Mechanism for Increasing Effective Inputs in Urban Agriculture through Industrial Value Chain

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Abstract This paper firstly introduces the value chain management thought, current situations of utilization, and connotation of mechanism for increasing effective inputs in urban agriculture through industrial value chain. On the basis of basic idea of value chain management, this paper is to explore the mechanism for increasing effective inputs in urban agriculture through the value chain of urban agriculture linking with other industries.

Key words Urban agriculture, Industrial value chain, Effective inputs, Mechanism

The problem of insufficient agricultural inputs has been restricting China’s agricultural development. When expanding capital utilization becomes bottleneck of China’s agricultural development, effective utilization of agricultural input resources will become an important approach to increasing agricultural inputs. Here, on the basis of basic ideas of value chain management, it is expected to study the mechanism for increasing effective inputs of urban agriculture through value chain of urban agriculture linking with other industries, to make urban agriculture have a better development.

1 Value chain management thought and current situations of its application

The value chain is a concept from business management that was first described and popularized by Michael Porter in his 1985 best seller, Competitive Advantage: Creating and Sustaining Superior Performance. A value chain is a chain of activities. It categorizes the generic value-adding activities of an organization. It tells us that activities of enterprises have relation of division of labor and cooperation. Besides, the value chain of enterprises is not isolated, and it exists in wider value system and becomes an integral part of the value chain. The value chain management thought sprouts, develops and matures along with development of business management. At present, more and more scholars begin to explore application of the value chain management thought. Vitality of the value chain management mainly lies in taking the value creation system as a whole. It is to optimize core business process, foster and raise core competitive power of enterprises through disintegration, integration and networking of value chain, to realize optimum management, make enterprises establish a set of management mode suitable for market competition, reduce operating and management costs of enterprises, raise operating efficiency and finally realize adding of enterprise value.

In addition, some scholars popularize basic ideas of the value chain management in industrial economic research, and study the industrial linking between agriculture and other industries, to integrate agricultural industrial chain.

2 Connotation of mechanism for increasing effective inputs in urban agriculture through industrial value chain

The problem of insufficient agricultural inputs is always a bottleneck of China’s agricultural development. Currently, China is gradually promoting multi-channel, multi-level and diversified agricultural investment and financing system with government financial investment as guide, enterprise and farmer input as subjects, credit inputs as drive, and foreign capital investment as supplement. However, promotion of this investment and financing system is restricted by such factors as financial ability of government, market operating mechanism, agricultural development situations, operating principles of commercial banks, as well as perfection of relevant policies, laws and regulations. When expansion of capital utilization becomes a bottleneck of China’s agricultural development, the effective utilization of agricultural input resources will become an important approach to increasing agricultural inputs.

The connotation of mechanism for increasing effective inputs in urban agriculture through industrial value chain is mainly manifested in following three aspects. Firstly, it is possible to promote conversion of agricultural inputs into actual productivity through urban agriculture linking with other industrial value chain. Secondly, it is possible to effectively increase resource accumulation of urban agriculture through obtaining and utilizing complementary resources of other industries with the aid of urban agricultural linking with other industrial values. Thirdly, it is possible to obtain resource spillover effect through deepening and popularization of complementary resources of other industries.
3 Mechanism for increasing effective inputs in urban agriculture through industrial value chain

3.1 Promote effective conversion of urban agricultural inputs into actual productivity

According to Maxist view, the circulation of capital is the unity of processes of production and circulation, while all circulation phases take value adding as purpose, namely, the process of capital circulation is the process of realizing value adding. To obtain constant value adding in successive operating activities, enterprises should constantly improve operating activities, minimize costs for operating activities and maximize the created value. Therefore, what the value chain management should do is optimizing operating activities of enterprises in an uncertain environment, to maximize added value of enterprises.

