6 percent as compared with 39.6 percent by the non-state firms. Non-state firms have also grown faster than FIEs; again as measured by industry sales, in 1994 non-state firms accounted for 34.5 percent while FIEs accounted for 18.7 percent. Non-state firms thus pose a far greater competitive threat to SOEs than FIEs. Partially for this reason, the poor financial

performance of the SOEs long predated the advent of the FIEs. The financial losses of the SOEs mounted continuously throughout the reform era even while FIEs were only a miniscule portion of the Chinese economy.[9] For example, pre-tax profits to net fixed asset ratio declined from 24.2 percent in 1978 to 12.4 percent in 1990.[10] On the other hand, because most of the shareholding firms of FIEs are SOEs, the performance of the SOEs ought to exert a strong impact on the FIE creation process. This asymmetric effect between SOEs and FIEs provides a strong justification to treat the performance of SOEs as exogenous variables.

Data and variables

The primary source of the data used in this paper is China Statistical Yearbook, which, since 1995, has published relatively detailed balance sheet data on the Chinese corporate sector broken down by 39 industries. The data are further broken down by SOEs, FIEs and firms of other ownership types (primarily collective and individual enterprises). The balance sheet data include debt, broken down by long and short-term maturity, assets, fixed assets and shareholder equity. China Statistical Yearbook has also published income statement data on product sales and pre and post-tax profits. The primary supplemental source for our analysis is the 1995 Industry Census, which gives far more detailed balance sheet and income statement data than China Statistical Yearbook. But its drawback is its limitation to one year only. Data on R&D and sales expenditures and on managers and engineers are only available in the 1995 Industry Census and are used for all three years, 1995 to 1997. Chinese industry classification scheme is a modified version of the international standard industry classification (ISIC). The data used in the analysis are roughly comparable to the two-digit industries in ISIC but more disaggregated. There are 39 industries in this study, which span mining, manufacturing and utility sectors. Data are of a panel structure with 39 industries for three years (1995-1997). The appendix shows the concordance between Chinese SIC and ISIC.

The definition and the specific forms of dependent and independent variables are presented below. The dependent variable in this paper is the variation of the presence of FIEs across Chinese industries. There are three operationalizations of the "FIE presence." They are:

1) FIEEQU: The average equity share in an industry accounted for by FIEs, 1995-1997
2) FIEAST: The average share of total assets in an industry accounted for by FIEs, 1995-1997; and
3) FIESAL: The average share of sales in an industry accounted for by FIEs, 1995-1997.

The relevant independent variables are divided into two categories: 1) control variables that capture the characteristics of industries along the IO hypothesis and 2) institutional and performance variables of the SOEs. The independent variables are defined as follows:

1) Technological capability: The common variable here is the expenditure on research and development as a proportion of sales, which is used here in this paper. However, the data for the variable, RND, are only available for 1995 and thus the 1995 data are used in the regression analysis for all years (1995-1997).[11]
2) Product differentiation: The degree of product differentiation is conventionally measured by the advertising expenditures as a percentage share of sales. The 1995 Industry Census gives data on "product sales expenses," which cover not only advertising expenditures but also insurance premium, packaging costs as well as salaries for the sales force. Thus this is a proxy of the advertising expenditures (ADV) and it is a reasonable proxy given the lack of more detailed data. The data for this variable are only available for 1995 and thus the 1995 data are used for all the years.
3) Skill intensity: There are a number of proxies for the skill intensity of industries. One is the non-production workers as a proportion of total employment (NPEMP); the non-production employees refer to the managers and engineers. The higher their proportions, the higher the skill level is presumed to be embodied in the production processes and product offerings. The data are available for 1995 only.[12] An alternative skill measure is the labor productivity of workers, measured by value added per employee. The variable, SKILL, is used in the alternative specifications.
4) Entry barriers: One form of entry barrier is the absolute capital requirement for entering an industry. In this paper, the absolute capital requirement is measured by the average assets per firm (ASSET), given by the ratio of total assets of an industry divided by the number of firms in the industry. Another form of entry barrier is scale economies. One measure of scale economies prevalent in the literature on the inter-industry determination of FDI is the ratio of the sales of the largest firms to the average sales of the industry. In this paper, this is given by the ratio of the sales of the top four firms to the average sales of the industry (SCALE4). Yet another form of entry barrier is the concentration level of an industry. A conventional measure is the concentration ratio of the top four firms in terms of their sales (CR4).[13] These

three forms of entry barriers are used as alternative measures of entry barriers in the regression analysis.

