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The Contractual Nature of the City

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Abstract: Urbanization is a process in which separated and dispersed property rights become concentrated in a specific location. This process involves a large volume of contracts to redefine and rearrange various property rights, producing various and high transaction costs. Efficient urbanization implies the reduction of these costs. This paper studies how efficient urbanization reduces transaction costs in the real world, based on a series of contracts rather than the coercive power. Specifically, this paper shows that Jiaolong Co. built a city by being a central contractor, which acquired planning rights by contract, and signed a series of tax sharing contracts with government, farmers, tenants, and business enterprises. These contractual arrangements greatly reduced the transaction costs and promoted the development.

Keywords: urbanization, contractual structure, transaction costs

1 Introduction

Urbanization is a process in which separated and dispersed property rights become concentrated in a specific location. This process involves a large volume of contracts to redefine and rearrange various property rights. Labor contracts, housing contracts, transportation contracts, dining contracts, and loan contracts are commonly observed in cities, but not quite widespread in rural areas. The redefinition and rearrangement of property rights produces various and high transaction costs. Efficient urbanization implies the reduction of these costs. Government was often appealed to reduce transaction cost by coercion. Is that possible for cities to emerge efficiently with little use of coercive power? If so, what is the underlying mechanism to reduce transaction cost?

This paper investigates these questions from the perspective of contractual arrangement. It studies a Chinese city called Jiaolong, located in Shuangliu County of Chengdu, capital of Sichuan Province in western China. The city has an area of 4.3 km². Before 2004, this area was farmland growing crops. Since 2004, Jiaolong Co. started to rent land from farmers, built an industrial park,

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and further upgraded it into an urbanized city.¹ Jiaolong Co. was the primary developer of the city: renting land from farmers, removing old buildings, planning cities, investing in infrastructure, building schools, attracting business investors, and providing public services. By the end of 2014, Jiaolong has achieved annual value of production 20 billion yuan (3 billion U.S. dollars) and annual tax 0.4 billion yuan (70 million U.S. dollars). There are around 100 thousand people residing in the city, with a population density 25,000 per km², while the density for Shuangliu County is only 7,000 per km².² Compared to most other cities in China, it has achieved a more efficient allocation of resources by the standard of per area production and the density of residence.³

Jiaolong is a city built and operated by a business corporation. This is rare in China because in most cases the local city government is in charge of urbanization. In almost all cities, government makes land and city planning, takes farmers' land, builds city infrastructure, sells land to housing developers and manufacturers, operates police stations, hospitals, schools and universities. By holding the monopoly power of coercion, the government is able to pool together resources by fiat and hold transaction costs low. Without coercive power, why was Jiaolong able to reduce transaction cost involved in urbanization and achieve relatively more efficient urbanization than other cities? The government and Jiaolong represent two different ways to coordinate resources and reduce transaction costs. Why do we see them coexist in the real world? Under what conditions would we see one type or the other?

By studying the contractual structure of Jiaolong, this paper shows that Jiaolong reduced transaction costs by being the central contractor of a series of contracts. The most critical ones are a series of tax sharing contracts – similar to share tenancy studied by Steven Cheung (1969) – among Jiaolong Co., the local government, and firms operating in Jiaolong, as well as the contract authorizing Jiaolong the planning right. Being a central contractor, Jiaolong is able to reduce transaction costs by substituting a series of contracts by one. Tax-sharing contracts motivate Jiaolong to invest in infrastructure and provide public services. They also motivate the Shuangliu government to protect

1 Hereafter Jiaolong represents the city, and Jiaolong Co. represents the corporation operating the city.

2 The number comes from “The Introduction to Jiaolong Industrial Park” (2015: 8).

3 There are around 84 km² of urbanized area in the Shuangliu County, with a population of 0.6 million people. The number comes from The National Economic and Social Development Statistical Reports of Shuangliu County (2015). Ye and Chen (2010) have provided a case study of Jiaolong from the perspective of industrial park and land property rights. This study complements theirs from the perspective of urbanization and contractual arrangements.

Jiaolong's property rights and authorize Jiaolong with planning rights. As a result, Jiaolong is able to define property rights and achieve efficient urbanization by contract rather than coercive power.