In these situations, it is proposed to popularize the application of value chain management thought in urban agricultural development, establish strategic alliance through linking agriculture and other industries, to realize value linkage of agriculture with other industries. Besides, it is recommended to take full advantage of support and induced effect of other industries, and improve urban agricultural production, to promote effective conversion of agricultural inputs into actual productivity.

3.1.1 Promote optimization of agricultural structure.

Along with rapid development of industrialization and urbanization, market imposes new requirements on functional orientation of urban agriculture, which will provide broader value adding space for urban agriculture. Thus, urban agriculture should suit demands of industrialization and urbanization, take urban market demands as cutting point of analyzing and determining value adding, explore internal potential of value adding, seek value adding sections in strategy, and promote economic function of urban agriculture. It is proposed to adjust extensive cultivation agriculture into low consumption, high efficiency and high quality environment-friendly precision agriculture, make urban agriculture gradually transform to multi-functional agriculture oriented towards serving cities, enriching farmers, bringing out a prosperous economy and optimizing ecological system from traditional economic functions. In addition, we should take the road of agricultural development oriented towards market, combine with internal factors, adjust agricultural structure, and develop agricultural economy with certain advantages, high scientific and technological contents, and high added-value, to expand urban modern agriculture with new functions.

Small scale of urban agriculture determines that it should take high efficient recycling of resources as cutting point of value adding and seek value adding sections in strategy. It is proposed to find out its potential of superior resources according to comparative advantages of urban and rural areas, vitalize its superior resources, take full advantage of endowed resources, turn characteristic superior resources into special advantageous agriculture, implement regional, specialized and appropriately large-scale operation, promote adjustment of agricultural structure, and push forward optimum distribution of urban agricultural resources. Nevertheless, to realize constant optimization of urban agricultural structure and constant thinning of agricultural labor division in current productivity level of urban agriculture, we need rely on advantages of cities in science, technology, funds, talents, traffic, information and market; we also need deepening coordinated relationship between urban agriculture and other industries; and seek support of strategic factors through close cooperation with research and development, production, process and marketing of agricultural products.

The urban agriculture is interdependent, complementary and mutually promotive with other industries. It provides agricultural products for other industries as means of production and means of subsistence, while expansion of value-adding space for urban agriculture depends on higher value system that is connected with upstream and downstream industries, and relies on support and drive of other strong industries. Using the value chain of urban agriculture linking with other industries, it is possible to extend the existing industrial advantages of other industries to urban agriculture, expand the space of value adding of urban agriculture, promote its structural adjustment, accelerate thinning of urban agricultural labor division, and bring along intensive use of urban agricultural resources.

3.1.2 Boost production efficiency.

Agricultural production activities will lead to agricultural production operating cost, management cost and opportunity cost. The agricultural production operating cost is limited by such external factors as macro – market, and scientific and technological development level; the management cost mainly comes from demands for coordinating the relationship with other interest-related subjects; opportunity cost is incurred from failure to reach optimum resource distribution.

Through popularizing the application of the value chain management thought in urban agricultural development and utilizing the value chain of urban agriculture linking with other industries, it is able to obtain support of other strong industries in technologies, talents and market, closely cooperate with research and development, production, process and marketing of agricultural products, bring along intensive use of urban agricultural resources, and reduce cost of agricultural production activities. Besides, with the aid of the value chain of urban agriculture linking with other industries, we can strategically identify and explore cutting point for realizing value adding of urban agriculture in industrial value chain, grasp strategic sections of value adding in research and development, production, process and marketing of agricultural products, get rid of those agricultural production activities without value adding, put together resources to foster competitive advantages, and raise utilization efficiency of urban agricultural resources, to promote increase of agricultural production efficiency.

3.2 Effectively increase resource accumulation of urban agriculture

According to economic ideas of transaction cost put forward by the Nobel Economics Prize winner, Ronald H. Coase, enterprise and market are replaceable with each other in resource distribution. Inside enterprises, resources are distributed by entrepreneurs; outside enterprises, resources are allocated by a series of market transactions, but which one will
distribute resources depends on the cost for resource distribution. This principle is also suitable for resource distribution of urban agriculture.