5) Other control variables: Our data cover mining, manufacturing and public utilities sectors. One can reasonably conjecture that the inter-industry determination of FDI may very well reflect the differences intrinsic to these three sectors. Thus in all the regressions, sectoral dummies and year dummies are included. Another control variable is the policy restrictions the government places on MNEs. In 1995, the government delineated a detailed guideline divides all the FDI projects into "encouraged," "discouraged," and "banned" categories. In all regressions, a categorical variable denoting policy restrictions on FDI, RESTR, is included.[14]
6) Institutional variables: Institutional variables are the substantive variables for this paper. The institutional variables fall into two categories. First, I have devised a number of variables that measure the performance of the SOEs. The working hypothesis is that SOEs are driven to form alliances with MNEs due to their cashflow difficulties. Through alliances with MNEs, the SOEs can raise cash quickly either to meet their debt or social obligations. This has a number of implications. One is that the FIE presence in an industry is negatively correlated with the operating performance of the SOEs in that industry. Here I use profit margins of the SOEs, i.e., after-tax net income divided by sales revenues, to measure the SOEs' operating performance (SOEPFM). Another measure is debt to asset ratios of the SOEs (SOEDAR). SOEs, with a heavier debt burden, are hypothesized to be more motivated to form alliances with MNEs and thus FIE presence ought to be positively correlated with SOEDAR. To capture a decisional dynamic, SOEPFM and SOEDAR are lagged by one year, which may also help mitigate against some of the simultaneity problems that may be present.

To capture the effect of decentralized SOE controls, I created a variable to denote the local control of SOEs (LOCCON). LOCCON is defined as the share of fixed asset investments made by the local governments of the total fixed asset investments in an industry. In this formulation, local governments encompass provincial and subordinate governments. Local fixed asset investments can be further disaggregated into those financed at the provincial and municipal level and those at the county level. The idea of Chinese style federalism not only implies economic and policy autonomy at the level of provincial governments but also at the lower levels. To test this idea, I have created COUCON, which is the ratio of fixed asset

investments made by county level governments to local fixed asset investments. Because only the data for the 1996-1997 period are available for these two variables, the averages of the data for these two years are used in the regression analysis. Table 1 contains summary statistics for the three dependent variables and the institutional independent variables.

Table 1 about here.

Estimation results

Table 2 presents six basic regression equations (1a through 1f). Equations 1a through 1c regress three different dependent variables, FIEEQU, FIEAST, and FIESAL, on the augmented IO models of inter-industry determinants of FDI. Equations 1d and 1f regress FIEEQU on three different formulations of the IO models.

Table 2 about here.

Although the primary analytical focus is on the institutional variables, the results of the IO variables deserve a brief discussion. In general, IO variables have yielded a mixed result. The technological capability variable, RND, either has a wrong sign or has an insignificant coefficient. NPEMP yields a negative coefficient in four out of five specifications, which suggests that FIEs tend to populate those industries with a low ratio of "knowledge workers" to the total employment. NPEMP fails to reach statistical significance in three out of five specifications. SKILL also produces a negative coefficient, suggesting that the incidence of FIEs is higher in industries with low value-added per employee. ADV carries positive and significant coefficients throughout all the specifications, providing confirmation that FIEs tend to populate those industries with higher sales expenses and with high product differentiation. However, the high product differentiation could be driven by the incidence of FIEs rather than the other way around. FIEs could be more marketing savvy and focus on consumer products that are usually associated with high ADV. ASSET and SCALE4 carry positive coefficients and are statistically significant at least at the 10 percent of the significance level, consistent with the IO expectations that FDI seems to be more prevalent in industries characterized by a large absolute capital requirement. This result, however, ought to be treated with caution. The effects of ASSET and SCALE4, as it turns out, are somewhat dependent on the inclusion of SOEPFM and they are less consistent once SOEPFM is omitted. ASSET and SCALE4 are measures of monopoly status of industries and in industries with high ASSET and SCALE4 values (such as tobacco processing), SOEs reap huge monopoly rents and thus are associated with high SOEPFM values.