Section 2 provides a brief history of Jiaolong. Section 3 studies the contractual arrangements of Jiaolong and shows how they reduce transaction costs. Section 4 compares Jiaolong with cities operated by governments, and proposes a contractual theory of the city. Section 5 discusses why we need an institutional approach to study cities.

2 Jiaolong Park

Yujiao Huang, an entrepreneur from Chongqing, founded Jiaolong Co.. Huang has run many small businesses. When he was operating a slaughterhouse, he met the difficulty of acquiring land. The local government-run industrial park preferred enterprises with large investment, but was not open to small business. In 2000, Huang established the first Jiaolong industrial park, targeting small business firms in Qingyang District of Chengdu. The district is 1 km² large. Huang rent land from farmers, built plants and rent them to small firms. Jiaolong in Qingyang accommodated more than 150 firms. In 2003, Shuangliu government talked to Huang and promised an area about 4 km² to build an industrial park.

Shuangliu Jiaolong Industrial Park was founded in 2004. It is about 5 km far away from Shuangliu County's urban area, 10 km away from the Shuangliu Airport, which serves Chengdu. The park has an area of 4.36 km² (6,540 mu), with a factory area of 2,998 mu, residential area 579 mu, supporting facilities 250 mu, road and green area 1,858 mu. By December 2014, Shuangliu Jiaolong Industrial Park has realized a tax revenue of 0.43 billion yuan, accommodated 1096 business firms, 580 in manufacturing, 499 in distributions and services, 7 in the financial industry, and 8 in education and training. Around 100,000 people currently live and work in Jiaolong.

By 2014, Jiaolong Co. has spent more than 4 billion yuan in infrastructure investment. The total investment, including a shopping mall, an aquarium, office buildings, hotels, and commercial housings, has been more than 9 billion yuan. Jiaolong also set up more than 30 oversea offices to invite business investors from abroad.⁴

⁴ Number and other information for Jiaolong come from author's field study, and various sources such as "The 2014 Summary and 2015 Vision of Jiaolong Industrial Center", "The

Within 10 years, on an area of 4 km² collective-owned farmland, Jiaolong Co. transformed the farmland into a manufacturing park, and further into a commercial and service city. What is the underlying mechanism?

3 The contractual arrangements

3.1 The fundamental problems of operating city

There are two problems in building and operating a city. The first is how to internalize externalities of infrastructure investment. The second is how to coordinate separated property rights. The common approach, at least in China, to solve the externality and coordination problems is to seek help from government, because the government can internalize the externality by selling land or collecting property tax. Moreover, the government is able to reduce coordination cost by taking land with coercive power. Private enterprises do not have these privileges.

To elaborate the externality problem, suppose there are two adjacent land parcels A and B, owned by John and Mary respectively. John is preparing to build a road on A to attract more human flows. The flows will also benefit Mary and raise the value of parcel B. John is not able to benefit from the appreciation of B, and thereby lacks investment incentives. The common policy advice is for the government to subsidize John for investment, or the government can acquire parcel B from Mary and rent it to John. Furthermore, the government can take both parcels A and B and develop them itself.

Coase (1959, 1960) proposed that the existence of externality is due to high transaction costs in defining and contracting property rights. As long as property rights are clearly defined and contracting cost is sufficiently low, property rights can be exchanged and redefined, and externality is eliminated. That is, if John buys parcel B from Mary and owns the property rights of both parcels, he can build a road on parcel A and obtain the appreciation of the value of both parcels. John has investment incentives. The transaction cost in defining and contracting property rights, however, is not zero in the real world. Private enterprises might have to face hundreds or thousands of residents to acquire land. The transaction costs involved might be high enough to stop any development. Why was Jiaolong able to reduce the cost?

Speech in the Excellent Entrepreneurs Party of Jiaolong Park” (2013), “The Introduction to Jiaolong Industrial Park” (2015: 8).

3.2 The contract with Shuangliu government

In 2003, Jiaolong Co. signed an investment contract with Shuangliu Government.⁵ The contract authorized Jiaolong planning rights and shares of tax revenues. The contract consists of the following contents:

3.2.1 Investment intensity

Jiaolong Co. must invest 1 billion yuan over three time periods in the area of 3 km² development zone. The planning area must accommodate more than 400 firms, provide an annual tax revenue more than 0.3 billion yuan, and achieve a GDP 6 billion yuan. Firms in Jiaolong must register their businesses and pay taxes in Shuangliu.

