CEO Incentive Contracts in China: Why Does City Location Matter?

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Abstract

CEO incentive contracts are commonplace in China but their incidence varies significantly across Chinese cities. We show that city and provincial policy experiments help explain this variance. We examine the role of two policy experiments: the use of Special Economic Zones (SEZs) to attract foreign direct investment (FDI), and the privatization of state owned enterprises (SOEs). The introduction of SEZs is found to be uncorrelated with the prevalence of CEO incentive contracts. However, firms are more likely to use such contracts in areas that saw rapid SOE privatisation, irrespective of the firm's own current ownership status and irrespective of the size of the SOE sector in the late 1970s. The positive effect of privatisation is robust to various estimation techniques and model specifications. These findings suggest that domestic privatisation policies have been more influential than FDI in driving the expansion of incentive contracts in China.

JEL Classification: G34; J31; J33; M12; M52; O16; P31

Key words: executive compensation; CEO's; privatisation; FDI; China; cities

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1. INTRODUCTION

A well-functioning market for corporate executives first emerged in China in the 1980s, prompted by state experimentation with an array of managerial incentives to accompany the gradual withdrawal of the state from its ownership of corporate enterprises (Xu, 2011). According to Groves et al. (1995: 874) the state introduced reforms "directed at improving the efficiency of enterprises by replacing direct control from above with managerial incentives". This entailed the gradual commercialisation of state owned enterprises (SOEs) and their part privatisation, with key innovations including multi-year managerial contracts and experimentation with the auctioning of managerial contracts. By the late 1980s, this market for corporate executives seemed quite well-established but early evidence on its development was confined to executives in the SOEs sector. Recent studies are dominated by analyses of the relatively new and rapidly growing public listed sector. Although important economically (Bryson et al., 2014), the public listed sector accounts for a relatively small proportion of all firms and all CEOs, so the picture it paints of executive compensation is necessarily partial. Furthermore, both literatures on SOEs and public listed firms have largely ignored one crucial feature of China's efforts to foster a market-oriented economy, namely the fact that most initiatives were undertaken at local level, often by city authorities in a series of local experiments (Xu, 2011: 1124-1125).

We fill this gap in the existing literature by exploring the importance of city-level influences on firms' use of incentive contracts for CEOs in the early part of the 21st Century. We focus on two local "marketisation" programmes: privatisation of SOEs by municipal governments and efforts to attract foreign direct investment (FDI) via Special Economic Zones (SEZs). If SOEs were early adopters of CEO incentive contracts in China, as the earlier literature indicates, one might anticipate higher incentive contract adoption in cities with a tradition of high state-ownership of corporations. However, if incentive contracts were maintained following privatisation it is possible that those cities with early privatisation programmes may have experienced a transfer of incentive contracts from the state to the private sector, something which may have encouraged other private sector firms to adopt incentive contracts for the first time. Turning to the

potential impact of SEZs, Nothing is currently known about their effect on the use of incentive contracts by CEOs. However, we do know that SEZs were very successful in attracting FDI (Wang, 2013), such that by 2005 China was the third largest recipient of FDI funds in the world.[2] As incentive contracts are a common feature of CEO contracts in most Western countries, one might therefore expect the introduction of SEZs to have had a further positive influence on the adoption of incentive contracts for executives, by aiding the transfer of this 'technology' into China.

Our empirical analysis uses the World Bank's Enterprise Survey 2005 which sampled 12,400 enterprises in 120 Chinese cities two decades after the initial market-inspired reforms. We find incentive contracts are commonplace but that their incidence varies significantly across Chinese cities. We find the use of CEO incentive contracts in 2005 is positively correlated with the speed with which cities privatised their SOEs, irrespective of the degree of current state ownership in the firm. This finding is consistent with the conjecture that cities which experimented early on with privatisation created an environment in which local firms were encouraged to adopt these new forms of managerial practice. The finding is robust to controlling for a wide range of CEO and firm characteristics at both individual firm and city level. In contrast, we find that the probability that a firm adopts an incentive contract for its CEO is uncorrelated with the introduction of SEZs. .

These findings suggest that the network of firms through which CEO incentive contracts diffused consisted largely of domestic firms and that high concentrations of foreign owned firms did nothing to increase the use of CEO incentive contracts. We suggest that this is because foreign-owned firms preferred to use efficiency wages to incentivise workers, paying them above the market-rate, rather than via incentive contracts.

The remainder of the paper is organized as follows. In Section Two we discuss China's efforts to create a market-oriented economy and the role of cities in the diffusion of

[2] International Statistical Yearbook 2006.

incentive contracts for executives. In Section Three we present our data and estimation approach. In Section Four we present our results and Section Five concludes.

2. THE ADOPTION OF CEO INCENTIVE CONTRACTS AND THE ROLE OF CITY EXPERIMENTATION

In the recent theoretical literature incentive contracts have been treated as a form of technology deployed by firms to improve their good management (Bloom and Van Reenen, 2011). As such, their adoption is governed by cost and benefit considerations similar to those involved in other new technologies (Ichniowski and Shaw, 1995). Their diffusion – as with other technologies relating to employment practices which have an experiential component – is often dependent upon local networks of firms that share their experiences regarding the costs and benefits of innovations (Bryson et al., 2007). Where there are performance benefits of the new technology there are first mover advantages to early adopters and isomorphic pressures to adopt for followers, such as those described by DiMaggio and Powell (1983). If one conceives of CEO incentive contracts in this fashion, one might anticipate that the probability of a firm adopting incentive contracts for CEOs will partly depend upon the take-up of incentive contracts among other firms in the locale. We hypothesise that city location will explain some of the variance in CEO incentives in China, independent of the characteristics of firms, the product market in which they are operating, their governance structures and the characteristics of their executives.

However, there is an additional reason to suppose that there will be a strong geographical component to the variance in incentive contract adoption by firms in China. This is the local nature of experiments with market mechanisms in China. The transition to a market economy in China is unique among Communist and post-Communist regimes. It is characterised by what Xu (2011: 1078) describes as "regionally decentralized authoritarianism", a regime under which the central state government provides the political impetus for change, retains central control of personnel decisions and thus the careers of all officials, but cedes responsibility for initiatives and experimentation to sub-

national governments. We focus on two such initiatives, both of which may be linked to the diffusion of CEO incentive contracts.

