Preliminary draft for the APEA conference at USC, Los Angeles on August 3-4, 2018 EA conference at USC on August 3-4, 2018

Privatization/Marketization Dynamics in Developing Transition Economies: New Evidence from China

Katsuji Nakagane and Kohei Mitsunami

Abstract

Privatization in the sense of overall development of private economies is closely interrelated with marketization in terms of nation-wide development of market economies. More specifically, the progress in privatization promotes the advancement of marketization, which in turn accelerates privatization much further. On the basis of Chinese provincial panel data from 2001 to 2009, we have found that marketization has much stronger impacts on privatization from a perspective of causal relationships than the contrary (counter-causal) case. Then, when the analysis is extended further to cover the longer period, from 2001 to 2014, can we reach the basically same conclusion? In other words, is the above finding quite robust? Moreover, whether or not has such a causal relationship changed to a significant degree during this long period, for example, since around 2009, when the global financial shock struck even the Chinese economy? Our analysis based on a new series of provincial panel data obviously indicates that the above causality still exists in the Chinese economy over the whole period, although the inter-linkage between these two key variables is weakened after 2009. The structure of nexus between privatization and marketization, thus, seems to have changed to a great extent recently. This finding may suggest that the Chinese macro-economy as a whole has entered a new stage of transition as well as development in light of privatization/marketization dynamics, as it is officially alleged to have been in a state of "new normal". China's economy probably is now facing substantial and broad structural transformations at this new stage. We present a tentative hypothesis concerning such a transformation of privatization/marketization nexus that appears to have occurred in the Chinese economy since around 2009.

JEL codes: O53, P36, P48

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Introduction

Privatization in the sense of overall development of private economies is closely interrelated with marketization in terms of nation-wide development of market economies. More specifically, given the institutional level, the progress in privatization promotes the advancement of marketization, which in turn accelerates privatization much further. Thus we can discover a strong dynamic nexus, or inter-linkage, between these two variables for the Chinese economy. On the basis of Chinese provincial panel data from 2001 to 2009, we have found that marketization has much stronger impacts on privatization from a perspective of causal relationships than the reverse case (Nakagane and Miitsunami, forthcoming, hereafter 'NM'). We can draw several insightful implications from this finding for transition economies and their development. For instance, when it comes to comparison between China's transition strategy which places less stress on privatization of state owned enterprises and the shock-therapy approach employed by most non-China transition countries, which is more effective in terms of progress in privatization? Out finding led us to an implication that supports the Chinese way, *ceteris paribus*, as long as its provincial data are applied for analysis.

Then, when the analysis is extended further to cover the much longer period, i.e. from 2001 to 2014, can we reach the basically same conclusion? In other words, is the above finding quite robust? Moreover, whether or not has such a causal relationship changed to a significant degree during this long period, for example, since around 2009, when the global financial shock struck even China? We constructed a new series of panel data covering such a long period utilizing new data source regarding China's privatization as well as marketization. Moreover, we try to extend our analysis to touch upon a dynamic change in privatization/marketization nexus in the two different regions, coastal and inland, and to find out certain sources which could explain such a change in the Chinese macro-economy.

This paper is organized as follows. In section 1, our hypotheses as well as methodology to test them are presented. In section 2, the data as well as their sources are shown, and the method to formulate key indices is explained. In section 3, statistical results and their interpretations along with some implications to derive from those results are discussed. The last section concludes with some reservations.

1. Hypotheses and Methodology

If we define privatization as a process of expanding private sectors, not merely of privatizing existing public enterprises and organizations, and if we define marketizations as a process of extending market activities, both in commodities and factor markets, then privatization and marketization, are closely inter-related with each other. Common sense suggests us that the development of private economies enables markets of various kinds to expand further, while the expansion of markets, in turn, necessitates the development of private properties. As an economy grows, both privatization and marketization generally proceed side by side. In reality, China's trends of both variables are almost same during the period from 2001 to 2014, whether in the coastal area or in the inland area (see Figures 1 and 2). These figures obviously demonstrate the probable existence of powerful nexus between privatization and marketization as result of and /or cause for economic growth.

≪insert Figures 1 and 2 here≫

Surprisingly enough, nobody has ever taken up this issue to the best of our knowledge, although it is extremely important when we talk about transition strategy[1].

When we divide the country into two regions, i.e. coastal area and inland area, we may be able to discover a certain difference of such an inter-linkage by region. Let us take two figures for example to see how the nexus varies depending on the period and the area chosen. As the figures illustrate unequivocally, such a linkage certainly exist in both regions in 2001 (see Figure 3), but there is no clear-cut relationship in the coastal area in 2014, while it still remains in the inland area (see Figure 4). Since the coastal area is more developed than the inland area, this sort of differences in the nexus could be associated with development level. At the same time, this issue is somehow related to a question of how that nexus has changed in the recent years, which will be touched upon later.

≪insert Figures 3 and 4 here≫

These figures tell us only about the correlation between privatization and marketization, not about the causal relationship between these variables, much less about the factors which determine such causality. How privatization promotes marketization, and how the reverse causality can be effective in China, will require the

[1] As for related literature review, see NM.

more structural approach clarifying inherent relationships surrounding those variables.

Then we employ the same model developed by Chinn and Ito (2005) as we used in NM for the period of 2001-2009. It consists of two structural equations with two key variables, i.e. privatization (P) and marketization (M), along with development level (GDP per capita), growth rate (Growth), institutionalization level (I), and degree of openness to external economies (Openness). As equations (1) and (2) below illustrate, the model is structured with a symmetrical form of dependent and explanatory variables, P and M. In other words, development of marketization is assumed to be promoted by expansion of privatization, while progress in privatization is assumed to be driven by expanding marketization, illuminating a close inter-linkage between these variables. Accordingly, we are inclined to present some testable hypotheses as we did in NM

H(1): the more privatized a transition economy is, the more easily and rapidly it can be marketized.