3.2.2 Infrastructure building

Jiaolong Co. must build a sewage treatment plant, a 6 thousand-ton water plant, and a 10,000 kvA switch plant. Jiaolong must design and build pipe networks with a 30-meter broad road (including road greens on both sides of the street). Jiaolong must build a 10 kv power station, providing all the power supply system and underground cable networks. Due to the high investment risk and low returns of the infrastructure investment, Jiaolong must (with qualifications) design and build all plants, office buildings, and apartments in line with proper standards.

3.2.3 Authorization of planning rights

The Master Plan of Jiaolong must confirm to the Master Plan of Shuangliu County. Jiaolong should make plans and put everything on record with relevant government agencies.

3.2.4 Tax sharing

Shuangliu government should “reward Jiaolong with 25% of the tax revenues received by the government (after taking off the reimbursement for firms), if the

⁵ The contract is “The Investment Contract of Chengdu Jiaolong Development Limited Corporation builds Shuangliu Jiaolong Industrial Park in Shuangliu” (2003).

promised tax rate of 100 yuan/m² is realized in Jiaolong; reward Jiaolong with 20% of the tax revenues if the realized tax rate is 80 yuan/m²".

3.2.5 Government obligation

Shuangliu Government should set up a leading group, responsible for providing Jiaolong with quality services and relevant preferential policy. Government should also assist Jiaolong Co. in its dealing with nearby villages and public administrations on issues such as taxation, public security, environment protection, industrial and commercial services.⁶

The investment contract clearly shows the rights and obligations, and the incentive mechanism between the county government and Jiaolong. The contract specifies that Jiaolong should achieve the investment and development targets, and build infrastructure. As a return, Jiaolong obtains planning rights, tax sharing, and coordination services from the government. The acquisition of planning rights and the tax sharing mechanism are crucial in Jiaolong's development.

3.3 The authorization of planning rights

Most Chinese city governments dominate urban and land planning. The government planning office specifies land usage (industrial, commercial and business facilities, residential, administration and public services and so on), intensity (floor area ratio, height, density), infrastructure, and spatial environment. In this way, government planning actually defines land use rights. The provisions of land use in all subsequent land contracts are thereby defined. Planning defines the scale of land market. Who holds land planning rights and how land use rights are redefined are essential problems for efficient allocation of land.

Due to high transaction costs in land contracting, land use rights might not be allocated efficiently. For example, in the development of urban villages (villages that are surrounded by the city), the transfer of land use rights would be slow, as the developer has to bargain with hundreds or thousands of residents. Price searching, bargaining, and coordination generate prohibitively high transaction costs. One way to reduce transaction costs is to leave the job to the government, which uses its privileges, such as government planning and land

⁶ All contracts mentioned in the paper come from Jiaolong Co.. Interested readers could ask the author for copies.

taking to make it ready for development. In practice, however, planning and development do not depend on official planning experts, but upon the development strategy of local government. The vision of local government officials plays an important role. Efficient city planning and development require government leaders to possess the qualities of excellent entrepreneurs – good judgment and decision abilities (Casson 1982). Facing a dynamic and diverse world, government leaders have to collect any possible information to develop proper visions and adjust expectation. Moreover, as their vision and expectation are subjective, once government leaders leave office, their planning is subject to revision, if not complete change once new officials take office. To attract large business enterprises, government officials often have to adjust their planning in line with investors' requirement. In areas with fast economic development, rigid planning leads to inefficient allocation of resources, as the lack of planning often does.

Planning experts and government leaders are unable to collect all local information and calculate all future possibilities (Hayek 1945). Just like entrepreneurs, when there are too many detailed issues to consider, government leaders are restrained by their knowledge and judgment ability. Experts and leaders' judgments and expectations are subject to fallacies. The nature of the problem is how to allocate planning rights to use dispersed knowledge in society. The efficient allocation of planning rights requires the participation of visionary people.