The first of these initiatives was the reform of SOEs and their part privatisation. Whereas in most transition economies SOEs were owned by central government, in China many were owned by sub-national governments. The importance of SOEs to regional economies meant that local officials' career advancement during the reform period depended heavily on improving the productivity and financial performance of SOEs. The first wave of SOE reforms in the 1980s involved the introduction of management selection by competitive auction, and the introduction of incentive contracts for CEOs (Groves et al., 1994, 1995). According to Xu (2011: 1120): "In response to regional competition, also under the encouragement of the central government's reform guidelines, sub-national governments experimented with various 'managerial responsibility systems' in which managers were delegated power to make many decisions, and employees were given financial incentives tied to enterprise performance". The reforms achieved their goals in improving factor allocation and raising productivity (Jefferson et al., 2006). However, burgeoning debt in the SOE sector led to a second wave of SOE reforms in the 1990s which entailed hardening budget constraints through bankruptcy reforms, reducing labour costs through layoffs, and selling loss-making enterprises to private owners (Xu, 2011: 1121-1126).

As Xu (2011: 1124-1125) notes, privatisation was not encouraged by central government until the late 1990s so that "de facto privatisation was tried quietly without official permission from central government...Even in the late 1990s, it was still a city government's decision whether or not to privatise and how to privatise within their jurisdictions". Thus the rate of privatisation was driven largely by municipal governments' preferences. We are able to track the rate of privatisation in Chinese provinces by measuring the change in the share of employment accounted for by SOEs. Over the period 1978 to 2005 the share of urban employment accounted for by SOEs fell from a mean of 76 percent to 29 percent (Appendix Table A1). The initial SOE

employment shares varied somewhat by province, but the coefficient of variation grew over time due to differential rates at which provinces chose to privatise SOEs.[3]

The privatisation process thus became a mechanism by which CEO incentive contracts were introduced to the private sector. There were two potential routes. First, around half of privatised firms were sold to managers through management buy-outs (Gan et al., 2010), so that managers previously working under incentive contracts in the state sector were now doing so in the private sector. Second, if privatised firms were the first movers in adopting incentive contracts, their growth and the seeming importance of these new managerial practices to their success may have exerted increasing pressure on existing private firms to follow, as predicted under technological diffusion models.

The second reform initiative is the Special Economic Zones (SEZs) introduced to attract FDI and develop export-oriented industries. The number of SEZs increased from 4 in 1980 to 342 in 2005. Their share of total Chinese FDI rose from 35 percent to 94 percent and their share of total Chinese exports rose from less than 2 percent to 93 percent (Xu, 2011: 1114).[4] Thus, rather than altering the orientation of existing indigenous firms towards production and management practices, SEZs were concerned to attract newcomers from abroad, and start-ups with substantial foreign backing.

As Wang (2013) and Xu (2011) emphasise, there were several stages in the development of SEZs. The first small scale experiments were undertaken between 1979 and 1984 (Xu, 2011: 1115). Initial successes led to the expansion of the policy in the second half of the 1980s. In this second stage the central government endorsed SEZs to attract foreign investment to coastal cities. By 1992 "SEZs comprised all the capital cities of inland provinces and autonomous regions, fifteen free trade zones, thirty-two state-level

[3] Based on the figures in Appendix Table A2 the coefficient of variation across provinces in the employment share accounted for by SOEs was 0.10 but this had grown to 0.39 in 2005. The inter-quartile range rose from 0.11 to 0.21. The provinces experiencing the most far-reaching privatisation processes were Jiangsu followed by Zhejiang and Shandong. Those experiencing the least amount of privatisation were Shanxi and Nei Mongol.

[4] They were originally the brainchild of Xi Zhongxun, governor of Guangdong province, in 1979. Following their success Xi became Vice Chairman of the National People's Congress, clearly illustrating the link between pioneering local reforms and career success.

economic and technological development zones, and fifty-three new- and high-tech industrial development zones" (Xu, 2011: 1115). During the 1990s the central government sought to expand the experiment by authorizing provincial and city governments to set up their own SEZs. In this phase the central government changed its role from building SEZs to monitoring the SEZs. In the final stage of SEZ development which began at the end of the 20th Century central government approved more national level SEZs in the Western Region of China to support the Western Development Strategy.

Our data in Appendix Table A2 show that by 2010 118 of the 120 cities in the World Bank Enterprise Survey had an SEZ. Of these, 65 attained SEZ status in 1992 or 1993. Early SEZ experiments were often trials supported by central government, although sometimes after considerable delay (as indicated by the fact that the date for city SEZ adoption is often much earlier than the date for national-level acknowledgement).

As Xu (2011: 1114) points out, "a major part of the experiment involved trying new sets of institutions, legislation, and rules for the purpose of attracting FDI". The industrial organisation literature suggests foreign-based firms are often first-movers in the adoption of new technologies as they seek a comparative advantage over local producers that will help recoup some of the costs associated with transferring production abroad (Te Velde, 2003). As noted above, incentive contracts for executives might be seen as one such technology, that is, an innovation in personnel management resulting in performance gains to the firm that may have been absent without the deployment of incentive contracts.

We then anticipate a positive association between incentive contracts and the advent of SEZs, since foreign-owned firms are likely to deploy incentive contracts in their firms elsewhere in the world (Caves, 1996). If they simply transfer those practices to their operations in China, this could result in an influx of firms using incentive contracts for CEOs. On the other hand, there can be advantages to firms in adapting their policies to

the standard or dominant modus operandi when they make foreign investments.[5] This may occur if firms face disproportionate costs in introducing the practices they use elsewhere, or if the host country permits less costly practices than those the firm is required to adopt elsewhere. It is also possible that foreign-owned firms will eschew incentives contracts if they are able to out-bid domestic rivals for the best executive talent by paying above market rates. Indeed there is evidence that foreign owned firms were paying higher wages to workers than their domestic counterparts in the early 2000s (Zhou et al., 2010).

