

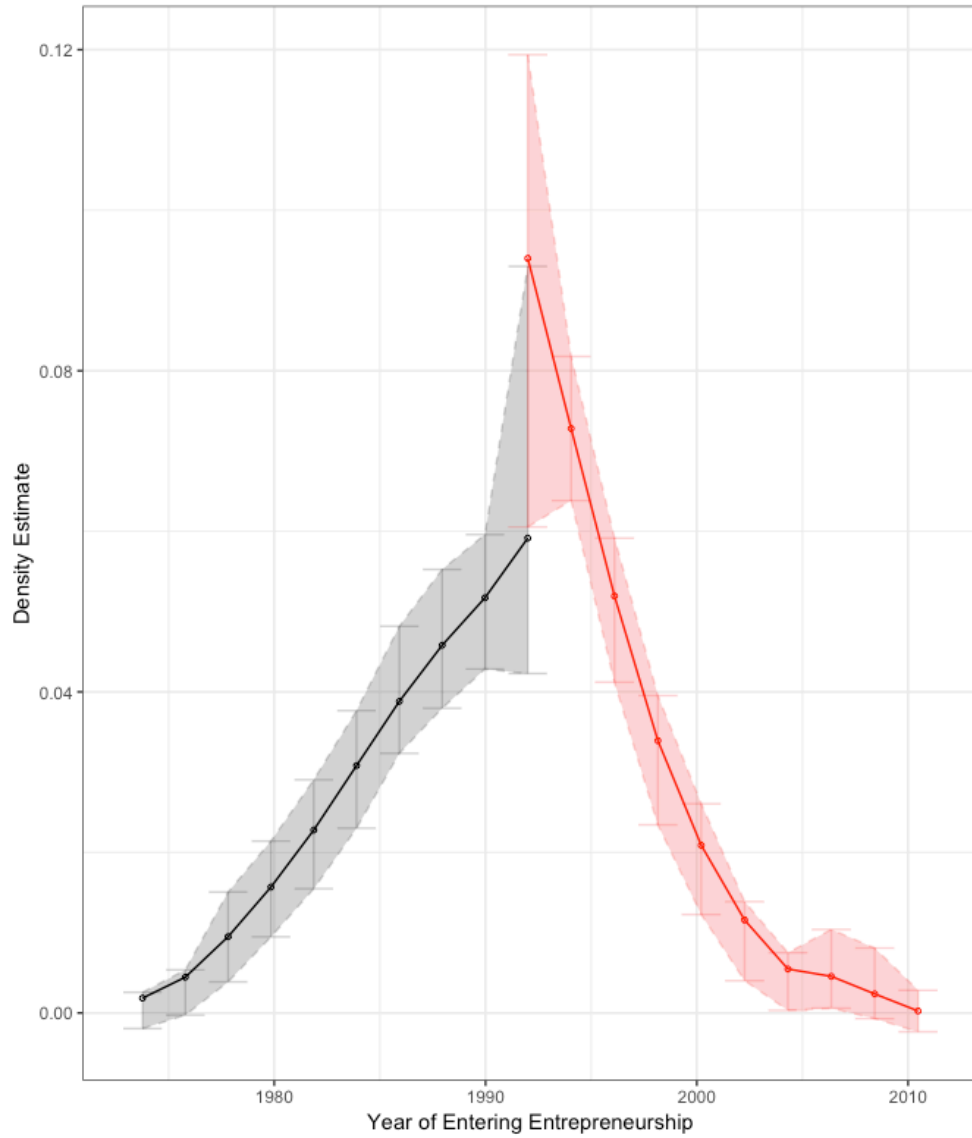
# A Graphical and Table Appendix

Figure A.1: Southern Talks: A Timeline



Compiled by the author

Figure A.2: A Falsification Test



This figure constructs a density plot around the cutoff, based on [Cattaneo et al. \(2018, 2019\)](#). Dataset: CSRP ([Lu et al. , 2019](#)).