All the institutional variables carry the predicted signs and most are statistically significant at least at the 10 percent level. Controlling for industry characteristics, FIEs populate those industries in which SOEs incur low profit margins (i.e., negative $SOEPFM_{(t-1)}$), carry high debt on their books (i.e., positive $SOEDAR_{(t-1)}$) and involve a greater degree of control by the local governments (i.e., positive LOCCON and COUCON). Thus evidence is strong that incidence of FIEs is greater in industries in which SOEs tend to do poorly and in which local governments control more SOEs. The greater propensity to form alliances with MNEs on the part of local governments is in excess of the sectoral and policy effects, which are controlled for by the sectoral dummy variables and RESTR variable. It is thus a "pure" local effect.

Among the three institutional variables, $SOEPFM_{(t-1)}$ is statistically insignificant in four out of six specifications; with one excption $SOEDAR_{(t-1)}$, LOCCON and COUCON coefficients are all significant at least at the 10 percent level. The robustness of the institutional variables on the inter-industry FIE distribution is shown by the consistency of the findings across different specifications. Equations 1a through 1c regress three different versions of the dependent variable, FIEEQU, FIEAST and FIESAL, and equations 1c to 1f are different IO specifications and use different measures of entry barriers and skill intensity. Both the coefficient signs and the magnitude of the standard errors of the institutional variables remain robust throughout these specifications.

The positive coefficient on $SOEDAR_{(t-1)}$ suggests a liquidity constraint situation for SOEs and an avenue to explore the way SOEs finance their alliances with MNEs. Because most of these alliances are joint ventures, SOEs need to inject either cash or other forms of assets to establish their stakes in the newly-created FIEs. *Ceteris paribus*, one would expect a cash or liquidity constrained SOE to contribute their fixed assets—i.e., equipment and machinery—as a way to convert a relatively illiquid form of assets into more liquid forms of assets such as cash or shares in FIEs. To test this hypothesis, I created a variable, SOEFA, which is the proportion of the SOE fixed assets—on the book value basis—to their total assets. SOEFA ought to be negatively correlated with FIE presence, i.e., the fixed asset reduction on the part of SOEs ought to be greater among industries populated by FIEs.[15]

Table 3 presents three equations which incorporate the effects of SOEFA. To control for the possibility that the FIE distribution across industries might be affected by asset intensity, I include a measure of asset intensity, ASTURN, in equation 2c. ASTURN is a measure of asset turnover, given by the ratio of sales to assets. Equation 2a is equation 1a plus SOEFA and equation 2b regresses FIEEQU on institutional regressors alone. Controlling for the industry

characteristics and the effect of other institutional variables, SOEFA has produced a negative and statistically significant effect through all the specifications. Roughly, a 1 percent reduction in the share of fixed assets to total assets held by SOEs is likely to result in a half percent increase in the equity share of FIEs. The coefficient signs and the level of standard errors are highly robust to the omission of all the IO variables (equation 2b).

Table 3 about here.

Table 3 posits an asset conversion motive on the part of the SOEs, i.e., SOEs burdened with debt obligations are motivated to convert one class of assets—fixed assets—on their book into another class of assets—such as cash or shares in FIEs. This reasoning suggests, among other things, that debt burdens and asset conversion may in fact capture the same underlying dynamic since the asset conversion itself is presumably driven by SOEs' mounting debt obligations. There are two specific implications from this reasoning. First, SOEDAR and SOEFA ought to be highly correlated, i.e., SOEs burdened with high debt ought to engage in asset conversions more.[16] This is indeed the case. A simple bivariate correlation between SOEDAR and SOEFA is –0.652.