3. DATA AND ESTIMATION

We investigate the influence of local policy experiments on CEO incentive contracts using data from the 2005 World Bank Investment Climate Survey undertaken by the National Bureau of Statistics in China (www.enterprisesurveys.org). [6] It covers 12,400 firms located in 120 cities throughout China. One hundred firms were surveyed in each city except in the four largest cities (Shanghai, Tianjin, Beijing and Chongqing) where 200 were surveyed. All provincial capitals were sampled together with cities selected based on the economic size of the province. Firms were randomly selected within the ten largest industries in each province (by value added). Consequently, the survey covers all major cities and is broadly representative of industrial economic activity in China as a whole.

We link information on privatisation and the introduction of SEZs to the World Bank data by matching information from external sources to the city and province identifiers in the World Bank data. These data are described in the Data Appendix and presented in Appendix Table A2.

[5] For example, this appears to be the policy of Walmart with respect to trade unions. They vehemently oppose union organisation at home in the United States, but are prepared to countenance unionisation in counties where it is common in the retail sector. See http://www.washingtonpost.com/business/economy/wal-mart-works-with-unions-abroad-but-not-at-home/2011/06/07/AG0nOPLH_story.html

[6] In the survey the term "General Manager" is used to identify the CEO, but throughout the paper we refer to this executive as the CEO.

We use multivariate models to account for the variation in the use of incentive contracts for CEOs across firms. Our chief interest is the role played by two local level policy experiments in influencing firm use of CEO incentive contracts. The first is privatisation, which we capture with the reduction in the percentage of all employment in a province accounted for by SOE employment between 1978 and 2005 (the share SOE in 1978 minus the share SOE in 2005). In 1978 three-quarters (76%) of all provincial employment was accounted for by SOEs, a figure which had fallen by two-thirds to 29% in 2005.[7] Whilst it is plausible, for reasons outlined earlier, that early privatisation may have led to CEO incentive contract adoption at local level, it is equally plausible that it was the early adoption of CEO incentive contracts by SOEs that accounts for variance in CEO incentive contracts across cities. If privatisation and the initial employment share in SOEs are positively correlated we may erroneously attribute the use of incentive contracts to privatization if using an indicator of the rate of change in SEO employment alone. We therefore also incorporate the fraction of SOE employment in provinces in 1978.

The second policy initiative is the start up year for SEZs which leads to an influx of FDI to the city. We observe the dates at which city-level SEZs are officially sanctioned at city, province and national level (see the Data Appendix for further details) and expect the use of incentive contracts to be higher in areas that have held SEZ-status for longer. We identify early SEZ start-ups as those receiving national government endorsements between 1980 and 1991: 18% of cities in the survey had received national endorsement of an SEZ, compared with 23% of cities with an SEZ with city endorsement and 22% with an SEZ with provincial endorsement. [8]

[7] We tested the sensitivity of our results to a measure of privatisation over the period 1978 to 2004. Results were similar but weaker, probably because the privatisation programme was on-going between 2004 and 2005. According to the Chinese Statistical Yearbook the mean city SOE employment share in our 120 cities stood at 41% in 2004.

[8] We focus on national recognition of an SEZ because this indicates that the SEZ had successfully reached a national standard and was therefore able to exert autonomous power (permitting local authorisation of FDI contracts). As a sensitivity check we rerun all our analyses using Wang's (2013) data on start dates for SEZ's. We take the start date of the Enterprise Development Zone (EDZ) or Industrial Development Zone (IDZ), whichever is earliest, to denote the SEZ start date. The results we present in the next section are not sensitive to the use of Wang's data.

We also anticipate that the use of incentive contracts to reward CEOs will vary with firm characteristics (size, industry etc.), the firm's corporate governance arrangements, other policies used by the firm such as the threat of dismissal, and the characteristics of the CEO (see Bryson et al, 2012). These control variables are described in Appendix Table A1.

There are perhaps two major problems in identifying any causal relationship between local level policy experimentation and firm use of CEO incentive contracts. The first problem is that firms' location decisions may be dependent, in part, on their expectations governing local environments, including whether they are subject to policy experiments such as SEZ's and privatisation. Thus firms may select into or out of cities partly in response to changing local policy environments, whereupon local variation in patterns of CEO incentive contracts may simply reflect those location decisions, rather than being driven by the sorts of technological diffusion mechanisms described earlier. We are unfortunately unable to address this issue, as we have no panel data on individual firms. The second is that the policy experiments are not randomly assigned to cities: rather, whether and when a city adopts a policy of privatisation and/or SEZ adoption may depend, in part, on local conditions in a city and perceptions as to whether the city would benefit from such an intervention. This is certainly the case with respect to early SEZ adoption since central government officials encouraging experimentation were cognizant of the need to identify locations which gave local experiments the best chance of success. Mindful of this particular difficulty we adopt two broad modelling strategies. Throughout we present linear estimates with standard errors clustered to account for city-level sampling.

The first strategy is to run firm-level regressions that take the following form:

$$1) \qquad INCEN_{if} = \beta_1 SEZ_c + \beta_2 PRIV_p + \beta_3 SOE78_p + \beta_4 CG_f + \beta_5 CEO_i + \beta_6 X_f + \varepsilon_{if}$$

Where $INCEN_{if}$ is a dummy identifying contracts linking pay to performance for CEO *i* in firm *f*; SEZ_c is the year the city's SEZ was introduced (or in most of our specifications a

dummy identifying early SEZ introduction); $PRIV_p$ is the change in the SOE employment share at provincial level between 1978 and 2005; $SOE78_P$ is the SOE employment share at provincial level in 1978; CG_f is a vector of corporate governance variables in firm *f*; CEO_i are individual CEO demographic and job attributes; X_f are structural firm attributes; epsilon is the error term and the betas are coefficients to be estimated.[9] In practice, the absence of panel data means that we observe only one CEO per firm and so the *i* and *f* are non-separable.

One possibility under this approach is that firms' ownership status in 2005 may be due, in part, to the policy experiments (privatisation and SEZ-induced FDI) whose effects we are trying to identify. If so, ownership in 2005 partials out some of the effects which might reasonably be attributed to the local reforms. We therefore run sensitivity checks which exclude firms' ownership status.