One crucial factor that Jiaolong developed fast is the acquisition of planning rights. The maximization of land rent in the limited area of 4 km² requires Jiaolong to acquire planning rights to efficiently allocate land among different usages, including industrial plants, apartments, schools and roads. Industrial upgrading and population concentration also lead to the fluctuation of rents and adjustment of land use. The investment contract transfers planning rights from the government to Jiaolong so that Huang could use his knowledge and vision for more efficient planning, according to price signals. In 2010, as more people resided in Jiaolong, Huang foresaw the increasing demand for entertainment and leisure, and built the first five-star movie theater in Shuangliu County. The theater now ranks top 5 of the Pacific Chain, before five more similar theaters emerged in the county. Jiaolong also built the first modern shopping mall in Shuangliu. Even though it is not located in the center of county, it is able to attract consumers from as far as Chengdu because the shopping mall also houses an aquarium and a natural ice rink. With many years of business experiences, Huang has a keen vision for urban development. If Jiaolong did not acquire the planning rights from the government, Huang's vision could not be fully utilized.

The development and upgrading of Jiaolong is the result of the combination of Huang's business vision and market price signals. The foundation is the transfer of planning rights from Shuangliu government through the investment contract.

3.4 Tax sharing

After the acquisition of planning rights, Jiaolong needs to have the right to income flow generated there for sustainable investment. Income comes from two parts: the rental income from plants, office buildings, and apartments and the tax revenue shared with Shuangliu government. A crucial and innovative component of the investment contract is that Shuangliu government rewards Jiaolong with 25% tax revenues as long as Jiaolong achieves the promised tax target. With this tax reimbursement from the local government, Jiaolong is able to design a similar tax-sharing contract with its tenants. As a result, all parties involved in the development of Jiaolong, from the local government, to Jiaolong Co., to its tenants, are incentivized.

Incentives from tax sharing are first reflected in the plant rental contract. The contract specifies that if a firm which rents a plant in Jiaolong has not achieved certain tax goal, the firm makes additional payment to Jiaolong: “the yearly total tax should achieve the construction area standard of 15,000 yuan/1,000 m²; otherwise, the firm voluntarily agrees that Jiaolong charges an extra fee of 3 yuan/m²”.

The office building rental contract further specifies a 50% tax sharing agreement: “for each 100 m² that contributes more than 10,000 yuan tax, the firm is entitled to 50% tax reimbursement, that is, half of the tax revenue paid to the local county government will be returned to the firm”.

For entrepreneurs and individual businesspeople who have achieved certain tax target, Jiaolong Co. covers the tuition for their children who attend Jiaolong Five Star School, a private school with tuition 2,000–3,000 yuan per semester:

“1. For firms settling in Jiaolong, and paying an annual tax above 500,000 yuan, one child of the employers’ can be enrolled at the private school under a preferential policy for each additional increase in tax of 50,000 yuan.

3. For individual business in the service industry, and paying tax above 50,000 yuan, one child of the business owners’ can be enrolled at the private school under a preferential policy for each additional increase in tax of 50,000 yuan.”⁷

These contracts show that Shuangliu Government, Jiaolong Co. and firms settling in Jiaolong signed a series of sharing agreement. These contracts make government, Jiaolong, and firms share the benefit of urbanization, and motivate each party to maximize the total rent above land. The government has incentives to provide public services and property right protection for Jiaolong Co. and firms. The government also builds an arterial road and residential districts

7 “On the Development of Education of Jiaolong Park” (Chengdu Jiaolong [2010] No. 074), Chengdu Jiaolong Industrial Park Administrative Commission, 2010. 7. 31.

around Jiaolong, so as to facilitate transportation and appreciation of land value. The leading group coordinates government administrations, provides “one station” registering services, and tries to solve issues in power supply, schooling, and land. Tax sharing contracts endogenize the externality of infrastructure investment, and motivate Jiaolong to provide attractive business environment, improve infrastructure, and offer property services.

Cheung (2014) proposes that the sharing of value-added tax between the county and central government motivates China’s regional competition, which is essential for China’s economic growth. This paper complements Cheung’s study and shows how tax sharing contracts solve the externality problem and provide incentives for corporations to operate a city. Free services and free tuition policy can also be viewed as other forms of tax sharing provisions.

3.5 The rental contracts of plants, office buildings, and apartments

Rents from plants, office buildings, and apartments are the second important source of income. The rental payment consists of two parts: deposits and monthly rents (usage fee). The following exhibits payment schedules for three types of contracts respectively:

The 3-year plant rental contract in 2015 states the deposit for a 1,000 m² construction area is 40,000 yuan (40 yuan/m²), and the monthly rent is 15 yuan/m².