H(2):the more marketized a transition economy is, the more easily and rapidly it can be privatized.

H(3):then, the relationship between privatization and marketization is reciprocal in nature, but their effects are asymmetrical in that marketization affects privatization more strongly than the contrary.

H(4):the more institutionalized a transition economy is, the more easily it should be privatized and marketized in theory, but the institutionalization's effect must be asymmetrical in reality in the sense that its effect on privatization is comparatively stronger than on marketization.

$$M_{it}-M_{it-3}=\alpha_{m0}+\beta_{m1}M_{it-3}+\beta_{m2}P_{it-3}+\beta_{m3}I^{*}+\beta_{m4}I^{*}P_{it-3}+\beta_{m5}GDPpercapita_{it-3}+\beta_{m6}GDPGrowth_{it-1/t-3}+\beta_{m7}Openness_{it-3}+u_{it} \quad \ldots\ldots\ldots\ldots\ldots (1),$$

and

$$P_{it}-P_{it-3}=\alpha_{p0}+\beta_{p1}P_{it-3}+\beta_{p2}+\beta_{p1}P_{it-3}+\beta_{p2}M_{it-3}+\beta_{p3}I^{*}+\beta_{p4}I^{*}M_{it-3}+\beta_{p5}GDPper\ capita_{it-3}+\beta_{p6}GDPGrowth_{it-1/t-3}+\beta_{p7}Openness_{it-3}+u_{it} \quad \ldots\ldots\ldots\ldots\ldots (2),$$

We have already discovered several important results from our previous study for the period between 2001 and 2009. What is to be remarked here: a) there exists a positive relationship between privatization and marketization (β_{m2}, $\beta_{p2}>0$); b) marketization (M)'s impact on privatization (P) is greater than the contrary case ($\beta_{p2}>\beta_{m2}$); c)

institutionalization (I) affects both factors, but particularly marketization (β_{m3}>0); d) interaction terms of P with I are significant but negative, (β_{m4}I*<0)indicating that, other things being equal, the higher level of privatization produces the higher growth of marketization under the less institutionalized circumstances (β_{p4}), while those of P with I (β_{m4}) are all insignificant. As far as the above hypotheses are concerned we can conclude that H(1) through H(3) are all totally relevant, while H(4) is only partially relevant in that institutionalization cannot always promote privatization, nor marketization.

Then, what about the cases for the extended period of years from 2001 to 2014? We expect that the story will be basically relevant even for such a longer time-horizon, but a certain change must have taken place during this long range of years in the Chinese economy. Our hypotheses, therefore, consist of the following two parts: a) the same as those tested in our previous paper NM, i.e. H(1) through H(4) above, and b) an additional one which is concerned with the possible structural change which may have occurred during the long term in question.

H(5): There must have been a certain kind of structural changes in the Chinese economy during a period from 2001 to 2014 which are associated with its privatization/marketization dynamics. Moreover, these changes differ by region. Figures 3 and 4 definitely suggest the occurrence of change in PM nexus between 2001 and 2014 in both areas.

2. Data and Indices

We utilize the following three major sources of data as we did in NM, i.e. (a) Fan, Wang, and Zhu (various years, until 2011) hereafter NIM), (b) Wang, Fan, and Li (2012) (hereafter BEI) and (c) National Bureau of Statistics, *China Statistical Yearbook* (hereafter CSY). We used NIM (2016) to extend our analysis to examine the nexus in question during the longer period. It covers the years from 2008 up to 2014. Then we can connect the series until 2011 to the extended one until 2014. The problem is that NIM(2016) is different from NIM(2011 and before.) in the coverage as well as composition of privatization and marketization indices and their related sub-indices. More specifically, the indices employed in the present paper were constructed in the following way.

1) Privatization index: we extracted an index called "development of non-state economies" from NIM indices. This index consists of the following three sub-indices, i.e. index of the ratio of their total sales, index of the ratio of their social fixed asset investment, and index of the ratio of their urban employment. These sub-indices for

2008 and 2009 in NIM(2011) are different from those in NIM(2014). Then we tried to extrapolate the index by using an average P(2008 and 2009) in NIM(2011) divided by P(2008 and 2009) in NIM(2014).

2) Marketization index: we extracted sub-indices of "relationship between the government and the market", those of "the degree of development of material goods market", and those of "the degree of development of factor market" in NIM, and by averaging three of those sub-indices..

3) Institutionalization index: we formulated two different types of I index, I(1) and I(3)[2]. I(1) is an index composed by four kinds of sub-indices related to the development of market intermediation organizations and legal environments. This is an index with objectively-made sub-indices. I(3) is an index made by averaging I(1) and the index based on BEI, which is a nation-wide survey on subjective assessments by firm managers in the Chinese Mainland. As we can reasonably assume that institutional level does not change remarkably year by year, we fix it as an average throughout the whole period.

4) Control variables: per capita GDP and GDP growth rate are calculated by the provincial data in CSY. Openness is defined as a ratio of exports plus imports divided by the nominal GDP in each province, data of which are all recorded in CSY.

3. Results and Implications

We applied the above models to a new and long series of China's provincial panel data, but adding year dummies to test hypothesis H(5). The descriptive statistics of explanatory variables except for year dummies are summarized in Table 1.

<<insert Table 1 here>>

We were able to obtain the following main results (see Tables 2 and 3). From these tables, we can derive several interesting results vis-à-vis the testable hypotheses described above.