The second modelling strategy is to condition on city-level means of all right-hand side variables in addition to the controls in equation 1. In constructing the city mean variables we exclude the firm observation in question from the computation of the mean. The equation takes the following form:

$$2) \quad \begin{aligned} INCEN_{if} &= \beta_1 SEZ_c + \beta_2 PRIV_p + \beta_3 SOE78_p + \beta_4 CG_f + \beta_5 CEO_i \\ &+ \beta_6 X_f + \beta_7 CG_c + \beta_8 CEO_c + \beta_9 X_c + \varepsilon_{fi} \end{aligned}$$

In this model each firm-level covariate has a city-level analogue, as denoted by the subscript $_c$.[10] The value in conditioning on these city-level observable features of firms and their CEOs is that any association between our dependent variable - firm use of CEO incentive contracts - and the two policy variables (SEZ introduction and the rate of privatisation) is not confounded by other observable city features. Of course, because these city-level characteristics are measured at the end of the period (2005) they may

[9] See Appendix Table A1 for a full description of the variables appearing in each vector of controls.
[10] Throughout we assume that the city (or province in the case of privatisation) is the level of spatial aggregation which is appropriate in capturing the effects of SEZ's and local decisions regarding SOE privatisation. In Gibbons and Overman's (2012) terminology firms within cities are allocated the same neighbourhood weight.

partial out some of the effects of the policy interventions that are due to CEO or firm selection. In addition the vector X_c includes city means for foreign ownership and state ownership of firms in 2005, both of which will be a function, at least in part, of the two policy interventions we are interested in. We therefore run sensitivity tests excluding mean ownership in 2005.

Even with this plethora of city-level controls we can not discount the possibility that any remaining association between our policy variables and a firm's use of CEO incentive contracts is being driven by unobserved features of the city. In an effort to account for this, at least partially, we supplement the contemporaneous city-level means for firm, CEO and governance traits, with lagged city characteristics capturing otherwise unobserved city traits. These lagged variables capture city population, employment levels, industry structure, the number of firms in the city, industrial production, city GDP, and the incidence of labour disputes. These lagged city variables are not available for 4 cities, resulting in a small reduction in estimation samples.

Ideally we would want to account for the non-random timing of our policy interventions and firm sorting by location but data limitations mean we cannot account for firm-level unobservables nor time-varying factors at firm or city level which may bias our estimates.

4. RESULTS

To illustrate the city clustering of CEO incentive contracts in China Figure 1 presents the city coefficients from a city fixed-effects model estimating the likelihood that a firm uses an incentive contract to reward its CEO in 2005 relative to the reference city of Anqing in Anhui province. Darker shading represents larger positive coefficients. The city with firms least likely to deploy incentive contracts is Dongguan in Guangdong province which is 28.2% less likely to deploy incentive contracts than reference city Anqing in Anhui Province and followed by two cities in Hebei province (Zhangjiakou and Qinhuangdao). The city with firms most likely to use incentive contracts is Hangzhou in

Zhejiang province which is 21.4% more likely to use incentive contracts than reference city Anqing. Together the city dummies account for around 5 percent of the variance in firms' propensity to use incentive contracts.

[INSERT FIGURES 1 AND 2]

Figure 2 presents city coefficients again, but this time from a model as per the equation below which controls for firm and CEO characteristics as presented in Appendix Table A1:

3) $$INCEN_{if} = \beta_1 CITY_c + \beta_2 CG_f + \beta_3 CEO_i + \beta_4 X_f + \varepsilon_{fi}$$

The city fixed effects coefficients (the betas for each city) in equation 3 capture the fixed unobservable features of cities which affect the propensity of firms to adopt CEO incentive contracts, having accounted for the composition of firms and CEOs in the city. This model explains twice the variance in incentive contracts (10 percent as opposed to 5 percent for the raw city dummies model). However, the ranking of cities' coefficients is similar - the correlation coefficient is 0.92 - suggesting that the city-level effects are not driven by the composition of the firms or executives in the city.[11] In terms of firm-level ownership, we find that majority state ownership is associated with a higher probability of a CEO being paid under an incentive contract than those in other firms. More interestingly, foreign owned firms are significantly less likely to use incentive contracts for CEOs.

[INSERT TABLE 1]

Model (1) in Table 1 presents the raw correlations between firm use of CEO incentive contracts and the two local policy experiments, namely the early introduction of a city SEZ and the rate of privatisation in the province to which the city belongs. Models (2) to (5) run the same analysis but gradually condition on additional sets of variables, as

[11] Full versions of all the models discussed are available from the authors on request.

indicated in the bottom half of the table. Setting up an SEZ prior to 1992 is negatively associated with firm use of CEO incentive contracts in 2005, but the effect becomes statistically non-significant once city-level controls are introduced.[12] There is therefore some evidence of a link between SEZ adoption and the subsequent use of CEO incentive contracts by firms in the vicinity, but any association is in fact driven by city-level traits that are unobserved in Models (1) to (3).

In contrast, early privatisation, as indicated by the rate of decline in the proportion of provincial employment accounted for by SOEs, is strongly positively associated with firm use of CEO incentive contracts in all four models. The effect is large. The coefficient is 0.52 without controls and 0.51 with controls, and is very precisely estimated. This means that a 10 per cent increase (fall) in the share of employment in the non-state sector over the period translates into a 5 per cent increase (fall) in the probability that a firm in that city will use incentive contracts for its CEO. These effects do not change very much with the introduction of city-level contemporaneous and lagged controls. On the other hand, the share of provincial employment in SOEs in 1978 is not statistically significant.[13] These results lend credence to the suggestion that privatisation encouraged the adoption of CEO incentive contracts.

To investigate why the adoption of SEZs is not associated with greater use of incentive contracts to reward CEOs, as hypothesised earlier in the paper, we look further at the compensation practices of foreign-owned firms in China. One possibility is that foreign-owned firms prefer to use efficiency wages to incentivise their CEOs, rather than incentive contracts, effectively out-bidding domestic rivals for the best executive talent by paying above market rates. Our data do not contain information on levels of compensation for CEO's so we are unable to test this proposition directly. However, we

[12] In the same way, if we replace the SEZ start date dummy with a continuous variable based on Wang's data identifying the date of SEZ start up the coefficient is positive and statistically significant until city-level controls are added.