The 40-year office building rental contract in 2011 states for an area of 685 m², the monthly rent is 3 yuan/m², and the deposit is 3 million yuan (4286 yuan/m²).

The 60-year 80 m² apartment rental contract in 2012 (renewed twice) states that the deposit is 2,653 yuan/m² (total deposit is 210,000 yuan), and the monthly rent is 0.5 yuan/m².

These contracts show that deposit for plants is lowest, 40 yuan/m² versus 4,286 yuan/m² for office and 2,653 yuan/m² for apartments, but with highest monthly rental rate (15 yuan/m² versus 3 yuan/m² for office and 0.5 yuan/m² for apartments). Jiaolong constantly updates its industrial structure by transforming land from industrial use to business or residential use. The terms of contract for plant contract is 3 or 5 years, office buildings 5 or 40 years, and apartments 5, 10, or 60 years.

There is a default renewal provision in the office building and apartment rental contracts. Article 214, Chapter 13 of the Contract Law specifies, “The lease

term may not exceed twenty years. If the lease term exceeds twenty years, the portion of the lease term beyond the initial twenty-year period is invalid. At the end of the lease term, the parties may renew the lease, provided that the renewed term may not exceed twenty years commencing on the date of renewal.” The default renewal provision is found in office building and apartment contracts. For example, the aforementioned office building contract specifies, “if there is no check out or renewal 7 days before the contract expires, the contract will be renewed by default, automatically turning to the second 20-year period, and the deposit of the original contract will be turned to the second 20-year period too”. The office building and apartment contract can be automatically renewed twice by default.

The contract specifies that after the term expires, Jiaolong Co. returns all deposits without interests to the tenant. For apartment contracts, if tenants withdraw ahead of the schedule, Jiaolong will keep 50% of the deposit as penalty for early withdrawal.

The apartment can be subleased and the market is quite active. On the lease term, tenants pay 5% fee to transfer their units. Sellers and buyers negotiate the price of transaction freely; but the new tenant needs to apply for a new contract from Jiaolong Co.. In the new contract, the contractual terms, including deposit and rents, remain the same. When thousands of tenants sign contracts with Jiaolong Co., Jiaolong Co. becomes the central contractor in the rental market for apartments. The standard rental contracts, the same transfer fee, and the central contractor are institutional arrangements to reduce transaction cost in the market. These arrangements facilitate Jiaolong Co. to replace the governmental housing administration to coordinate market transactions.

The default renewal provision shows that under the Contract Law, deposit is the price for the use right extending over 20 years. Theoretically, both rents and sale incomes are payments to transfer use rights, corresponding to different contractual structure. The choice of contractual structure depends on laws, customs and other constraints. The Land Administration Law permits the market of the state-owned land, but forbids the transfer of the use right of collective-owned land to people outside the collective. As a result, Jiaolong does not have legal rights to build apartments for sales. Jiaolong chooses rental contracts instead of sales contracts so as to avoid legal restrictions. The default renewal provision and the high deposit are designed to facilitate transactions under this legal constraint. The government Housing Administration Agent does not provide legal services for housing transactions on collective-owned land, a vacuum filled by Jiaolong Co.. Thousands of firms and people have accepted these contracts, showing that their expected income from contracting is larger than the transaction cost of illegal transactions.

3.6 Land rental contract

In most cases of urban development in China, cities acquire land by taking. Government taking reduces coordination cost in land transfer. But it is not costless. Under Chinese legal system, government taking converts landownership from collective to state. It is often reported in China that land taking by the local government without giving sufficient compensation to farmers is a major source of protest and instability; such social unrest reflects a hidden type of transaction cost, in addition to remuneration paid to farmers.

Jiaolong Co. acquired land use rights by contracting rather than land taking. In 2003, farmers from eight villages of Jiujiang and Dongsheng Town assigned their land contract rights to village collectives. The collectives then signed land rental contracts with Jiaolong Co. The rent is the price of 1,200 jin rice (with 5% increase every 3 years and the conservative price is 2.6 yuan/kg) and the lease term is 55 years. In addition, Jiaolong Co. signed house removing and payment contracts with sub-district government offices and farmers. One contract in 2004 shows that the payment (including new apartment and monetary payment) to a family with 3 people is 119,000 yuan, and another in 2006 shows that the payment is 88,000 yuan. In 2014, the payment for a farmer with a three-room house reaches 420,000 yuan.