Table A.1: Non-Parametric Estimates: Data Driven Techniques

| variables      | (1)<br>college    | (2)<br>partymember | (3)<br>stateemploy | (4)<br>FAcollege | (5)<br>partymemberfa | (6)<br>FAstateemploy |
|----------------|-------------------|--------------------|--------------------|------------------|----------------------|----------------------|
| Conventional   | -0.046<br>(0.029) | 0.001<br>(0.028)   | -0.059<br>(0.035)  | 0.000<br>(0.023) | -0.013<br>(0.026)    | -0.013<br>(0.028)    |
| Bias-corrected | -0.014<br>(0.029) | -0.001<br>(0.028)  | -0.023<br>(0.035)  | 0.045<br>(0.023) | 0.015<br>(0.026)     | 0.044<br>(0.028)     |
| Robust         | -0.014<br>(0.065) | -0.001<br>(0.061)  | -0.023<br>(0.081)  | 0.045<br>(0.040) | 0.015<br>(0.038)     | 0.044<br>(0.055)     |
| Observations   | 373               | 430                | 395                | 430              | 430                  | 430                  |

Notes: Standard errors in parentheses. This is based on [Calonico et al. \(2014\)](#).

## B Appendix on the Theoretical Model

This part need not be published. Interested readers can request the author for reference.

### B.1 Serving the People's Note: Becoming an Entrepreneur

The analytical model was built on simple two-sector (public versus private sector) model of [Murphy \*et al.\* \(1991\)](#) on the basis of [Lucas \(1978\)](#). Each person  $i$  lives for only one period. There is a stable distribution of entrepreneurial abilities in the population such that it is common knowledge that this distribution has a stable support  $[1, \infty)$ , density function  $f(A)$ , and cdf  $F(A)$ . There is one single output  $y$  in the private economy. Agent  $i$  with ability  $A_i$  can choose to become an entrepreneur by exploiting existing technology  $r(\cdot)$  by hiring units of labor  $h$ .

**Lemma 1** ([Lucas, 1978](#)). *Given the quality of the public sector  $G$ , agents  $i$  faces a tradeoff by choosing to become an entrepreneur or work for an entrepreneur. The equilibrium of this private economy is governed by a pair of wage and ability cutoff  $(w^*, \underline{A})$  such that equation (4) holds.*

**Discussion of Lemma 1:** The surplus of becoming an entrepreneur is given by:  $y = GA_i r(h) - wh$ . where  $w$  is the wage paid to the labor as the price of output is normalized into one.  $G$  is the quality of the public sector, later to be endogenized. The first order condition is simply:  $GA_i r'(h_i) = w$ . The optimal amount of hiring is pinned down by wage rate  $w$  and the ability of the entrepreneur  $A_i$  via technology  $r(\cdot)$ . Standards assumptions on concavity and Inada conditions are imposed. Define labor demand function:  $D(A, w, G) = r'^{-1}(\frac{w}{GA}) = h^*$ . The decision to become an entrepreneur with ability  $A_i$  is governed by the choice between entrepreneurial surplus and working as a worker:

$$y = GA_i r(h) - wh \quad (2)$$

$$GA_i r(h_i^*) - wh_i^* > w \quad (3)$$

In the simple equilibrium with a given level of public sector quality  $G$ , there is a cut-off associated with a minimum  $\underline{A}$  and wage rate,  $w^*$ , associated with this  $\underline{A}$  such that  $G\underline{A}r(h_{\underline{A}}) - w^*h_{\underline{A}} = w^*$  and  $G\underline{A}r'(h_{\underline{A}}) = w^*$ . The labor market clears:

$$\int_{\underline{A}}^{\infty} D(A, w^*, G) dF(A) = 1 - F(\underline{A}) \quad (4)$$

## B.2 Serving the People: Rent-Seekers or Motivated Agents

In this section, the quality of the public sector  $G$  is taken to be fixed. Upon the occupation choice layer between workers-entrepreneurs, this paper imposes a sectoral choice between the public and the private sector, where the leading officials are driven by a mixture of public motivations and rent-seeking opportunities. This microfoundation underpins the dual role of the public sector. The ability of public officials can be allocated between providing good public service for the common good and capturing higher status rents for themselves.