[13] The association between the rate of privatisation between 1978 and 2005 and the SOE share of employment in 1978 is negative and weak, so the privatisation effect on incentive contracts is not simply proxying having a large SOE employment share at the start of the period.

do have information on average wages of permanent workers in firms and the proportion of their pay that is fixed, and the proportion that consists of bonuses. How firms compensate their permanent staff may give us some insights into their approach to executive compensation. We therefore ran models using the standard controls but replaced our dependent variable on the use of CEO incentive contracts with the average pay of permanent employees. We find that, conditioning on other factors, foreign firms pay significantly more than other firms. Furthermore, conditioning on foreign ownership and all other controls, the level of pay a firm sets for its permanent employees is positively and significantly associated with the mean percentage of foreign owned firms in the city. In a regression estimating average wages of permanent workers in 2004 yuan, the coefficient on mean share of foreign owned firms in the city (excluding the firm respondent) was 793.34 (t-statistic=3.49). The share of foreign owned firms in the city is also associated with a higher percentage of permanent employees' compensation being made up of fixed salary rather than bonuses and other performance-based pay. In a regression estimating the percentage of permanent workers' compensation paid via a fixed salary, the coefficient on mean share of foreign owned firms in the city (excluding the firm respondent) was 10.80 (t-stat=3.27). This evidence, albeit for permanent workers rather than executives, suggests foreign owned firms exert a negative influence over firms' propensity to use incentive contracts, preferring instead to pay their workers in excess of the market wage in the locality. This makes sense if foreign firms are attracted by efficiency wages, for example, or if there are administrative or other impediments to adopting the incentive-type structures favoured by domestic firms.

5. DISCUSSION AND CONCLUSION

Although China is now the second largest economy in the world, all we know about executive compensation comes from studies of public listed companies and state-owned enterprises (SOEs). This paper is the first to examine incentive contracts for CEOs across all industrial sectors of the economy. We do so using World Bank enterprise data for 2005. We show that incentive contracts are commonplace but that their incidence varies significantly across Chinese cities. This is unsurprising given the role of sub-national

governments, including cities and provinces, in experimenting with market-oriented reforms. We test two hypotheses to explain the pattern of incentives across China's cities. The first considers the rate at which SOEs were privatised. The literature clearly indicates that SOEs were among the first firms in China to use incentive contracts for executives. Despite this, the correlation between CEO incentive contracts in 2005 and the share of provincial employment accounted for by SOEs in 1978 is, if anything, negative, not positive. However, we find CEO incentive contracts are positively correlated with the speed with which provinces privatised their SOEs. The finding is robust to controlling for a wide range of CEO and firm characteristics at both individual firm and city level. Many of these privatisations took the form of management buy-outs, so that some of the CEOs on incentive contracts were simply shifted to the private sector. However, it appears other domestically-owned firms followed the initiative taken by these first movers in much the same way as the technology diffusion literature might have predicted.

We also considered a second major reform undertaken at regional and city level, namely the introduction of Special Economic Zones (SEZs). The literature clearly indicates that these SEZs were very successful at attracting FDI and so we expect that early introduction of an SEZ is also positively associated with the use of incentive contracts in a city, since incentive contracts are commonly used by Western firms to compensate their CEOs. Our empirical analysis reveals that firms' use of CEO incentive contracts is in fact uncorrelated with the early introduction SEZs, after conditioning on other characteristics of the firm and region. Using data on the compensation of permanent employees we find foreign ownership, both at firm and city level, is associated with higher levels of compensation and an increased likelihood of paying a fixed salary as opposed to incentive and bonus-based contracts. This is consistent with foreign-owned firms preferring to use efficiency wages to incentivise workers, paying them above the market-rate, rather than via incentive contracts. Although we do not have the data on CEO compensation levels, it is quite possible that foreign ownership leads to higher-than-average CEO compensation levels as a substitute for the use of bonus-based payments.

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Table 1: Association Between CEO Incentive Contracts, SEZ Introduction and Privatisation

	(1)	(2)	(3)	(4)	(5)
SEZ set up in city before 1992:					
	-.053 (2.44)*	-.061 (3.30)**	-.042 (2.71)**	-.020 (1.12)	-.035 (1.69)
Change in provincial employment in SOEs 1978-2005:					
	.524 (4.44)**	.503 (4.47)**	.513 (4.73)**	.446 (3.32)**	.432 (3.57)**
Provincial employment in SOEs in 1978:					
	-.077 (0.08)	-.151 (1.58)	-.186 (2.08)*	-.137 (1.15)	-.118 (1.40)
Constant:					
	.487 (5.45)**	.197 (1.93)	.184 (1.86)	.018 (0.05)	.395 (1.57)
CEO controls	×	✓	✓	✓	✓
Firm controls	×	✓	✓	✓	✓
Firm ownership	×	×	✓	✓	✓
City-level controls	×	×	×	✓	✓
City-level lagged controls	×	×	×	×	✓
Observations	11817	11817	11817	11817	11133
Adj. R-squared	0.01	0.04	0.06	0.07	0.08

Note:
(1) Linear estimation of firm use of incentive contracts.
(2) t-statistics in parentheses. Standard errors clustered at city level. 120 city clusters in Models (1)-(4) and 116 clusters in Model (5). * Statistically significant at 95% CI; ** statistically significant at 99% CI.

DATA APPENDIX

We use data from the 2005 World Bank Investment Climate Survey undertaken by the National Bureau of Statistics in China (www.enterprisesurveys.org) which is described in Section Four. Descriptive information on these variables is presented in Appendix Table A1. In addition, descriptive information on privatisation and the introduction of Special Economic Zones (SEZs) and other city lagged variables such as population, employment, GDP, firm numbers, and industrial share of employment and GDP is also presented Appendix Table A1. We link information on privatisation and the introduction of Special Economic Zones (SEZs) to the World Bank data by matching information from external sources to the city and province identifiers in the World Bank data. These data are presented in Appendix Table A2. Columns 3 and 4 of Table A2 contain the employment share of SOE's by province in 1978 and 2005 respectively. Using data from the Chinese Statistical Yearbook for 1978-2008 we calculate the share as the number of employed persons in the state-owned sector divided by the total number of employed persons in urban units at year-end by status of registration.