Second, SOEs that draw down on their fixed assets ought to be those faced with the most pressing debt obligations. To test this notion, I divide the SOE debt into two types, their current liabilities (SOECDAR)—maturing within one year—and their long-term debt obligations (SOELDAR), both as the ratios to total assets. These two variables are incorporated in equations 3a and 3b. The expectation is that SOEs' current debt obligations are particularly sensitive to the SOEFA variable. Table 4 reports the results.

Table 4 about here.

Equation 3a regresses FIEEQU on SOECDAR and SOELDAR without including SOEFA. Both variables are statistically significant and carry positive signs. Thus SOEs burdened with both long and short-term debt obligations are associated with a greater incidence of FIEs. One explanation for the high correlation between long-term debt of SOEs and FIE incidence is a re-lending process, in which the parent SOEs borrow from banks and divert them toward FIEs.[17] Equation 3b adds SOEFA and the sign and size of the SOECDAR coefficient change dramatically, from 0.686 in 3a to 0.047 while causing SOECDAR to lose its statistical significance in 3b. SOELDAR remains relatively stable. The SOEFA remains significant and negative, as from equation 2a but the size of the coefficient increases from –0.527 in 2a to –1.09 in 3b. There is thus evident and strong correlation between SOEFA and SOECDAR, providing confirmation that they underlie fundamentally the same phenomenon. Thus a correct

specification of the institutional dynamics of FIE distribution ought to include only one of these two variables, but not both of them.

Discussion

The mixed performance of the IO variables suggests that a new perspective on FDI is in order. The primary motivation for China's FDI policy is to import technology and capital. There is, however, little evidence that China's FDI inflows have gone to technology-intensive industries, either measured by R&D spending or by the proportion of "knowledge workers." Other studies have confirmed our statistical results here. A survey by two researchers, Stephen Young and Ping Lan, finds that the average level of technology transferred via FDI to be about two years more advanced than the existing Chinese technology base, even though the "technology gap" between investing countries and China was commonly perceived to be 20 years. Their study also reveals that some FDI inflows have resulted in negative technology transfer in that the Chinese FDI recipient possesses more advanced technology than the FDI supplier.[18]

The purely financial benefit of FDI is also questionable. Although there is some support for the notion that FDI flows into those industries with a high absolute capital requirement, it is incorrect to draw the inference that thus FDI increases China's capital stock. For one thing, our findings on SOEFA suggest a shift of fixed asset controls from SOEs to FIEs, rather than an increase in fixed asset per se. It is worthy noting the fact that the exponential growth of the FDI inflows in China coincided very closely with a period of increasing savings rate in China and with a large accumulation of foreign exchange reserves, to the tune of 150.7 billions as of April 1999. Thus in the 1980s, when the savings rate was relatively low, FDI inflows were a trickle but in the 1990s China absorbed a large amount of FDI when it became a capital exporter. This phenomenon is at odds with the "savings-investment" gap rationale for FDI.

Our findings suggest that some of FDI inflows take the form of acquisition of existing assets rather than green-field investments in the 1990s. SOEs highly leveraged with short-term debt inject fixed assets to finance the creation of FIEs. In the 1990s, as more SOEs faltered, more of their assets became acquirable. SOEs create joint ventures with MNEs less as "strategic alliances" but more as a result of financial distress. This is evidence of a "de facto" privatization program in which SOEs cede asset controls to MNEs in order to raise liquidity. Another confirmation of the privatization hypothesis is provided by COUCON. The positive and statistically significant COUCON coefficient suggests that, controlling for Chinese federalism at

the provincial level, county governments are very eager to pursue alliance options with MNEs. This coincided with the Chinese privatization effort which began in 1995 and with smaller SOEs in the counties.[19]