In urban development, there are two approaches. The first is to sign contracts with all contractual parties before development starts. The other is sequential contracting. That is, the developer signs contracts with some parties first. As development continues, it signs contracts with others later. It is difficult to have all parties on board, but sequential contracting involves high transaction costs because urban development generates spillover effects so that later parties may demand high rental price from the developer, raising the contracting cost, even if we don't consider possible hold up problems.

Consider a simplified example. Suppose John and Mary are owners of adjacent land parcels A and B. Before John develops parcel A, John and Mary have divergent valuation of parcel B. For example, John values B at 200,000 yuan and Mary values B at 50,000 yuan. John pays Mary 50,000 yuan to acquire the use right of parcel B and receives the surplus value of B. The appreciation of B is the payment for John's business vision and entrepreneurship. If John develops parcel A before he acquires parcel B, and the value of A rises, Mary will acquire the knowledge from the development and raises her valuation of parcel B. In addition, the development of parcel A might attract human flows and increase value of parcel B. Suppose Mary's valuation of Parcel B rises to 200,000 yuan, then John has to pay a price higher or equal to 200,000 yuan to acquire B. But if we consider transaction cost, it might not be profitable for John

to buy B now. The existence of transaction cost might impede sequential development and exchange of property rights.

Signing contracts with all contractual parties before development imply high payment to acquire property rights before receiving any earnings. If Jiaolong Co. acquires land use rights from all farmers residing in the 4 km² area, Jiaolong Co. must pay farmers a lot of money and thereby bear a large financial burden and risk. There is a tradeoff between financial burden in the early development stage and high price for land in later stage.

To reduce its financial burden, Jiaolong Co. chooses the strategy of sequential development. Jiaolong Co. signed contracts with some farmers, and after the initial development, Jiaolong contracted with other farmers and extended the development region. However, the price paid to other farmers gradually rose, because more workers came to rent rooms in villages. One household has about 20 rooms, each with 15 m² and monthly rent 200 yuan. Rental income from workers is around 50,000 yuan, higher than the price paid by Jiaolong. As a result, by now, there are still 4 villages with 855 mu land (or 570,000 m²) waiting to be compensated before Jialong can acquire their land.

Unlike most cases of urban development in China, Jiaolong acquired land by contracting instead of taking, and thus paid higher prices for land use rights. We have to keep in mind that contracting parties must find the deal mutually beneficial. On the other hand, if the local government first takes land from farmers and resells it to the developer, the developer may pay a lower price to obtain land use rights. However, farmers may not like the deal; over time their cumulated resentment may take a radical form to erupt and imposes a high price to the society.

3.7 Jiaolong community

Above discussions show that Jiaolong Co. is the central contractor of Jiaolong Park. The contracts between Jiaolong Co., Shuangliu government, farmers, sub-district offices, firms, and apartment tenants form a web of contracts in the process of urban development. One important participant of urbanization, the indigenous Jiaolong Community, however, stands outside the web of contracts. Jiaolong Community, covering an area of 3.93 km² and overlapping with Jiaolong Park, consists of by 4,013 people from eight natural villages. In addition to these original residents, 50,000 people who work in Jiaolong now currently live there.

Jiaolong Community is a political organization for indigenous farmers. But it is not a collective and does not have any collective assets. Jiaolong Co. provides infrastructure, schools, and auxiliary police, whereas the Community provides

public services such as explaining and publicity, government policy, birth control, and social security. Employees of the Community does not have administrative establishment, and their wages come from government allowance. The economic rights and political rights are separated. By contracting for property rights, Jiaolong Co. acquired property rights that could be defined by contracts, and the Community kept other rights that are hard to be defined.

4 The contractual nature of city

The city is a place where a large population with separated and dispersed property rights concentrates. These property owners form a close contractual web by a series of contracts. People are connected by employment contracts, shopping contracts, transportation contracts, marriage contracts and so on. Urbanization is a process in which the contractual web grows in density and variety. The essential question in urbanization is how to efficiently reallocate property rights.