Columns 5-7 identify the year in which cities and provinces established Special Economic Zones (SEZs), also sometimes referred to as Development Zones. Column 5 identifies the year in which city level SEZ's were established; column 6 identifies the year in which provincial SEZ's were acknowledged; and the final column identifies the year that national SEZ's were acknowledged. Where the three dates are identical this indicates that the SEZ was an experiment initiated by the central state. Where the national SEZ date is later than or equal to the date for the provincial SEZ and the date for the city SEZ predates that for the provincial SEZ this indicates a local city-level experiment that subsequently gained national recognition. Where the date for a national SEZ is absent but there is evidence of a city or provincial SEZ this means the local SEZ initiative has yet to be sanctioned by the central state. Finally, there are two cities with no date for the establishment of a SEZ; this indicates there is no SEZ in that city in the period through to 2010. These dates are obtained from various web resources including the website for China Development Zones at http://www.cadz.org.cn/en/index.jsp?ItemID=1650. An English website of the listing of the development zones can be found at http://www.cadz.org.cn/en/etdz.jsp?ItemID=558.

We present descriptive statistics on (at the firm-level) on the prevalence of our policy experiments, and on other characteristics of the cities in which are surveyed firms are located, at the bottom of Table A1.

Appendix Table A1: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Whether CEO Pay Linked to Firm Performance	11817	0.669	0.470	0	1
Corporate governance:					
Type of Board of Directors (BOD): No BOD	11817	0.279	0.449	0	1
BOD with CEO/Chair separation	11817	0.357	0.479	0	1
BOD with CEO/Chair duality	11817	0.364	0.481	0	1
Fire or demotion of CEO, last 4 years	11817	0.222	0.416	0	1
Ratio of CEO wage to middle managers' (categorical)	11817	2.166	1.240	1	5
CEO characteristics:					
CEO tenure (years)	11817	6.399	4.721	1	56
Education of CEO (categorical)	11817	5.575	0.994	1	7
CEO appointed by government	11817	0.119	0.324	0	1
Production autonomy of CEO	11817	7.410	1.490	1	8
Investment autonomy of CEO	11817	6.868	2.054	1	8
Employment autonomy of CEO (categorical)	11817	7.305	1.587	1	8
Firm characteristics:					
Majority ownership: State	11817	0.131	0.337	0	1
Collective	11817	0.082	0.275	0	1
Legal persons	11817	0.259	0.438	0	1
Private	11817	0.367	0.482	0	1
Foreign	11817	0.130	0.337	0	1
No majority ownership	11817	0.031	0.174	0	1
Size (Log of employees)	11817	5.619	1.473	1.8	13.5
Age (Log of years)	11817	2.277	0.786	1.1	4.9
Coefficient of variation in sales, last 3 years	11817	0.324	0.251	0	1.7
Number of power outages annually	11817	11.397	23.903	0	400
Average wage for permanent workers 2004-02 (yuan)	11817	1011.4	684.3	0.4	13247
Average wage for permanent workers 2004 (yuan)	11817	1097.1	768.9	0.4	13653
Average working hours per week (categorical)	11816	3.35	1.53	1	6
% permanent worker compensation in fixed salary	11573	46.97	34.97	0	100
% permanent worker compensation in bonus	11573	12.92	17.26	0	100
Industry: Petroleum	11817	0.014	0.119	0	1
AgProcess	11817	0.079	0.269	0	1
BlackMetal	11817	0.040	0.196	0	1
ChemFiber	11817	0.004	0.063	0	1
ChemMat	11817	0.116	0.321	0	1
ClothShoeHat	11817	0.017	0.127	0	1
ColorMetal	11817	0.028	0.164	0	1

Appendix Table A1 continued

Variable	Obs	Mean	Std. Dev.	Min	Max
CommunicateEquip	11817	0.046	0.210	0	1
Craft	11817	0.009	0.093	0	1
DrinkManufacture	11817	0.014	0.117	0	1
EduSportGood	11817	0.003	0.057	0	1
Electronics	11817	0.069	0.254	0	1
FoodManufacture	11817	0.020	0.140	0	1
Furniture	11817	0.004	0.067	0	1
GeneralEquip	11817	0.087	0.282	0	1
Instruments	11817	0.005	0.069	0	1
Leather	11817	0.012	0.107	0	1
Medical Equip	11817	0.034	0.182	0	1
Metal	11817	0.030	0.170	0	1
NonMetal	11817	0.105	0.306	0	1
Paper	11817	0.019	0.137	0	1
Plastic	11817	0.027	0.163	0	1
Printing	11817	0.005	0.069	0	1
Recycle	11817	0.000	0.016	0	1
Rubber	11817	0.002	0.040	0	1
SpecificEquip	11817	0.040	0.196	0	1
Textile	11817	0.077	0.267	0	1
Tobacco	11817	0.003	0.059	0	1
TransEquip	11817	0.079	0.270	0	1
WoodProcessing	11817	0.011	0.105	0	1
Main City and Provincial Characteristics:					
Means for other firms in city:					
CEO incentive contracts	11817	0.668	0.106	0.40	0.90
Foreign owned	11817	0.128	0.166	0	0.81
State-owned	11817	0.129	0.090	0	0.36
Start date for city SEZ before 1992	11817	0.225	0.419	0	1
Change in SOE share of provincial employment, 78-05	11817	0.478	0.068	0.29	0.60
SOE share of provincial employment in 1978	11817	0.764	0.080	0.58	0.90
SOE share of provincial employment in 2005	11817	0.285	0.112	0.13	0.56
Change in SOE share of provincial employment, 78-05	11817	0.478	0.068	0.29	0.60
Number of city population in 1990 (10,000 people)	11430	417.8	354.3	16.4	2251
Number of city population in 1994 (10,000 people)	11620	450.3	310.4	27.5	1512
GDP of the city in 1990 (100 million RMB)	11620	95.52	113.7	2.68	756.4
GDP of the city in 1994 (100 million RMB)	11623	271.8	283.8	7.65	1971
Number of city industrial firms with annual sales larger than 5 million in 1994	11620	2730	2666	103	14375
Value-added of city industrial firms with annual sales larger than 5 million in 1994 (100 million RMB)	11620	367.4	507.3	8.45	3760
Number of city employment in 1994 (10,000 people)	11620	253.0	174.5	13.7	849.7