<<insert Tables 2 and 3 here>>

(1) H(1) can hold as the coefficients on P are positive and significant. That is to say, privatization without any doubt has accelerated marketization in China during a long

[2] In NM we formulated four different kinds of Institutionalization index I(1)~I(4). In this paper we use only I(1) and I(3) due to data availability.

period beginning in 2001 until 2014.

(2) H(2), however, cannot hold for the period concerned, since the coefficient on M is insignificant. In other words, marketization has not necessarily promoted privatization, as against the finding for the period from 2001 to 2009.

(3) H(3), therefore, cannot be verified because the coefficient on M is insignificant. We cannot, thus, judge the relative strength of causality of P on M vis-à-vis M on P.

(4) H(4) can be proved only partially. More specifically, the higher institutionalization can stimulate the more rapid marketization, but it does not necessarily guarantee the more rapid progress in privatization.

(5) The other explanatory variables except for year dummies cannot necessarily testify the same results as were obtained for the shorter period, i.e. from 2001 to 2009, in our previous study. For example, the coefficients on GDP growth in equation (1) and on Openness in equation (2) are all statistically insignificant.

(6) On the other hand, year dummies are negatively significant, except for the case of 2010 in Model 3, in equation (1) and those of only years of 2005, 2008, and 2011~2014 are positively significant in equation (2). This result seems to imply the relevance of our hypothesis H(5), particularly for the years after 2010, although just weakly still at this moment.

The above results are ones targeted at the macro economy at the national level. The results may be different depending on the regions as Figures 3 and 4 imply. Accordingly, we tried to estimate both equation (1) and equation (2), for two different areas, coastal and inland, dividing the period into two sub-periods, i.e. 2004~2009 and 2010~2010. The results are recorded in Tables 4 and 5. What we want to focus on is causal relationships surrounding privatization (P), marketization (M), and institutionalization (I), so that only the coefficients β_{m2}, β_{p2}, β_{m3}, β_{p3} in equations (1) and (2) are picked up to show their significance in the Tables.

<<insert Table 4 and 5 here>>

What could be learned about from these tables can be summarized very briefly as below.

(1)As for the coastal area for period 2004 to 2009, we can find a relatively strong causality M→P (i.e. marketization promotes privatization) and a weak causality P→M (i.e. privatization accelerates marketization), therefore, H(1)can only be supported weakly, while H(2) can definitely hold. On the other hand, institutionalization does not affect either marketization or privatization. Therefore, H(4) does not hold at any rate.

Needless to say, H(3) cannot hold, either.

(2) As for the inland area for period 2004 to 2009, on the other hand, it is easy to discover a very strong causality P→M only for Model 1, but no causality is found as to M→P. Thus we may say that H(1) cannot be supported. Institutionalization affects only marketization and only in the case of Model 1, so that H(2) and H(4) can be said to be relevant only partially. Then H(3) cannot be supported, either.

(3) The situation dramatically changes after 2009 in both areas. When we look at the coastal area, both marketization and institutionalization have significantly negative impacts on privatization, while both privatization and institutionalization have only weakly significant impacts on marketization. These results obviously indicate that H(1)is relevant, although weakly, but H(2) cannot be proved at all. H(4) is relevant ambivalently.

(4) On the other hand, in the case of the inland area, both marketization and institutionalization have strongly and significantly positive impacts on privatization, while both privatization and institutionalization still has only insignificant impacts on marketization. Thus we may be able to conclude that H(1) cannot be the case, while H(2) can hold strongly. It goes without saying that H(3) cannot be relevant in this case and H(4) can only partially be supported.

(5) All of the above findings seem to suggest the existence of possible vital change in privatization/marketization nexus around 2009 in China. Something must have occurred in the Chinese economy to fundamentally alter this nexus. In other words, H(5) is obviously relevant[3]. .

There should be at least two main forces to alter that nexus. One is the government policies, influencing ownership structure, e.g. state owned enterprises' reforms, and market expansion, e.g. relaxation of industrial entry regulations. The other is the environment, whether external or internal. Let us take a look at what has taken place in the Chinese macroeconomic scene since 2009.

First of all, the year of 2009 is a year when the Chinese government decided to implement an unprecedented scale of domestic investment amounting to as much as 4 trillion yuan to prevent its economy from critical stagnation in the face of worldwide financial shocks. A certain kind of overinvestment was geared in many areas and by all means in China. In a few years, however, this "forced investment" led to economic deceleration, not temporary but rather persistent, which resulted in transforming the

[3] The above results are all based on an assumption that institution or institutional level (I) is fixed. But these results cannot be altered even though it is assumed to be changing by period.

entire economy to become "new normal" as the present leadership admitted formally.

Second, a ratio of M2 to GDP began to rise in 2009, while a ratio of aggregate financing to M2 began to dramatically decline in the same year (see Figures 5 and 6). These facts imply that the Chinese economy's monetization was much accelerated from that year on, but the total amount of loans and credits provided by banks and other financial bodies was relatively squeezed. This seems to reflect a fact that China has achieved a great progress in direct financing on one hand, while it emphasizes the success in tight governmental control over excessive investment, particularly at provincial level.

<<insert Figures 5 and 6 here>>

Third, Figure 7 depicts the trend of industrial structure and shows that the Chinese economy has moved to a new stage where the tertiary sector dominates the national economy in place of the industrial sector. It can be said to be just a result of the normal development pattern, but has something new in line of privatization/marketization dynamics, since private firms are the major and dynamic player in the tertiary sector in China, exemplified by an explosive development of a huge variety of internet business accelerated by IT technologies.