But this de facto privatization effort is potentially costly on both economic and political grounds. The government has so far averted an explicit privatization program, which limits the growth of the Chinese private sector as well as constraining the choices of "asset sales" by SOEs to be MNEs. The result is a less competitive asset market than otherwise would be the case and a higher level of foreign control of the Chinese economy than necessary if the government had allowed an explicit privatization program. To test this dynamic, I created a variable SOEFA1, which is an interaction term between SOEFA and an industry dummy variable denoting dominance of the Chinese non-state firms. An industry is given a value of one if the sales share of the Chinese non-state firms in that industry exceeds the average sales share of all industries accounted for by the Chinese non-state firms for a given year. It is given a value of zero otherwise. In industries in which Chinese non-state firms are large, SOEs may have a choice between ceding assets to MNEs or to the Chinese non-state firms and thus a given reduction in the SOEFA should result in a smaller incidence of FIEs in these industries. Equation 3c in Table 4 confirms this expectation. SOEFA1 is statistically significant and is positive; while SOEFA remains significant and negative. While in industries with fewer Chinese non-state firms, for every 1 percent reduction of the fixed asset/asset ratio of SOEs, FIEEQU increases by 0.53 percent but in industries in which Chinese non-state firms account for large shares of sales, the coefficient is reduced to 0.473 (-0.53+0.057).

The finding on LOOCON raises a welfare issue associated with an intense inter-jurisdictional competition for capital among local governments. Not only do local governments possess significant controls over SOEs' control and revenue rights, they also enjoy considerable authority to review and approve FDI projects and their terms. Provincial governments could approve FDI projects up to 30 million dollars in total capitalization, which implies that the vast majority of FDI projects are approved at the provincial level given the small average size of FDI projects in comparison. In 1994, the average FDI project was US$1.7 million, well below the provincial approval threshold. In managing FDI, local governments often take initiatives in deregulation (for example, by permitting FDI in restricted sectors) or circumvent the existing regulations when central supervision is lax.

A question is whether the inter-jurisdictional competition for FDI merely redistributes FDI inflows among regions without actually increasing the level of FDI inflows to China. In the

case of the United States, (Graham 1994) have argued that the bidding war for a Honda plant between Ohio and Pennsylvania in 1987 reduced the welfare of the United States as the competition merely improved the terms of the investment project for Honda given the fact that Honda would invest in the United States anyway. In China, however, it is a reasonable conjecture that regional competition for capital has increased the total level of FDI inflows because the initial regulatory hurdle against FDI inflows was very high and the regional competition, over a period of time, would have reduced the level of overall hurdles. For example, initially the four Special Economic Zones (SEZs) and the fourteen coastal cities were granted authority to approve FDI projects at far higher dollar thresholds than other provinces. As these privileged regions began to attract large FDI inflows, other regions began to demand the same approval authority. Gradually, the central government extended the approval authority to other regions as well. Thus the long-term effect of the regional bidding is to bring down the nationwide barriers against FDI. An indication of the welfare improving function of the Chinese style of federalism is the improvement in investment climate in China. Reflecting a more pro-FDI bureaucratic environment, in a 1995 survey, American firms in China ranked "bureaucratic interference" as the number three problem after inflation and rising accounts receivable,[20] even though only a few years earlier, it routinely took years to negotiate an investment deal with the Chinese government.

(Lawrence 1993) demonstrates that the *keretsu* arrangement—inter-locking shares among Japanese firms—is a deterrence to FDI inflows into Japan in general and to foreign acquisition of Japanese assets in particular. Similar in spirit, our research suggests that FDI inflows into China are driven very strongly by the institutional and structural factors of the Chinese economy. This ought to be a new and promising research agenda.