The value chain of urban agriculture links with other industries mainly through establishing various strategic alliances. The strategic alliance is a newly emerging economic organization, and a means of resource distribution existing between market and enterprise. Existence and development of strategic alliances lie in their capability of saving cost of resource distribution, making parts of activities of resource distribution become internalized and parts of activities oriented towards market. Through establishing various strategic alliances, it is possible to realize value chain of urban agriculture linking with other industries, and extend urban agricultural resources to industry outside from inside. According to basic ideas of Michael Porter theory of competition strategy and competitive advantage, the competitive advantage of an enterprise comes from unique resource of the enterprise. Economist, Deng Ning, made further expansion on the basis of this. In his opinion, in order to succeed in expansion, an enterprise must effectively integrate three types of advantages; ownership advantage, internalization advantages, and location advantages. The ownership advantages come from exclusive resources of enterprise; internalization advantages stem from better effect of taking full advantage of unique resources than market and other enterprises; location advantages come from enterprises taking full utilization of local resources, this principle is also applicable for expansion and development of urban agriculture.

At present, costs are rising for research and development of agricultural products, new agricultural technologies constantly spring up, pace of agricultural innovation is accelerating, and life cycle of technologies and products becomes shorter and shorter, so it is increasingly hard to obtain ownership advantages only relying on accumulation of agricultural resources. Besides, rapid development of science and technologies and increasingly keen competition of agricultural product market, management environment of agricultural production becomes more and more uncertain, and it is difficult to bring into full play resource advantages only relying on its own forces. In addition, if establishment of marketing network of agricultural products only relies on its own forces of urban agriculture, there will be problems of huge investment and long term of returns on investment, and it is hard to bring into play its own location advantages. With the aid of value chain of urban agriculture linking with other industries, we can extend urban agricultural resources to industry outside from inside, vitalize its own superior resources relying on support of other powerful industries for urban agriculture, turn characteristic superior resources into characteristic superior agriculture, and effectively integrate the ownership, internalization and location advantages of agriculture. In this way, the value chain of urban agriculture linking with other industries becomes an important way of urban agriculture successfully expanding, also effective supplement and important replacement for traditional expansion of urban agriculture.

During the cooperation of strategic alliance, resource suppliers usually will not reduce resource stock for the benefit of the alliance, particularly when cooperative partners supply resources in the form of knowledge, experience and technology. However, even if resource supplier do not reduce resource stock, it is still possible to obtain resources from cooperative partners and effectively increase resource accumulation. Then, the strategic alliance becomes a legal and effective approach to obtaining and utilizing complementary resources possessed by cooperative partners.

Therefore, it is proposed to popularize the application of the value chain management thought in urban agricultural development, push forward aggregation of such strategic elements as science, technology, talents and funds towards urban agriculture through the value chain of urban agriculture linking with other industries. Besides, through obtaining and utilizing complementary resources of other industries, we can effectively increase resource accumulation of urban agriculture and bring into full play comparative advantages of urban and rural areas. In addition, it is recommended to develop superior economy with high return, great market potential and competitive power in line with local conditions. Furthermore, we may integrate resource, function and location advantages of urban agriculture, to bring urban agricultural economy with scientific and reasonable regional distribution and specialized labor division, and realize expansion at low cost.

### 3.3 Obtain resource spillover effect

In 1959, on the basis of resources and abilities of enterprises, the economist Penrose put forward that the sustained competitive advantages of enterprises come from unique resources and abilities possessed or controlled by enterprises. To obtain sustained competitive advantages, enterprises should constantly accumulate resources and abilities, and bring into full play their functions.

It is difficult for any enterprise to own all kind of strategic resources required for keeping sustained competitive advantages. In this situation, the strategic alliance provides a legal and effective approach to obtaining and utilizing complementary resources possessed by cooperative partners. In addition, the complementary resources provided by cooperative partners not only can be used in collaborative project with cooperative partners, but also can be used in other business activities, to make enterprises obtain the resource spillover effect.