Number of provincial labourers involved in industrial disputes per 10,000 urban employment in 1995	11617	27.74	11.97	7.89	97.6
Share of city employment in first industry in 1994	11620	40.9	16.15	1.1	70.8
Share of city employment in second industry in 1994	11620	31.9	11.01	12.6	68.9
Share of city employment in first industry in 2005	11720	2.65	3.37	0.08	19.4
Share of city employment in second industry in 2005	11817	45.9	11.6	24.4	77.6
Share of city GDP in first industry in 1990	11623	23.0	13.6	2.48	56.4
Share of city GDP in second industry in 1990	11623	48.9	12.3	21.0	91.0
Share of city GDP in first industry in 1994	11620	18.0	10.5	1.39	43.9
Share of city GDP in second industry in 1994	11620	48.9	9.28	29.8	85.4
Share of city GDP in first industry in 2005	11817	12.6	8.49	0.20	34.5
Share of city GDP in second industry in 2005	11817	48.3	9.19	27.0	85.9

Appendix Table A2: City and Provincial Indexes of Marketisation

Province	City	Employment Share of SOE, 1978	Employment Share of SOE, 2005	SEZ, city	SEZ, province	SEZ, national
Anhui	Anqing	0.74	0.27	1992	1993	2010
Anhui	Chuzhou	0.74	0.27	1992	1992	2010
Anhui	Hefei	0.74	0.27	1993	1993	2000
Anhui	Wuhu	0.74	0.27	1993	1993	1993
Beijing	Beijing	0.83	0.26	1994	1994	1994
Chongqing	Chongqing	0.69	0.19	1993	1993	1993
Fujian	Fuzhou	0.72	0.26	1986	1986	1986
Fujian	Quanzhou	0.72	0.26	1996	1996	2010
Fujian	Sanming	0.72	0.26	2009	2010	
Fujian	Xiamen	0.72	0.26	1981	1981	1981
Fujian	Zhangzhou	0.72	0.26	1992	1992	2010
Gansu	Lanzhou	0.90	0.42	1993	1993	2002
Gansu	Tianshui	0.90	0.42	1994	1994	2009
Guangdong	Dongguan	0.71	0.20	2003	2006	
Guangdong	Foshan	0.71	0.20	2003	2006	
Guangdong	Guangzhou	0.71	0.20	1984	1984	1984
Guangdong	Huizhou	0.71	0.20	1993	1993	1993
Guangdong	Jiangmen	0.71	0.20	1991	1991	
Guangdong	Maoming	0.71	0.20	1992	1992	
Guangdong	Shantou	0.71	0.20	1981	1981	1981
Guangdong	Shenzhen	0.71	0.20	1980	1980	1980
Guangdong	Zhuhai	0.71	0.20	1980	1980	1980
Guangxi	Guilin	0.84	0.24	1992	1994	
Guangxi	Liuzhou	0.84	0.24	1992	1992	
Guangxi	Nanning	0.84	0.24	1992	1992	2001
Guizhou	Guiyang	0.80	0.32	1993	1993	2000
Guizhou	Zunyi	0.80	0.32	1992	1992	2010
Hainan	Haikou	0.90	0.46	1988	1988	1988
Hebei	Baoding	0.83	0.45	2000	2006	
Hebei	Cangzhou	0.83	0.45	2003	2003	2010
Hebei	Handan	0.83	0.45	1992	1992	
Hebei	Langfang	0.83	0.45	1992	1992	2009
Hebei	Qinhuangdao	0.83	0.45	1984	1984	1984
Hebei	Shijiazhuang	0.83	0.45	1992	1992	
Hebei	Tangshan	0.83	0.45	1992	1992	2010
Hebei	Zhangjiakou	0.83	0.45	1992	2006	
Heilongjiang	Daqing	0.79	0.36	2006	2006	
Heilongjiang	Harbin	0.79	0.36	1993	1993	1993
Heilongjiang	Qiqihar	0.79	0.36			
Henan	Luoyang	0.82	0.43	1992	1994	

Henan	Nanyang	0.82	0.43			
Henan	Shangqiu	0.82	0.43	1995	1995	
Henan	Xinxiang	0.82	0.43	1992	1994	
Henan	Xuchang	0.82	0.43	1994	1994	2000
Henan	Zhengzhou	0.82	0.43	1993	1993	2000
Henan	Zhoukou	0.82	0.43	1997	1997	
Hubei	Huanggang	0.81	0.24	1992	1992	2010
Hubei	Jingmen	0.81	0.24	2000	2000	
Hubei	Jingzhou	0.81	0.24	1992	1992	2011
Hubei	Wuhan	0.77	0.29	1991	1991	1993
Hubei	Xiangfan	0.81	0.24	1992	1992	1992
Hubei	Xiaogan	0.81	0.24	1997	1997	
Hubei	Yichang	0.81	0.24	1988	1992	2010
Hunan	Changde	0.77	0.29	1992	1994	
Hunan	Changsha	0.77	0.29	1992	1992	2000
Hunan	Hengyang	0.77	0.29	1992	1994	
Hunan	Yueyang	0.77	0.29	1992	1992	2000
Hunan	Zhuzhou	0.77	0.29	1992	1992	1992
Jiangsu	Changzhou	0.63	0.13	1992	1992	1992
Jiangsu	Lianyungang	0.63	0.13	1984	1984	1984
Jiangsu	Nanjing	0.63	0.13	1988	1988	1991
Jiangsu	Nantong	0.63	0.13	1984	1984	1984
Jiangsu	Suzhou	0.63	0.13	1992	1992	1992
Jiangsu	Wuxi	0.63	0.13	1992	1992	1992
Jiangsu	Xuzhou	0.63	0.13	1992	1992	
Jiangsu	Yancheng	0.63	0.13	1992	1993	2010
Jiangsu	Yangzhou	0.63	0.13	1992	1992	2009
Jiangxi	Ganzhou	0.82	0.30	2004	2004	2010
Jiangxi	Jiujiang	0.82	0.30	1992	1992	2010
Jiangxi	Nanchang	0.82	0.30	1991	1991	1991
Jiangxi	Shangrao	0.82	0.30	2001	2001	2010
Jiangxi	Yichun	0.82	0.30	2003	2006	
Jilin	Changchun	0.77	0.32	1993	1993	1993
Jilin	Jilin	0.77	0.32	1992	1992	1992
Liaoning	Anshan	0.76	0.29	1991	1991	1992
Liaoning	Benxi	0.76	0.29	1993	1993	
Liaoning	Dalian	0.76	0.29	1984	1984	1984
Liaoning	Fushun	0.76	0.29	1992	1993	
Liaoning	Jinzhou	0.76	0.29	1992	1992	2010
Liaoning	Shenyang	0.76	0.29	1993	1993	1993
Nei Mongol	Baotou	0.80	0.46	1992	1992	1992
Nei Mongol	Hohhot	0.80	0.46	1992	1995	2000
Ningxia Hui	Wuzhong	0.88	0.43	2006	2006	
Ningxia Hui	Yinchuan	0.88	0.43	1992	1992	2001
Qinghai	Xining	0.89	0.31	2000	2000	2000