Appendix

This paper uses data for 39 industries in the Chinese SIC, which are roughly equivalent to the two-digit industries in the ISIC. Chinese industry classification, however, is more disaggregated than the two-digit industries in the ISIC. For example, Chinese SIC divides food and kindred products into three categories, food processing, food manufacturing and beverage, but at the two digit level, ISIC aggreggates all three into one category, Code 20, at the two-digit level. For other industries, the Chinese SIC matches ISIC perfectly at the two-digit level. An example here is furniture and fixture (Code 25 in ISIC). A full concordance between Chinese SIC and ISIC is produced in Table 5.

Table 5 about here.

Table 1 Summary statistics

Variables	Obs.	Mean	Std. Dev.	Min.	Max.
FIEEQU	117	0.225	0.175	0	0.55
FIEAST	117	0.181	0.143	0	0.48
FIESAL	117	0.188	0.161	0	0.62
SOEPFM	117	0.003	0.04	-0.099	0.129
SOEDAR	117	0.679	0.108	0.317	0.856
LOCCON	117	0.736	0.286	0.0712	1
COUCON	117	0.32	0.202	0.0304	1

Table 2 Effects of IO and institutional variables

Equations	(1a)	(1b)	(1c)	(1d)	(1e)	(1f)
Dependent variables:	FIEEQU	FIEAST	FIESAL	FIEEQU	FIEEQU	FIEEQU
RND	-0.418	-2.76**	-2.85	0.751	-0.487	-1.76
	(1.66)	(1.76)	(2.38)	(1.83)	(1.63)	(1.77)
ADV	1.73*	1.43*	1.11*	1.51*	1.75*	1.66*
	(0.33)	(0.325)	(0.41)	(0.31)	(0.337)	(0.33)
NPEMP	-0.333*	-0.233	0.115	-0.193	-0.342*	
	(0.19)	(0.184)	(0.283)	(0.18)	(0.195)	
SKILL						-0.004*
						(0.002)
ASSET	0.006*	0.004*	0.003**			0.006*
	(0.002)	(0.002)	(0.0023)			(0.002)
CR4				0.000		
				(0.000)		
SCALE4					3.47*	
					(1.29)	
$SOEPFM_{(t-1)}$	-0.371**	-0.274	-0.583*	-0.226	-0.328	-0.243
	(0.257)	(0.225)	(0.251)	(0.249)	(0.266)	(0.3)
$SOEDAR_{(t-1)}$	0.644*	0.50*	0.665*	0.734*	0.647*	0.703*
	(0.174)	(0.158)	(0.20)	(0.167)	(0.176)	(0.154)
LOCCON	0.065*	0.054*	0.093*	0.07*	0.064*	0.073*
	(0.029)	(0.028)	(0.035)	(0.03)	(0.029)	(0.03)
COUCON	0.0886*	0.074**	0.067	0.098*	0.086**	0.104*
	(0.052)	(0.047)	(0.059)	(0.053)	(0.052)	(0.052)
RESTR	-0.001	-0.002	0.001	-0.003	-0.001	-0.004
	(0.004)	(0.004)	(0.0056)	(0.0045)	(0.004)	(0.005)
Year dummies	Included	Included	Included	Included	Included	Included
Sectoral dummies	Included	Included	Included	Included	Included	Included
R^2	0.72	0.65	0.56	0.71	0.72	0.72
No. of obs.	111	111	111	111	111	117

Note: Standard errors in parentheses. Standard errors are Heteroskedastic-consistent. *: Statistically significant at 5% level. **: Statistically significant at 10% level.