With out any planning, property owners freely sign contracts to redefine property rights. The preconditions for efficient urbanization include the clear definition of property rights and low contracting costs. The zero transaction cost world, however, does not exist. Allocation of resources by the government may reduce transaction cost by central contracting and coercion, but it might also make fallacies and misallocate resources. The fundamental reason is that millions of citizens have special knowledge of their own life. Neither officials nor planning experts are able to acquire all of the knowledge. They are unable to predict all future possibilities either. Moreover, there is no way to constrain government borrowing or to correct their mistakes. Government coordination and coercion would reduce transaction cost in urbanization, but it would also raise other costs in urbanization, such as social protest, incorrect prediction and shortsighted planning.

The urbanization of Jiaolong is not based on coercive power, but by a series of contracts with Shuangliu government, firms, farmers, residents and other relevant parties. As the central contractor, Jiaolong Co. is able to simplify the contractual web and reduce coordination cost. The essential contracts are the investment contract with the county government to transfer planning rights, and a series of contracts with the government and firms to share tax. Tax sharing contracts define the income rights for Jiaolong so that Jiaolong could share the surplus of urban development and infrastructure construction. Sharing contracts also motivate Shuangliu government to provide public services including protection of property rights. A series of contracts transfer planning rights, land use rights, and income rights to Jiaolong Co., and thereby endogenize the externality of infrastructure building and urban development. From the perspective of

institutional change, Jiaolong offers a case of contract-based rather than coercion-based urbanization, the latter being the typical approach in China.

Yujiao Huang is the central contractor of Jiaolong Co.. Huang has a talent in coming up with innovative contracts to solve problems. Huang receives the surplus income from developing Jiaolong, and thereby has incentives to make efficient planning, invest in infrastructure building, coordinate relevant property owners, and provide services for firms. The contractual structure is essential for Huang to play a decisive role in the development of Jiaolong. The probabilities that Huang makes mistakes, however, also increase as he organizes more and more transactions. As Jiaolong organizes more transactions, and as the contractual web becomes more complicated, the contractual cost will rise and challenge Huang's ability. Today, the difficulty in removing the few remaining village houses in Jiaolong and the growing financial risk are testing Huang's operation and management ability. The number of transactions Jiaolong Co. could organize and the allocation efficiency depend on the rate of the rising cost vis-à-vis Huang's growing ability in contract innovation.

The efficiency of a city operated by corporations largely depends on the ability of entrepreneurs. By what mechanism can we select able entrepreneurs? Before Huang was invited to Shuangliu, he had been operating a 1 km² industrial park in Qingyang, a nearby town. Shuangliu government chose him according to his prior performance. Tax sharing contracts and the transfer of planning rights motivate Huang to invest in infrastructure. Would that be possible to form the market of planning rights to select entrepreneurs?

In most Chinese cities, the local government is a central contractor to organize transactions in urbanization. It makes city planning, acquires farmers' land, invests in infrastructure, sells land use rights, and provides public schools, hospitals, police security and other services. In return, the government receives incomes from selling land and value-added tax. All of these endogenize the externality of infrastructure building and public services. As the central contractor, the government defines basic property rights by coordination and coercion.

Cities operated by governments and Jiaolong are two types of urbanization lying on a wide spectrum. Between them exist cities in which the government contract and define some property rights, leaving other rights to corporations, villages, and farmers. One example is Tianan Cyber Park in Dongguan, Guangdong province, which is an industrial park serving small science and technology firms. The park occupies an area of 16,000 m², much smaller than Jiaolong. In this park, Tianan Co. makes planning, builds road, constructs commercial and residential buildings, sells offices and apartments, and provides financial and consulting services. Tianan Co. buys land use rights from the local government, which collects incomes from land sales and taxes from firms

registered there, provides police and other public services. In this case, the local government is the central contractor of the city. Tianan Co. organizes some transactions, using the basic contractual web organized by the government. Another type of city is like Zhengge Zhuang, where village leaders organize farmers on their own land, make planning, build roads, commercial and residential buildings, and sell them to the public. All income revenues, except for taxes, go to the village. We also observe urban villages in Shenzhen, where some farmers construct apartment buildings of 20 stories and rent them to migrant workers. In some urban villages, there is no planning or public services, and some farmers' rental income reaches even 60,000–100,000 yuan per month. It is difficult, that is, expensive, for either the local government or corporations to coordinate so many farmers who receive such a large flow of rental income.