Shaanxi	Baoji	0.86	0.45	1992	1992	1992
Shaanxi	Xi'an	0.86	0.45	1993	1993	2000
Shaanxi	Xianyang	0.86	0.45	1992	1992	
Shandong	Binzhou	0.75	0.18	2010	2010	
Shandong	Jinan	0.75	0.18	1988	1990	1991
Shandong	Jining	0.75	0.18	1992	1992	2010
Shandong	Linyi	0.75	0.18	2003	2003	2010
Shandong	Qingdao	0.75	0.18	1984	1984	1984
Shandong	Tai'an	0.75	0.18	2000	2000	
Shandong	Weifang	0.75	0.18	1992	1992	1992
Shandong	Weihai	0.75	0.18	1991	1991	1991
Shandong	Yantai	0.75	0.18	1984	1984	1984
Shandong	Zibo	0.75	0.18	1992	1992	1992
Shanghai	Shanghai	0.79	0.20	1986	1986	1986
Shanxi	Datong	0.85	0.56	1992	1992	2010
Shanxi	Taiyuan	0.85	0.56	1991	1991	1992
Shanxi	Yuncheng	0.85	0.56	1992	1992	
Sichuan	Chengdu	0.75	0.23	1991	1991	1991
Sichuan	Deyang	0.75	0.23	1992	1992	2010
Sichuan	Leshan	0.75	0.23	1992	2002	
Sichuan	Mianyang	0.75	0.23	1992	1992	1992
Sichuan	Yibin	0.75	0.23	1992	1992	
Tianjin	Tianjin	0.77	0.28	1984	1984	1984
Xinjiang Uygur	Wulumuqi	0.77	0.28	1994	1994	1994
Yunnan	Kunming	0.88	0.41	1992	1992	1992
Yunnan	Qujing	0.88	0.41	1992	1992	2010
Yunnan	Yuxi	0.88	0.41	1998	1998	
Zhejiang	Hangzhou	0.58	0.13	1990	1991	1991
Zhejiang	Huzhou	0.58	0.13	1992	1992	2010
Zhejiang	Jiaxing	0.58	0.13	1992	1992	2010
Zhejiang	Jinhua	0.58	0.13	1992	1993	2010
Zhejiang	Ningbo	0.58	0.13	1984	1984	1984
Zhejiang	Shaoxing	0.58	0.13	2000	2000	2010
Zhejiang	Taizhou	0.58	0.13	1997	1997	
Zhejiang	Wenzhou	0.58	0.13	1992	1992	1992

Figure 1: City Effects on CEO Incentive Contracts, No Controls

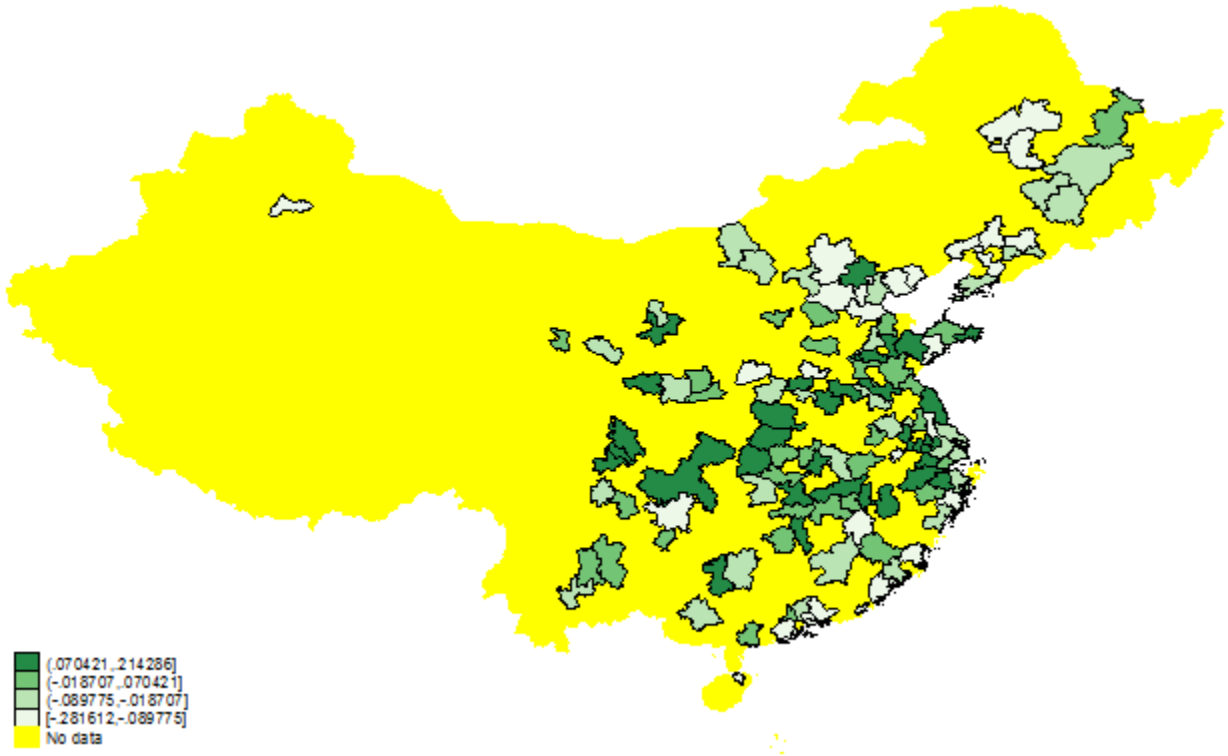

Figure 2: City Effects on CEO Incentive Contracts, With Controls