<<insert Figure 7 here>>

Fourth, one of the policies characterizing Xi Jinping regime is an extraordinary stress on state owned enterprises (SOEs). It decided firmly to protect and strengthen existing SOEs for its globalization strategy. It recognizes that they should act as an indispensable body to extend its globalized power in the world economy as well as politics.

Against the worldwide general trend, and in contrast to the strong drive under Zhu rongji's leadership to reform SOEs in the late 1990's, China switched its SOE policy from "strategic adjustment" to "re-expansion or re-vitalization" of the state enterprises in the 2000's. As Figure 8 demonstrates definitely, China's SOEs, which had been declining in number until 2008, while these enterprises, local SOEs in particular, have been boosted again since around 2009. This tendency under the present regime obviously implies the existence of a structural change in the privatization-promotion mechanism. More specifically, private economies are not necessarily created so automatically by market forces as before 2009. In other words, the development of

private economies seems to need certain forces now in China, not from below but from above, at least relatively compared to the period before 2009.

<<insert Figure 8 here>>

Against such a background, the nexus, more accurately nexus mechanism controlling the relationship, which is still unknown to us, between privatization and marketization must have changed, probably prompted by the world-wide financial upheaval which happened in late 2008 and the government urgent policies of massive domestic investment to deal with it. As the nexus matrix that can be calculated from Tables 2 and 3 suggests, the mechanism creating private business in China has varied between before and after that upheaval[4]. Private economic activities are now created directly from private business itself, rather than through the market.

Finally, let us add a technical note to the analysis. Our models constituted by equations (1) and (2) above may include a problem of "endogeneity", more accurately serial correlation problem, which could take place as a result of correlations between explanatory variables and error terms. Then we tried to carry out the Feasible GLS method to eliminate the endogeneity from analysis, at the same time to apply robustness checks to the above results, as we did in NM[5]. As a result, we found that the results did not need to be changed, then quite robust, even though we tested to apply a different methodology to our analysis.

Concluding Remarks with Some Reservations

It may be safe to conclude, then, that China has entered a new stage of development as a result of extensive as well as intensive marketization. The more developed, or marketized, it is, the less it relies on privatization for further economic development. China seems to have departed from the gradualist way of transition, although its traditional strategy has been "marketization first", putting less emphasis on ownership change. Exactly, it has stressed market reforms first, disregarding privatization of public firms due to ideological reason. The Chinese government has long been reluctant in privatizing big state owned enterprises. However, the market force the state allowed

[4] We define a nexus matrix as one composed by elements$\{1+\beta_{p1}, \beta_{p2}; , \beta_{m2}, 1+\beta_{m1}\}$, which illuminates a dynamic inter-linkage between P and M. How this nexus matrix implies for P and M development is explained in details in NM.

[5] In NM we first confirmed the existence of serial correlation in the models by the First Difference approach, and then tried to estimate by Feasible GLS if the serial correlations were found out.

to work has empowered private firms to spontaneously mushroom in every corner of the country. Even though the government was passive in making ownership change, the market it allowed to boost has given a strong dynamic force to economic reforms including privatization, as Naughton (1995) pointed out, leading to long and strenuous economic growth. In our view, the privatization/marketization nexus is one of the most effective mechanisms that brought about high economic growth in China. Compared to Central and Eastern European transition countries as well as the Former Soviet Union, most of which have adopted a "privatization first" approach in the name of "shock-therapy"[6], China's strategy of gradual transition resulted in realizing a rapidly expanding privatized economy. Its highest achievement is often called to be symbolizing the success of gradualism in systemic transition.

This mechanism of high growth performance seems to have ended by around 2009. At the same time, the nexus mechanism controlling the relationship between privatization and marketiztion must have also changed recently. The Chinese economy, in our view, has entered a new stage of transition and development, where the previous privatization/marketization nexus can no longer work so effectively as before. At this new stage formally called "new normal", we can see various aspects of structural changes in many respects of the Chinese macro-economy, including developed monetization and IT technologies. At this new stage of economic growth, moreover, privatization appears to be promoted by its own forces as well as some political pressure, e.g. decisive policy to protect and expand SOEs[7], rather than by market forces as before. In this way, something like a shock-therapy approach will probably be necessary if China must strengthen its efforts to privatize the entire economy. Needless to say, this still remains to be a hypothesis, which will be testified more convincingly by analyzing a specific nature of the mechanism involving privatization/marketization nexus.

Last but not the least; we recognize that this paper is just of an experimental nature. For example, the accuracy of provincial data used in this paper is to be re-examined or re-estimated. Chinese data, particularly statistics of regional GDP and growth rate, have been criticized as being over-estimated, consequently lacking in reliability, but we adopted these data in our analysis since our main motive here is to derive some useful hypothesis and/or implications regarding structural changes involved in the Chinese economy since around 2009.

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[6] More accurately, privatization policy was employed simultaneously with abolishment of planning mechanismin those countries as recommended by the IMF and World Bank.
[7] Xi Jinping respects extraordinarily for existing China's SOEs, probably for the sake of his global political as well as economic strategy. He seems to recognize that they are an indispensable body to extend China's global power.

Indices taken up in the present paper, particularly institutionalization index should be revised. Institution is an extremely broad notion, which is very hard to define in an appropriate way. More persuasive formulation of this concept reflecting the realities must be exemplified as long as we want to clarify the privatization/marketization nexus in the real economy.

More importantly, the real and concrete institutional mechanism which determines the nexus in question still remains to be seen. It should be elaborated theoretically as well as by means of case studies. Case studies, in particular, on the embryo of private firms and emergence of new markets must be required in order to complement such a statistical analysis as we tried in this paper.