Table 3 Effects of SOEs' asset conversions

Equations	(2a)	(2b)	(2c)
Dependent variables:	FIEEQU	FIEEQU	FIEEQU
RND	1.04		2.62*
	(1.38)		(1.34)
ADV	1.36*		1.16*
	(0.315)		(0.32)
NPEMP	-0.392*		-0.43*
	(0.161)		(0.17)
ASSET	0.007*		0.006*
	(0.0019)		(0.002)
ASTURN			0.149*
			(0.06)
$SOEFPM_{(t-1)}$	-0.16	-0.245	-0.22
	(0.31)	(0.326)	(0.32)
$SOEDAR_{(t-1)}$	0.655*	1.04*	0.569*
	(0.133)	(0.11)	(0.13)
LOCCON	0.043*	0.066*	0.039**
	(0.026)	(0.031)	(0.027)
COUCON	0.066**	0.079**	0.066**
	(0.047)	(0.051)	(0.046)
SOEFA	-0.527*	-0.538*	-0.463*
	(0.123)	(0.122)	(0.12)
RESTR	-0.005**	-0.008*	-0.002
	(0.004)	(0.003)	(0.004)
Constant	-0.011	-0.303*	-0.07
	(0.140)	(0.123)	(0.142)
Year dummies	Included	Included	Included
Sectoral dummies	Included	Included	Included
R^2	0.77	0.72	0.78
No. of obs.	111	111	111

Note: Standard errors in parentheses. Standard errors are Heteroskedastic-consistent. *: Statistically significant at 5% level. **: Statistically significant at 10% level.

Table 4 The effects of SOEs' short and long-term debt and the effect of non-state Chinese firms

Equations	(3a)	(3b)	(3c)
Dependent variables:	FIEEQU	FIEEQU	FIEEQU
RND	-0.413	2.51*	1.79
	(1.66)	(1.07)	(1.61)
ADV	1.68*	1.8*	1.36*
	(0.38)	(0.355)	(0.32)
NPEMP	-0.31**	-0.75*	-0.337*
	(0.20)	(0.14)	(0.17)
ASSET	0.006*	0.007*	0.007*
	(0.002)	(0.002)	(0.002)
$SOEPFM_{(t-1)}$	-0.361**	-0.085	-0.089
	(0.267)	(0.271)	(0.30)
$SOEDAR_{(t-1)}$			0.635*
			(0.135)
$SOELDAR_{(t-1)}$	0.618*	1.04*	
	(0.179)	(0.173)	
$SOECDAR_{(t-1)}$	0.686*	0.047	
	(0.21)	(0.16)	
LOCCON	0.063*	0.05*	0.047*
	(0.029)	(0.03)	(0.026)
COUCON	0.089*	0.038	0.063**
	(0.052)	(0.039)	(0.048)
SOEFA		-1.09*	-0.53*
		(0.147)	(0.12)
SOEFA1			0.057**
			(0.041)
RESTR	-0.001	-0.01**	-0.004
	(0.004)	(0.005)	(0.004)
Year dummies	Included	Included	Included
Sectoral dummies	Included	Included	Included

R^2	0.72	0.82	0.78
No. of obs.	111	111	111

Note: Standard errors in parentheses. Standard errors are Heteroskedastic-consistent. *: Statistically significant at 5% level. **: Statistically significant at 10% level.

Table 5 Concordance between Chinese SIC and ISIC at the two-digit level

Chinese SIC	ISIC Codes
Coal mining and dressing	12
Petroleum and natural gas extraction	13
Ferrous metals mining and dressing	10
Nonmetal minerals mining and dressing	10
Other minerals mining and dressing	10
Logging and transport of timber and bamboo	08
Food processing	20
Food manufacturing	20
Beverage manufacturing	20
Tobacco manufacturing	21
Textile industry	22
Garments and other fiber products	23
Leather, furs, down and related products	31
Timber processing, bamboo, cane, palm fiber and straw products	24
Furniture manufacturing	25
Paper making and paper products	26
Printing and record medium reproduction	27
Cultural, educational and sports goods	27
Petroleum processing and coking	29
Raw chemical materials and chemical products	28
Medical and pharmaceutical products	28
Chemical fiber	28
Rubber products	30
Plastic products	30
Nonmetal mineral products	32
Smelting and pressing of ferrous metals	33
Smelting and pressing of nonferous metals	33
Metal products	34
Ordinary machinery	35
Special purpose machinery	35

Transport equipment	37
Electric equipment and machinery	36
Electronic and telecommunications equipment	36
Instruments, meters, cultural and office machinery	38
Other manufacturing	39
Electric power, steam and hot water production and supply	49
Gas production and supply	49
Tap water production and supply	49

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Endnotes

[1] Calculated from (State Statistical Bureau 1997).