Let's conjecture, in this section, the quality of the public sector  $G(\cdot) = G(h^P)$  for the number of public sector workers  $h^P$ , as opposed to bureaucratic elites (i.e., those being able to share rents), where  $G(\cdot)$  is imposed with standard concavity and Inada restrictions.

The public mindedness of the agent  $i$  is given by public motivation  $p_i$ , which has a stable support  $[1, \infty)$ , density function  $q(p)$ , and cdf  $Q(p)$ . The variable can be interpreted as the highest gap in materialistic rewards that the public sector can offer less so as to keep the worker  $i$  with ability  $A_i$  participate. This governs a trade-off among the elites of the society,  $i \in \{P, E\}$ , where  $P$  stands for the public sector and  $E$  the private economy as described in the previous section. The payoff for workers in the public sector and the private markets are  $w^P$  and  $w^E$ , respectively.

**Assumption 1** *The ability cutoff for becoming a political elite ( $\bar{A} \equiv A^P$ <sup>45</sup>) is higher than the ability cutoff for an entrepreneur ( $\underline{A}$ )<sup>46</sup>*

Beneath the ability cutoff  $\underline{A}$  to join small entrepreneurship, talents are allocated between the public sector and private sector workers, the wage gap of the two is governed by a threshold of public mindedness  $\underline{p}$  such that  $w^E - w^P = \underline{p}$  by noting that the wage of the workers is only sectoral dependent. Unlike workers for the private sector in Lucas (1978) receiving the same payoff ( $w^E$ ), in this model, therefore,  $\bar{p}$  is the minimum public mindedness for accepting a lower public sector wage ( $w^G$ ).

This would also be different for the comparison between entrepreneurial role and public bureaucrats. Above  $\bar{A}$ , the ablest persons in the economy decide whether to become an entrepreneur or a political elite. Consider this situation for now. The return from entering into entrepreneurship is the same as before in the private economy for a person  $i$  with

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<sup>45</sup>The entry bar to share state rents as political elites can be set by the social guardian, as will become clear in the blueprint comparisons between Deng Xiaoping and Chen Yun.

<sup>46</sup>This is plausible due to the fact that opening a small store is much easier than sharing the rents of the state.

ability  $A_i > \bar{A}$ :

$$G(h^P)A_i r((h_i^e)^*) - w^E(h_i^e)^* \quad (5)$$

Notice that a small change in notation from  $h_i$  to  $h_i^e$ , using  $e$  to denote labor forces hired in the private sector, which designates the optimal labor hiring  $h_i^*$ .

The return to becoming a political elite for a person with ability  $A_i > \bar{A}$ , however, is governed by the following expression with three terms. These three terms are self-explanatory: (a) the public compensation package working for the public sector,  $w^P$ ; (b)  $p_i$ , the motivation and mission driven rents from the person  $i$ ; (c) the average surplus rents (including ego rents and prestige rents) generated as a gap between taxation and the necessary cost of providing a decent public service (i.e, hiring  $h^P$  public sector workers) divided by the number of political elites<sup>47</sup>.

$$\underbrace{w^P}_{\text{public worker wage}} + \underbrace{p_i}_{\text{public motivation}} + \underbrace{\frac{T}{\int_{A_i > \bar{A}}^{\infty} \int \mathbf{I}(i(p) \in P) dQ(p) dF(A)}}_{M = \text{Number of Political Elites}} \quad (6)$$

*The determination of total rents  $T$ .* Conjecture that the optimal rate  $s$  offers the best share to the public sector such that private economy can work as what is described in Lucas' economy<sup>48</sup>. The receipts of taxation can be used in two ways: (i) hiring more workers to improve public sectors quality: or (ii) generating political rents for the officials.