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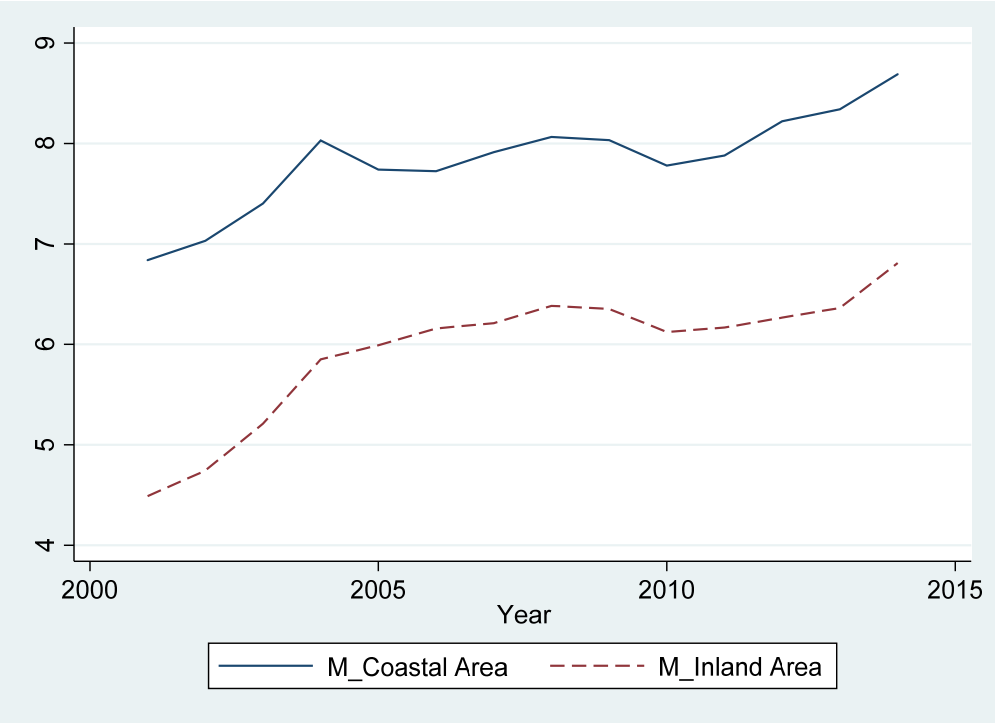
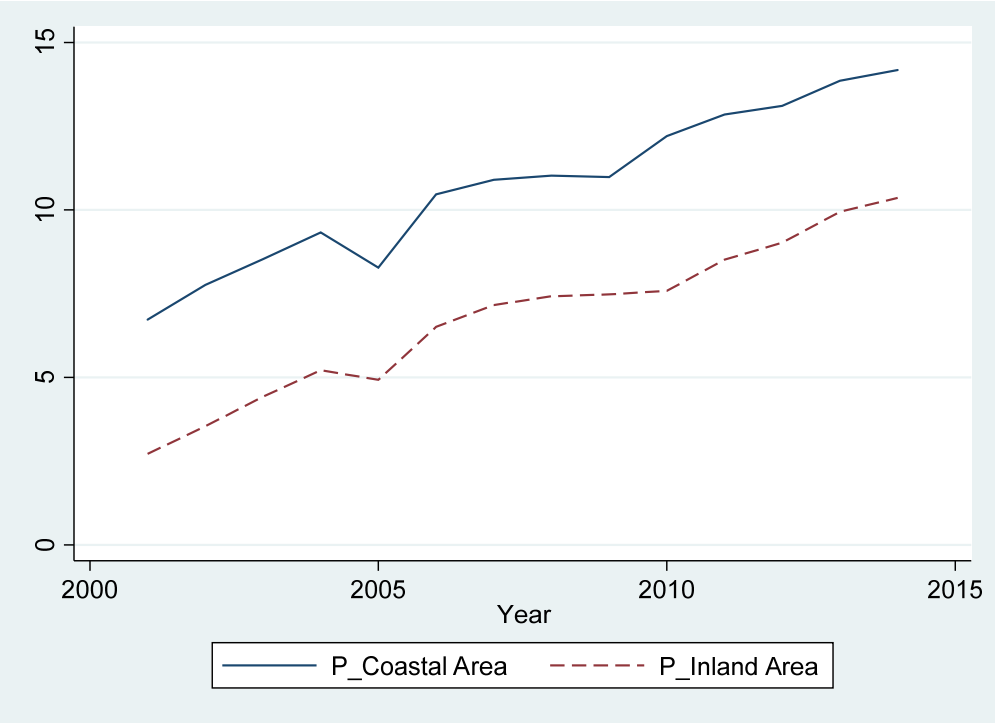
Figures and Tables

Figure 1 Trend of marketization index (M) from 2001 to 2014, by area indices



Notes: Unweighted average of marketization indices (M) at provincial level

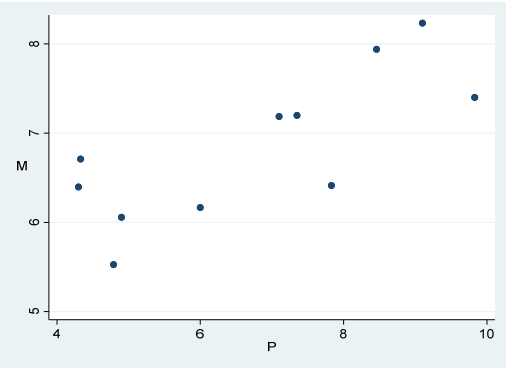
Figure 2 Trend of privatization index (P) from 2001 to 2014, by area