[2] Systematic accounts of FDI inflows into China are small in number. For representative works, see (Wei 1995), (Wei 1996), (Tse, Pan and Au 1997) and (Pan 1996).

[3] The pioneering work in this field is (Hymer 1976). For a good summary of this large body of literature, see(Caves 1996) and (Lizondo 1995). For a good summary with specific references to developing countries, see (Lall 1978) and (De Mello 1997).

[4] For a sample of empirical work on the inter-industry determination of FDI distribution, see (Caves 1974), (Orr 1974) and (Meredith 1984), which in general provided support for the IO postulates. In contrast, (Aswicahyono and Hill 1995) only found mixed evidence for the IO theory.

[5] See [Montinola, Forthcoming #1255].

[6] SPC (1994), p.14.

[7] See (Groves, Hong and McMillan 1994) and (Li 1997).

[8] Studies on Mexico have shown a positive correlation between foreign presence and technical efficiency of domestic firms. See (Blomstrom 1986) and (Blomstrom and Persson 1983).

[9] Data on FIEs are scarce for the period before 1995 but their magnitude can be gauged by the annual FDI inflows. Before 1992, the annual paid-in FDI inflows never exceeded 5 billion dollars; in 1991, FDI accounted for only 4.2 percent of the fixed asset investments; in contrast, non-state firms accounted for 34.1 percent of the fixed asset investments. Calculated from (State Statistical Bureau 1994).

[10] Cited in (Qian 1999).

[11] This is unlikely to distort the regression analysis given that R&D intensity is a stationary characteristic of industries and is unlikely to vary significantly from year to year.

[12] The data on non-production workers are available for 1995 only and thus the 1995 data are used for all years in the regression analysis.

[13] The sales data, broken down by the largest firms, are only available for 1995 and 1996 and thus I use the average values of these two years in the regression analysis.

[14] The RESTR variable is coded according to the number of “discouraged” or “banned” product categories within each industry. If, for example, two product categories are classified as “discouraged” in the 1995 FDI guideline, then that industry receives a score of two in the coding.

[15] Fixed assets are the sum of net fixed assets plus on-going investment projects on the book value basis. Two alternative measures of fixed assets are available. One is the book value gross fixed assets; the other is net fixed assets. The difference between the two is accounted for by cumulative depreciation. Using gross fixed assets may be problematic if inter-industry depreciation rates differ and using net fixed assets may underestimate SOEs’ asset injection by omitting the transfer of the on-going investment projects. In

any case, these two alternative measures of fixed assets were used as regressors and the results are not different from using SOEFA.

[16] This hypothesis is only valid when outright privatization is not an option. In the absence of an outright privatization program, a reduction in the fixed assets does not bring about an inflow of cash which can be used to pay off debt, but an increase in claims on more liquid investments such as those in FIEs that may yield dividends to pay off debt in the future.

[17] (Chow and Fung 1998) provides some evidence that SOEs re-lend to collectively-owned enterprises, many of which are SOEs' subsidiaries.

[18] See (Young and Lan 1997). Around 70 percent of the Chinese FDI inflows originate from Hong Kong and Taiwan and they tend to embody low levels of technology. Technological content of FDI originating from OECD countries is higher. According to a study by the State Planning Commission of FIEs in Guangdong province, in 1993, 50 percent of Japanese FIEs utilized 1970s' technology; another 50 percent utilized 1980s' technology. The American FIEs apparently had more recent technological vintage; 25 percent of FIEs used 1970s' technology and the rest, 1980s' technology. MNEs from Singapore, Canada and Australia brought technology of the 1980s' vintage (Pei Changhong 1998. P. 185).

[19] By 1996, up to 70 percent of small SOEs had been privatized in a number of provinces, according to one account. See (Qian 1999).

[20] "Feeling upbeat" (1995)