To simplify the matter without distorting notation used in our discussion of the private economy, I make use of a previously introduced, constant share  $s$  as the best technical bound to make the private economy functioning smoothly. Formally, for each unit surplus generated by the private sector, an additional  $s$  unit goes into the treasury of the state. The intuitions are simple: too many political elites, too little to extract; too many entrepreneurs, too many rents to the political elites.

**Assumption 2** (*private-public linkage*) For each unit surplus generated by the private sector, an additional  $s$  unit goes into the treasury of the state as a technical bound.

*Balanced budget equation.* LHS of the budget equation gives the expression for gen-

<sup>47</sup>The expression  $\mathbf{I}(i(p) \in P)$  denotes an indicator function  $I$  such that a person  $i$  with a public mindedness  $p$  chooses to join the public sector  $P$ .

<sup>48</sup>By taking out taxation as an instrument, the focus can be fixated on talent allocation. That is, for each  $y$  output allocated to the public sector,  $sy$  output is available for public sector allocation. The size of the government is fixed in this model.

erated rents from the entrepreneurial side; RHS provides two kinds of the costs of the bureaucracy - paying for workers including elites their normal wages and creating residual rents<sup>49</sup>. For an agent  $i$  with a pair  $(A_i > \bar{A}, p_i)$ , the decision to join the public sector is governed by a higher return of becoming political elite (equation 6) over return from entrepreneurship (equation 5). The equilibrium of this economy with a public sector can be characterized through the lens of talent allocation and entrepreneurial selection. The strategy used in this project is to identify the shifts following a politically induced shock when one politico-economic vision was decidedly replaced by another vision via factional elite political struggle.

$$\underbrace{s \int_{\underline{A}}^{\infty} [G(h^P)A_i r((h_i^e)^*) - w^E(h_i^e)^*] \int \mathbf{I}(i(p) \in E) dQ(p) dF(A)}_{\text{Total Public Sector Budget}} = w^P(h^P + M) + \underbrace{T}_{\text{Residual Rents}} \quad (7)$$

The timing of events:

1. The social guardians (to be clarified in the next section) set the entry criteria for being a political elite  $\bar{A}$ .
2. Agent  $i$  solves her optimization problems given her innate ability  $A_i$  and public motivation  $p_i$  and the economy's objective environment  $\{w^P, w^E, \bar{A}, \underline{A}, s, r(\cdot), G(\cdot)\}$  and other's optimal decision.
3. Under the equilibrium of this economy, no person  $i$  has incentive to change his or her choices.

**Theorem 3** *Under the equilibrium outcome  $(w^P, w^E, \underline{A})$  of this private Lucas economy with a public sector, the allocation of talent is as follows:*

- (i) *For person such that  $A_i \in [1, \underline{A}]$ , they are either (a) private sector workers if  $w^E - w^P \geq \underline{p}$  or otherwise (b) public sector workers*
- (ii) *For person such that  $A_i \in (\underline{A}, \bar{A})$ , they become entrepreneurs;*
- (iii) *For persons such that  $A_i \in (\bar{A}, \infty)$ , (a) they become political elites if their returns are higher or otherwise (b) entrepreneurs.*

#### Discussion:

Theorem 4 provides the allocation of talent in this model economy with a public sector

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<sup>49</sup>In a model with capital, there should also be a cost item from government spending.

through the decomposition matrix of ability  $A_i$  and public mindedness  $p_i$ . This outcome is termed as s-equilibrium because of its dependence on the fixed-parameter  $s$ , the imposing of which forces adjustments from the entry and exit rather than giving a maximizing equation to extract from societies by the elites.