Notes: Unweighted average of privatization indices (P) at provincial level

Figure 3 Relationship between privatization and marketization indices (2001)

Coastal area



Inland area

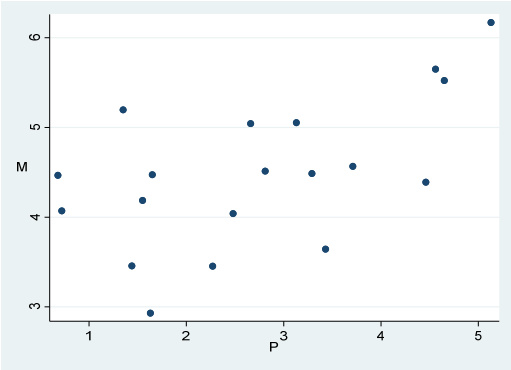
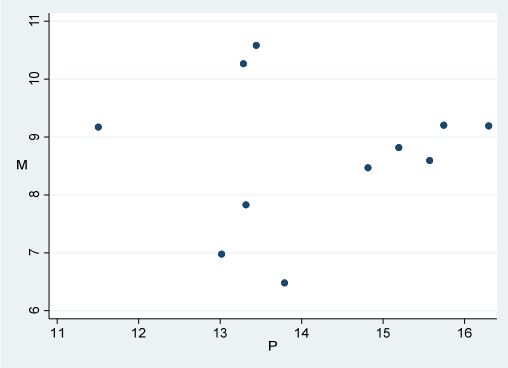


Figure 4 Relationship between privatization and marketization indices (2014)

Coastal area



Inland area

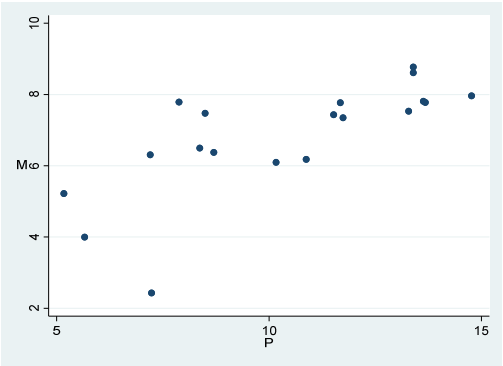


Table 1 Descriptive statistics

	Mean	Std. Dev.	Min	Max
M(t)-M(t-3)	0.42	0.76	-1.92	2.70
P(t)-P(t-3)	1.68	1.08	-1.31	5.22
M(t-3)	6.48	1.49	2.53	9.82
P(t-3)	7.41	3.25	0.68	15.74
Institutionalization Index : I(1)	6.64	4.80	0.42	29.19
I(2)	6.07	2.51	2.78	17.51
Per Capita GDP(t-3)	17064.13	12263.08	2983.07	66486.60
GDP Growth(t-1～t-3)	24.74	6.30	-2.32	49.27
Openness(t-3)	0.33	0.38	0.03	1.67

Table 2 Estimation results of equation (1)

	Dependent Variable : M(t)-M(t-3)			
	Model 1		Model 3	
	coefficients	t-value	coefficients	t-value
M(t-3)	-0.82***	-14.49	-0.82***	-14.49
P(t-3)	0.14***	3.53	0.22***	4.35
Average I	0.21***	4.49	0.42***	4.50
Average I * P(t-3)	-0.02***	-4.99	-0.03***	-5.01
Per Capita GDP(t-3)	0.00***	4.42	0.00***	4.50
GDP Growth(t-1～t-3)	0.01	0.97	0.01	0.99
Openness(t-3)	-0.85**	-2.55	-0.84**	-2.53
d05	-0.22*	-1.80	-0.22*	-1.80
d06	-0.36**	-2.38	-0.36**	-2.40
d07	-0.51***	-2.74	-0.51***	-2.76
d08	-0.47**	-2.44	-0.48**	-2.47
d09	-0.71***	-3.07	-0.72***	-3.11
d10	-1.14***	-4.55	-1.00	-4.59
d11	-1.26***	-4.69	-1.15***	-4.73
d12	-1.28***	-4.54	-1.30***	-4.58
d13	-1.17***	-3.96	-1.19***	-4.00
d14	-0.96***	-2.95	-0.99***	-3.01
Constant	4.12***	8.87	2.93***	4.78
Co. of Determination	0.68		0.68	
Number of obs	330			

Notes: Models 1 and 3 differ depending on the type of institutionalization index (I) (see the text). Year dummies d05, d06, etc indicate a dummy for 2005, for 2006, etc. respectively. ***, **, * show 1%, 5%, 10% significance level, respectively.

Table 3 Estimation results of equation (2)

	Dependent Variable : P(t)-P(t-3)			
	Model 1		Model 3	
	coefficients	t-value	coefficients	t-value
P(t-3)	-0.58***	-11.67	-0.58***	-11.70
M(t-3)	0.17	1.49	0.21	1.27
Average I	0.02	0.19	0.05	0.27
Average I * M(t-3)	0.00	-0.38	-0.01	-0.47
Per Capita GDP(t-3)	0.00*	1.89	0.00*	1.92
GDP Growth(t-1～t-3)	0.01	0.95	0.01	0.96
Openness(t-3)	-0.32	-0.63	-0.31	-0.61
d05	-5.69***	-5.69	-1.04***	-5.70
d06	0.28	1.26	0.28	1.25
d07	0.39	1.39	0.38	1.37
d08	0.79***	2.71	0.78***	2.68
d09	-0.01	-0.04	-0.02	-0.07
d10	0.20	0.56	0.19	0.53
d11	0.84**	2.11	0.82**	2.09
d12	1.14***	2.76	1.13***	2.73
d13	1.78***	4.06	1.77***	4.04
d14	1.75***	3.62	1.74***	3.60
Constant	3.54***	3.99	3.35**	2.61
Co. of Determination	0.60		0.60	
Number of obs	330			

Notes: Models 1 and 3 differ depending on the type of institutionalization index (I) (see the text). Year dummies d05, d06, etc indicate a dummy for 2005, for 2006, etc. respectively. ***, **, * show 1%, 5%, 10% significance level, respectively.