The differences between various types of cities are contractual structures and degrees of government involvement in defining property rights. The real question is under what conditions one type of contractual arrangements emerges. Following Coase (1937), this paper proposes that the minimization of transaction costs leads to different contractual structure of the city. On the margin, if the cost of organizing an additional transaction (or the exchange or redefinition of property rights) is smaller by contracting with government than contracting with corporations, government will organizes more transactions. Otherwise, corporations will organize more transactions. What factors determine the costs? Special locations, culture, histories, entrepreneurs, and public opinions can certainly influence the contractual choice. But to discover regularity, we need to understand the legal and political institutions underlying the basic resource allocations.

First, the government owns legitimate coercive power to take farmers' land. Coercion reduces coordination costs among farmers, but also raises the possibilities of social protest. Where coordination costs are high, we expect to see more cities develop using coercive government power. In such places, it is less likely to observe cities organized by corporations or village leaders. Chengdu's easy-going culture and quiet collectives is probably one reason why Jialong Co. is able to emerge as a primary player in local urban development.

Second, Chinese Land Administration Law forbids the transfer of land use rights to people outside the collective.⁸ As a result, the rural land market is not

⁸ The Law of Land Administration of the People's Republic of China. Article 43 Any unit or individual that need land for construction purposes should apply for the use of land owned by the State according to law, except land owned by peasant collectives used by collective economic organizations for building township enterprises or building houses for villagers or land owned by peasant collectives approved according to law for use in building public facilities or public welfare facilities of townships (towns). Article 63 The land use right of

well developed, limiting contract-based urban development. If the Chinese government changes its land law and allows the market for collective land use rights, we expect to see more contract based city development, following the steps of Jiaolong and Zhengge Zhuang. Otherwise, the government will continue to be the major force pushing for urbanization, with all its benefits and risks.

Third, the tax sharing agreement, which is crucial for the success of Jiaolong, can be denied by the central or provincial government.⁹ As the tax sharing contract is not protected by law, the default risk is high. If the contractual freedom, that is, the right to use tax sharing contract by the local government and private actors, is firmly protected by law, we expect to see more cities developed by contract.

Fourth, Urban and Rural Planning Law requires the overall planning of towns shall be established by the government of the town and approved by the government at the next higher level. This provision raises the cost that corporations face in acquiring rural land and urban development. Jiaolong acquired planning rights from the county government, and the plan only needs to be put on record of the local planning administration office. If the plan must be examined and approved in advance by the county government, Jiaolong would have to face a much high cost of acquiring planning rights.

These political and legal institutions set the context for different urban development processes to compete. The minimization of transaction costs in achieving highest potential income drives the choice of contractual arrangement, subject to specific local conditions.

5 Conclusion

Most literature on urbanization treats cities as a black box or production function. This perspective, however, ignores that resources, the flow of which constitutes a city, are dispersed and separately owned. If we look carefully at daily urban life, we will see a large number of transactions and contracts to redefine property rights. Steven Cheung's insights on the contractual nature of the firm (Cheung, 1983) and share tenancy Cheung (1969) have wider applications. This paper looks at the city, particularly, city development, from the contractual perspective. In essence, cities are also formed by a series of contracts. To understand different

peasant collectives shall not be leased, transferred or rented for non-agricultural construction, except in the case of legal transfer of the land that conforms to the general plan for the utilization of land and legally obtained by enterprises due to bankruptcy or acquisition.

⁹ In 2014, the State Council forbade local government for tax reimbursement. In 2015, the State Council revoked this policy (the State Council Paper [2014] 62).

types of cities, we need to understand their basic contractual structure and the underlying transaction costs.

Jiaolong provides an interesting case to study the contractual nature of the city. With no government coercive power, Jiaolong was able to coordinate dispersed property owners and overcome externalities in infrastructure investment. The underlying contractual web is essential to understand its success. Specifically, the planning rights and tax sharing agreement authorized by the county government, and Jiaolong as a central contractor signing a series of contracts with various parties, are primary reasons for its success to be a city developer. Underlying this contractual structure are institutional arrangements such as restrictions on the transfer of collective land use rights. While the local government operates most cities in China today, institutional changes in political coercive power, planning law, land law, and tax law, will significantly change the picture, giving rise to more contract-based urbanization.

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