The workers' wage wedge between the public and private sectors:

$$w^E - w^P = \bar{p} \quad (8)$$

From there, the share of population going into public sector workers:

$$h_P = \int_1^{\underline{A}} \int_{\bar{p}}^{\infty} dF(A)dQ(p)$$

The share of population going into private sector workers:

$$h_E = \int_1^{\underline{A}} \int_1^{\bar{p}} dF(A)dQ(p)$$

The definition for public rents, from which average rents can be defined:

$$s \int_{\underline{A}}^{\infty} [G(h^P)A_i r((h_i^e)^*) - w^E(h_i^e)^*] \int \mathbf{I}(i(p) \in E) dQ(p) dF(A) = w^P(h^P + M) + T$$

For those high ability persons  $A_i > \underline{A}$ , define the boundary line  $p(A_i) = L(A_i)$  such that the return to entrepreneurship is the exactly the same as that of political elites. That is  $p(A_i) = L(A_i)$  is a function of  $A_i$  such that the minimum public mindedness holds:

$$w^P + p_i + \frac{T}{\int_{\bar{A}}^{\infty} \int \mathbf{I}(i(p) \in P) dQ(p) dF(A)} = G(h^P)A_i r((h_i^e)^*) - w^E(h_i^e)^* \quad (9)$$

From  $p(A_i) = L(A_i)$ , the share of political elites is determined:

$$M = \int_{\bar{A}}^{\infty} \int \mathbf{I}(i(p) \in P) dQ(p) dF(A) = \int_{\bar{A}}^{\infty} \int_{L(A)}^{\infty} dQ(p) dF(A)$$

along with the share of entrepreneurs:

$$E = \int_{\underline{A}}^{\infty} \int \mathbf{I}(i(p) \in P) dQ(p) dF(A) = \int_{\bar{A}}^{\infty} \int_1^{L(A)} dQ(p) dF(A) + \int_{\underline{A}}^{\bar{A}} \int dQ(p) dF(A)$$



The demand equation for private sector workers would have to hold:

$$\int_{\bar{A}}^{\infty} \int_1^{L(A)} D(A, w^E, G(h_p)) dQ(p) dF(A) + \int_{\underline{A}}^{\bar{A}} \int D(A, w^E, G(h_p)) dQ(p) dF(A) = h_E \quad (10)$$

In the equilibrium, the balancing equation for the whole population in vein of [Lucas \(1978\)](#):

$$h_P + h_E + M + E = 1 \quad (11)$$

Now the problem is to find a reasonable fixed point for  $(w^E, w^P, \bar{p}, \underline{A})$  given equation (8), (9), (10), and (11). This can be done via trial and error where the convergent limit gets to the fixed point.

### B.3 Debating the Political Economy of Reform: Elite Competition and Entry into Entrepreneurship

The previous framework can be used for comparison of blueprints between Deng Xiaoping and Chen Yun - two visions of socialism with Chinese characteristics. In doing so, the entry criteria,  $\bar{A}$ , is made exogenous for being a political elite. In fact, this is a policy variable highly controllable by the personnel policies through the Organization Department of the CPC. This is no wonder, viewed from the proposed framework, the most important HR policy is to find persons with a combination of high ability  $A_i$  and highly motivated  $p_i$ , famously known as “red and technical” (you hong you zhuan) - capable of being technically competent as well as being loyal to the party center. Take further the conceptual framework; this section compares two blueprints envisioned by Deng Xiaoping and Chen Yun, from a social guardian perspective ([Krueger, 2002](#)): whether or not to impose a cage on a socialist market economy.