Table 4 Privatization/marketization causality: by area for 2004~2009

Coastal area N=60	＜Model 1＞					
		coefficients	t-value		coefficients	t-value
	P→M(β_{m2})	0.12	1.41	M→P(β_{p2})	0.69**	2.38
	I→M(β_{m3})	0.08	0.56	I→P(β_{p3})	0.33	0.96
	＜Model 3＞					
	P→M(β_{m2})	0.22*	1.74	M→P(β_{p2})	0.95**	2.12
	I→M(β_{m3})	0.16	0.59	I→P(β_{p3})	0.64	0.97
Inland area N=114	＜Model 1＞					
	P→M(β_{m2})	0.23***	2.87	M→P(β_{p2})	-0.23	-0.87
	I→M(β_{m3})	0.45***	3.56	I→P(β_{p3})	-0.36	-0.95
	＜Model 3＞					
	P→M(β_{m2})	0.14	0.79	M→P(β_{p2})	-0.69	-1.40
	I→M(β_{m3})	0.38	1.15	I→P(β_{p3})	-0.72	-0.98

Notes: →indicates the direction of causality. Coefficients of other explanatory variables than those listed in the table are all omitted for brevity. N denotes the number of observations.

Table 5 Privatization/marketization causality: by area for 2010~2014

Coastal area N=55	＜Model 1＞					
		coefficients	t-value		coefficients	t-value
	P→M(β_{m2})	0.20*	1.73	M→P(β_{p2})	-0.95**	-2.24
	I→M(β_{m3})	0.16*	1.72	I→P(β_{p3})	-0.61***	-3.20
	＜Model 3＞					
	P→M(β_{m2})	0.25*	1.84	M→P(β_{p2})	-1.21**	-2.21
	I→M(β_{m3})	0.33*	1.75	I→P(β_{p3})	-1.18***	-3.15
Inland area N=95	＜Model 1＞					
	P→M(β_{m2})	0.01	0.12	M→P(β_{p2})	0.68***	2.88
	I→M(β_{m3})	0.00	0.00	I→P(β_{p3})	0.81***	2.79
	＜Model 3＞					
	P→M(β_{m2})	0.02	0.09	M→P(β_{p2})	1.28***	2.82
	I→M(β_{m3})	0.01	0.04	I→P(β_{p3})	1.60***	2.79

Notes: →indicates the direction of causality. Coefficients of other explanatory variables than those listed in the table are all omitted for brevity. N denotes the number of observations.