Along with the advent of economic globalization and informationization, human society has stepped into a new knowledge-based economic time, accordingly, the environment of agricultural production and operation also changes fundamentally. Experience of agricultural developed countries also indicates that the basic path for agricultural development lies in transformation of resource-dependent to science and technology promoting type. Agricultural production, operation and development do not mainly depend on such traditional resource elements as capital, natural resources and labor forces any more, knowledge is becoming the most active and important part of productivity factors, and becoming the key resource, on which the industrialized operation and development of agriculture depends.

According to basic ideas of Organizational Learning put forward by economist Argeris, along with aggravation of market
conclusion and rise of uncertainty of external environment, enter-
prises must establish open and dynamic high efficient learn-
ing mechanism, grasp new knowledge and skills, seek com-
petitive advantages, and deal with change of external environ-
ment through continuous learning, to obtain survival and develop-
ment.  

The strategic alliance is an effective way of carrying out learn-
ing between organizations. On one hand, it provides co-
operative partners with channels of mutually leaning explicit 
knowledge. On the other hand, when cooperation is achieved
between cooperative partners possessing different skills, know-
ledge and culture, the strategic alliance will create unique learn-
ing opportunity for cooperative partners, obtain hidden know-
ledge and skills of cooperative partners, and jointly create new 
knowledge and skills that can be shared. Besides, strategic all-
iances between competitors are more favorable to building plat-
form for learning between organizations, because cooperative 
partners use similar technologies, satisfy similar market de-
mands, and provide substitutive products. 

Through popularizing the application of the value chain 
management thought in urban agricultural development and uti-
lizing the value chain urban agriculture with other industries, 
we can push forward the cooperation in research and develop-
ment of new agricultural products or technologies. In the course
of cooperation, it is able to continuously learn and accumulate
various types of knowledge, obtain and utilize knowledge, ex-
perience and technology owned by other industries. Then, 
through deepening and popularizing, it is expected to turn them
into comprehensive strength of urban agricultural development,
promote core competitive power of the urban agriculture, en-
hance the ability of responding to changing external envi-
ronment, and take this as a type of management thought of urban 
agriculture, to seek survival and development.

4 Conclusions

In the Proposal for Formulating the 12th Five – Year Pro-
gram for China’s Economic and Social Development (2011 – 
2015) put forward at the Fifth Plenum of the 17th CPC Central
Committee, it clearly states that the 12th Five-Year Plan period
is a crucial stage for building a moderately prosperous society
in an all-round way and a time of difficult issues for deepening
the reform and opening-up process while accelerating the trans-
formation of the nation’s economic development pattern. In this
period, it is required to take scientific development as the
theme and accelerate transformation of the pattern of economic
development as the main thread, and make transformation of
economic development mode run through whole process and all
fields of socio-economic development, to achieve higher level
of comprehensive, coordinated and sustainable economic de-
velopment. Therefore, it is adaptable to this important require-
ments for taking such measures as application of the value
chain management thought in the urban agricultural develop-
ment, taking full advantage of support and induced effect of
other industries, promotion of opening-up and expansion of ur-
ban agriculture, and increase of effective inputs of urban agri-
culture.

References

[1] MICHAEL PORTER. Competitive advantage[M]. Translated by
[2] COASE RH. Firm, market and law[M]. Translated by CHEN X.
[3] PIERRE DUSSAUGE, BERNARD GARRETTE, LI DH. Coopera-
tive Strategy[M]. Beijing: Renmin University of China Press,
[5] PENROSE ET. Penrose’s firm growing theory[M]. Translated by
[6] CHRIS ARGYRIS. Organizational learning[M]. Translated by ZHANG
[7] YANG JM, ZHI G. Study on multi-dimensional expansion of forest-
ery industrial chain[J]. Journal of Anhui Agricultural Sciences,

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