**Theorem 4** (*Comparison of blueprints*)  $GDP_{cage} < GDP_{market}$ .

#### Discussion:

Using the proposed framework to characterize Deng Xiaoping’s vision is to translate his vision into an optimization problem by fine-tuning the entry criteria of becoming a political elite so as to maximize  $GDP_{Market}$  of the economy with a public sector under

equilibrium:

$$\begin{aligned}
\max_{\bar{A}} GDP_{Market} = & \underbrace{\int_{\bar{A}}^{\infty} [G(h^P)A_i r((h_i^e)^*) - w^E(h_i^e)^*] \mathbf{I}(i(p) \in E) dQ(p) dF(A)}_{\text{Total Entrepreneurial Surplus}} \\
& + \underbrace{w^E \int_1^{\bar{A}} \int \mathbf{I}(i(p) \in E) dQ(p) dF(A)}_{\text{Private Sector Worker's Receipts}} \\
& + \underbrace{s \int_{\bar{A}}^{\infty} [G(h^P)A_i r((h_i^e)^*) - w^E(h_i^e)^*] \mathbf{I}(i(p) \in E) dQ(p) dF(A)}_{\text{Income to the Public Sector}}
\end{aligned}$$

Notice that the GDP is written from the income perspective: incomes accruing to the entrepreneurial/manager sector, private worker sector, and the public sector (both the elites and public sector workers). By contrast, Chen Yun's cage theory view, in addition to selecting the best quality and most motivated agents to the public sector, contends that the size of private firms should be curtailed to ensure survival of CPC. This insight can be captured by setting another policy handle,  $\bar{h}$ , on the maximum size of the private firm such that equilibrium labor hiring from the entrepreneurial side cannot exceed, i.e,  $h_i^* \leq \bar{h}$ . This is what a cage represents in this formal treatment as a comparison of blueprints. Now let's re-write the GDP equation from Chen Yun's cage theory,  $GDP_{Cage}$ :

$$\begin{aligned}
\max_{\bar{A}, \bar{h}} GDP_{Cage} = & \underbrace{\int_{\bar{A}}^{\infty} [G(h^P)A_i r((h_i^e)^*) - w^E(h_i^e)^*] \mathbf{I}[(h_i^e)^* \leq \bar{h}] \mathbf{I}(i(p) \in E) dQ(p) dF(A)}_{\text{Total Entrepreneurial Surplus}} \\
& + \underbrace{w^E \int_1^{\bar{A}} \int \mathbf{I}(i(p) \in E) dQ(p) dF(A)}_{\text{Private Sector Worker's Receipts}} \\
& + \underbrace{s \int_{\bar{A}}^{\infty} [G(h^P)A_i r((h_i^e)^*) - w^E(h_i^e)^*] \mathbf{I}[(h_i^e)^* \leq \bar{h}] \mathbf{I}(i(p) \in E) dQ(p) dF(A)}_{\text{Income to the Public Sector}}
\end{aligned}$$

Notice that the cage over maximum hiring from the private sector has been imposed and the cage is allowed to vary so as to maximize GDP.

The proof of this proposition is straightforward from the setups of the model. As Chen Yun's vision requires an imposition of the cage,  $\bar{h}$ , over labor hirings. For those entrepreneurs such that labor demand  $D > \bar{h}$ , there is surplus to be gained without being to

do. The private sector, as viewed from the entrepreneurial surplus, will be smaller. With a fixed  $s$  relating that back to the public sector, the total compensation for public workers and political elites will be smaller. Unless  $h$  is so high as to be irrelevant, this implies that  $GDP_{\text{Cage}} < GDP_{\text{Market}}$ .

*A discussion of the limitation of the formal model:*

The model presented in this section is rather ad hoc in the sense that it builds on two key ingredients: (a) the linkage parameter  $s$  and free flow of talents are the only driving mechanisms of public-private adjustments; (b) the ability in the market and in politics are not distinguished. Despite these acknowledged defects, this paper offers a view through the interplay between elite-conflicts at the top and grassroots responses at the bottom. Whether or not further marketization of the economy undermines the legitimacy of CPC's political survival requires further research and long-term inspection.

## Reference for Online Appendix

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