Figure 5 Trend of a ratio of M2 and nominal GDP

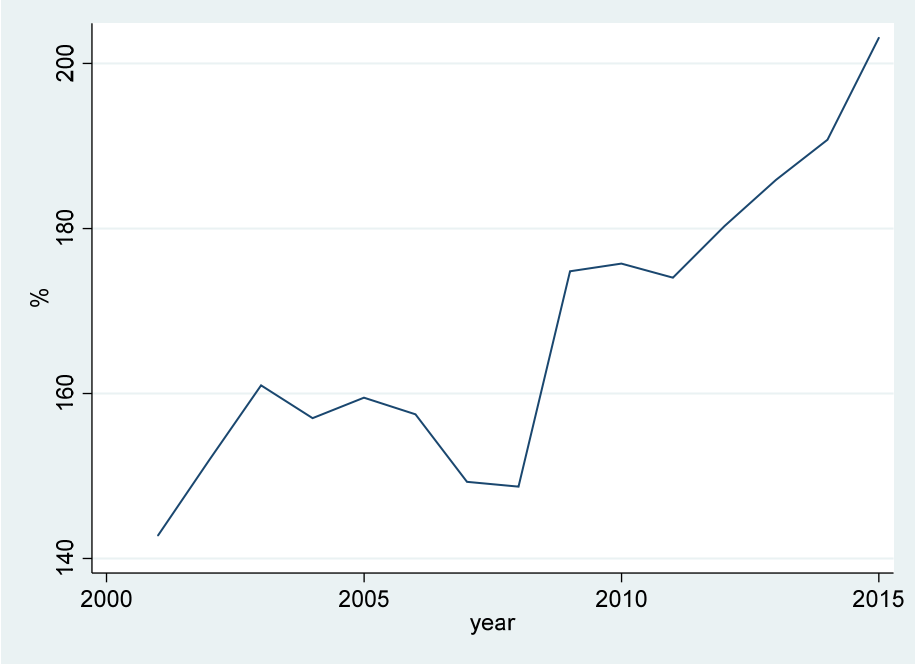


Figure 6 Trend of a ratio of Aggregate Financing to the Real Economy, Flow) /M2

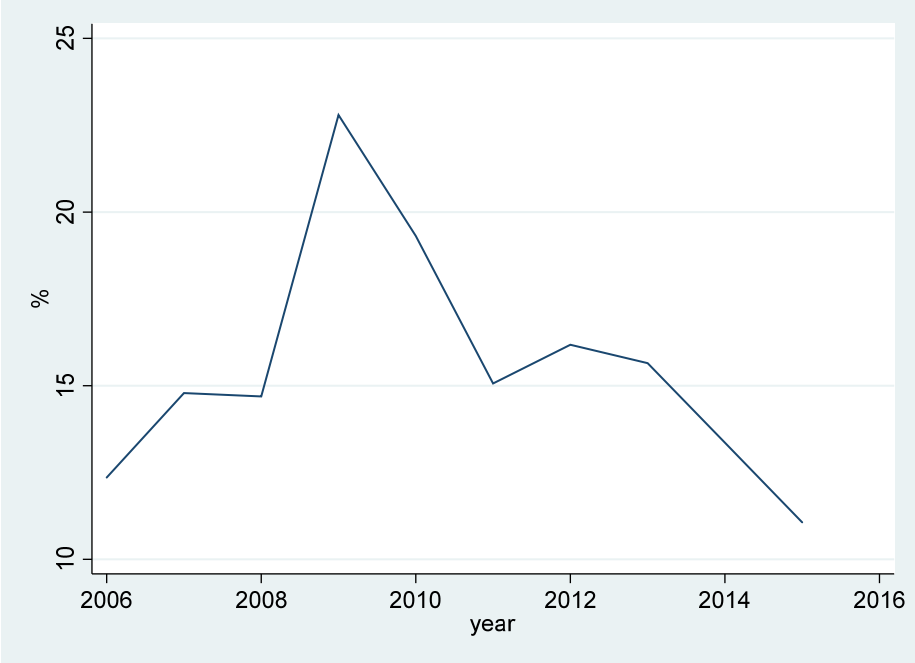


Figure 7 Trend of industrial structure: secondary industry vs. tertiary industry

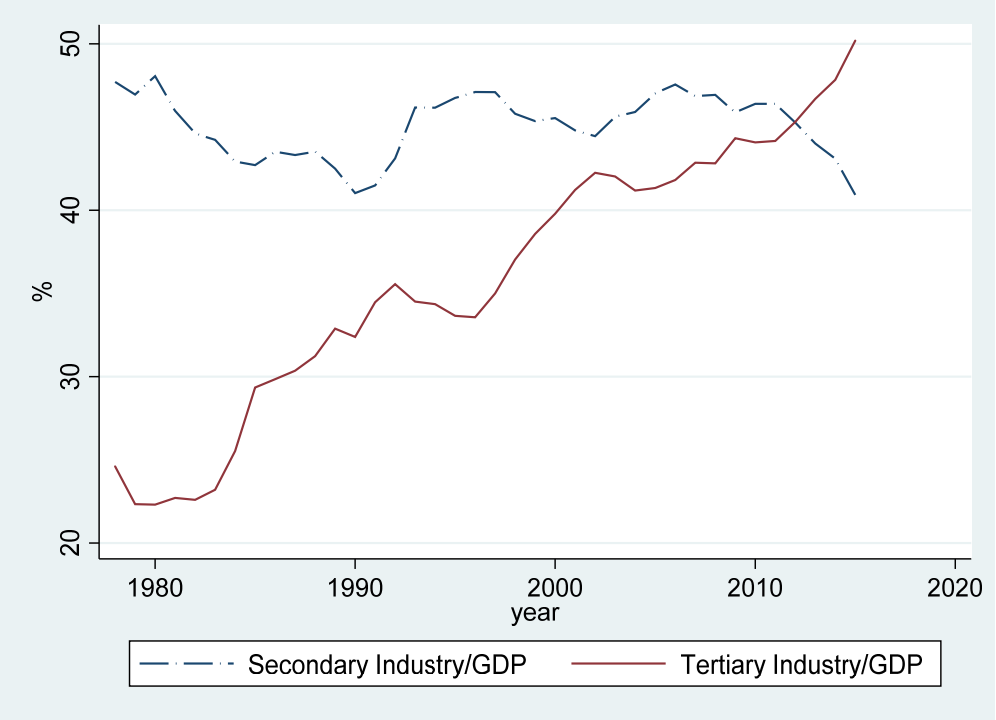
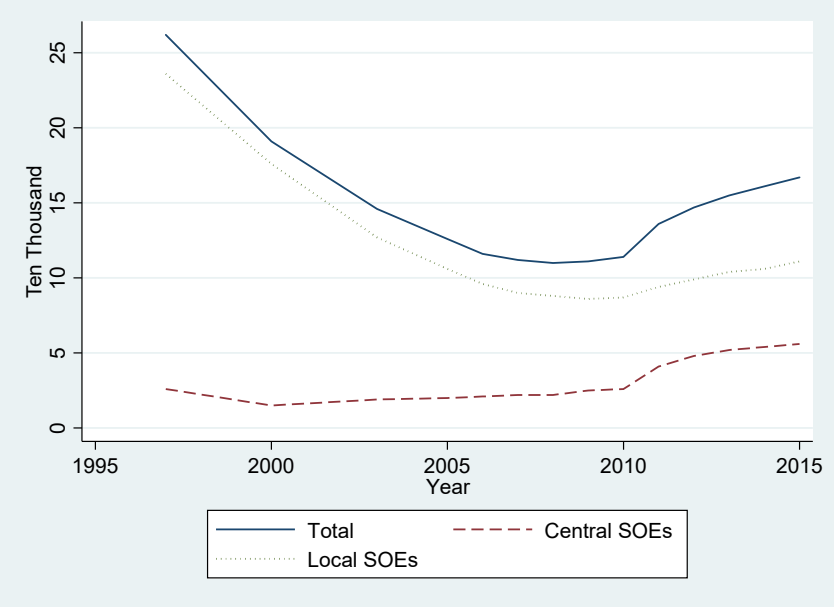



Figure 8 Trend of China's SOEs in number after 1997 (10,000)