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**DISRUPTIVE INNOVATION:
THE RISE OF THE KNOWLEDGE-SHARING
MARKET IN CHINA**

Disruptive Innovation: The Rise of the Knowledge-Sharing Market in China

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An Honors Thesis Submitted to
the International Studies Department
at Macalester College, Saint Paul, Minnesota, USA

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Abstract

Innovation is a major subject of international political economy, but mainstream discussions focus on scientific research and development and detach innovation development from their social contexts. In response to this view, this project reveals the importance of cultural and social factors in influencing innovation development by examining the rise of the knowledge-sharing market (KSM) -- a social-network-site-based economy in China. It suggests the KSM is a disruptive innovation not only because it is pioneered by a latecomer in the global innovation market, China, but also because its emergence from the changing Chinese consumer demands disrupts the mainstream thinking of innovation.

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Acronyms

B2C	business to consumer
C2C	consumer to consumer
FDI	foreign direct investment
GPN	global production network
IP	intellectual property
IPE	international political economy
IPR	intellectual property rights
KSM	knowledge-sharing market
MNC	multinational corporation
NIS	national innovation system
OECD	Organization for Economic Cooperation and Development
Q&A	question and answer
R&D	research and development
SOE	state-owned enterprise
SNS	social network site
SME	small and medium-sized enterprise
ZTE	Zhongxing Telecommunication Equipment Corporation
WTO	World Trade Organization

Introduction

Background

In the field of international political economy (IPE), world regions are often categorized by terms such as “developed” and “underdeveloped”. Similarly, the products, technologies and institutions of different regions are characterized by words such as “advanced” and “backward”. The contrasts between the meaning of these words convey a sense of time. Using these words to capture and compare spatial differences is thus temporalizing those differences by establishing relationships between regional features and a universal temporality. This temporality has been empirically defined and shaped by the capitalist development in Western or developed countries.

Meanwhile, the notions of efficiency, objectivity and scientificness have made people favor adopting quantifiable measures and physical outcomes to set the standards for evaluating development. While this type of approach can be useful for various reasons, it also obscures the historical processes and social contexts by which things and beings come into existence. What makes such approach dangerous and unjust is when the evaluation carries value judgments and suggests the desirableness and undesirableness of things and beings.

While much work in IPE and development studies fall into this danger, I have personally stepped into the debate about innovation, partly because of the US-China trade war in 2018. Through my half-year-long research, I found that both media portrayal and academic publications, when writing (predominantly in English) about China’s innovation, tend to criticize the backwardness and immorality of China’s innovation sector; namely, China lacks its own innovation, and it fosters domestic innovation

development by forcing foreign firms to transfer knowledge to Chinese firms and stealing technology from them. The country has thus violated intellectual property rights and severely harmed the interests of those foreign companies and countries.

The criticism of China's lack of innovation capability draws its evidence from measures such as the number of patents applied, for the amount of financial investment in research and development, and the legal regulation of intellectual property rights. When some scholars and commentators pay attention to more contextual factors in Chinese society, they suggest that those factors, such as China's bureaucratic culture, the lack of rule of law, public education that suppresses individual creativity, are exactly what impeded the nation's innovation development.

These standards, including both innovations and the conditions under which innovations can occur, are based on the experience of the developed countries and their perspective on what things such as innovation, creativity, intellectual property, and rule of law mean. Instead of trying to understand and recognize that spatial differences -- different procedures and mechanisms in China -- have led to different results, the criticism locates those differences within the temporal trajectory of the developed, thereby regarding the differences as the very evidence for the underdevelopedness of China's innovation sector. In this sense, to develop its innovation sector means to make China have the same set of institutions, measures, and outcomes as the standards in the developed world.

There are two serious consequences I perceive from this. First, from a scholar's standpoint, this approach remains narrow in both thinking about the definition of innovation and the mechanisms by which they can come into being. By relying on

standards tangible outcomes indicated by numbers and only seeing how cultural values and social institutions are impeding these outcomes, the evaluation has overlooked or even denied the fact that those contextual factors can also be evolving, gradually transforming people's perceptions, lifestyles and living conditions to make perceivable changes in the terrain of political economy.

Second, in regard to international relations, insofar as evaluation entails value judgments, it often induces people either to become constant chasers of a "developed" status in conforming to the same logic and standards, or provokes their grievances, resentment and hostility that would cause more international conflicts. For instance, if there was no criticism on China's lack of innovation capabilities, the Chinese government would probably not come up with the notion of "indigenous innovation" and set this as a national development strategy, which then spurred American vigilance.

About the same time when I was reflecting on the literature about innovation, I encountered the theory of disruptive innovation, which provides an alternative method of evaluating innovation. The ontology of disruptive innovation consists in two material conditions. The first one lies in the structural power relationships between the disruptor and the incumbent that is being disrupted. Whereas a disruptive innovation is an entrant starting from a lower-end market, providing goods or services with less resources, lower costs and lower quality, an incumbent is a business that already has a stabilized status in the mainstream market. The second condition is, despite disruptive innovations' poor quality and lower position in the market, they still succeed because they manage to satisfy ignored and emergent consumer needs, which incumbent firms fail to serve.

If the framework of disruptive innovation is applied to the context of a global innovation market, the incumbent would be represented by developed countries or their firms that have standardized and universalized patterns of innovation development, and disruptive innovators would be represented by developing countries with their firms that are latecomers to the market. Yet more importantly, regarding the second element, since discrepancies in consumer demands are shaped by consumers' distinctive socio-cultural environments, examining the rise of disruptive innovation in a global context means to look at the social contexts of particular regions that have created distinctive consumer demands. This in turn requires more time- and space-specific, contextualized account of regional innovation development, in contrast to the dominant methodological focus on quantifiable measures and physical outcomes. In short, this framework enriches the angles and agenda for evaluating innovation, because it shows that innovation can be arrived at through different paths, in spite of and precisely because of our spatial differences.

Overview of the Project

In light of the insights brought by the framework of disruptive innovation, my project reflects the importance of considering cultural and social factors in evaluating national innovation development. Only through understanding these contexts can we uncover how distinctive consumer demands are shaped, that is, how spatial differences can create different paths for innovation within a global innovation market. To accomplish this, I choose to focus on China, and more specifically, the emerging knowledge-sharing market (KSM), a social-network-site-based economy. By employing the theory of disruptive innovation, I reveal how the KSM appears as a disruptive

innovation from both a technical business management perspective and a sociological perspective.

The project develops through three chapters. Chapter 1 introduces three frameworks that have been used or can be used to evaluate China's innovation system. It highlights the framework of disruptive innovation because of its insights into distinctive market demands, and therefore particularities about China's social context. Chapter 2 focuses on the KSM that has been recently prospering in China. It scrutinizes the dynamism of the KSM and illustrates how its service models and operation mechanisms fulfill the conditions for being considered disruptive innovation from a technical perspective. Chapter 3 deepens the understanding of the rise of the KSM by explaining how complex interactions between global/Western and indigenous cultural and social institutions have shaped the distinctive consumption cultures and preferences of today's Chinese internet consumers. In conclusion, the project suggests that the KSM is a disruptive innovation not only because it has been pioneered by China, an economic latecomer on the global stage, but also because it has arisen against the particular social context in China.

Methodologies

I use different methodologies respectively in the three chapters to best fulfill the purpose of each chapter. Chapter 1 serves as a literature review of scholarly frameworks for evaluating innovation. I also include my own interpretation of and response to their arguments and approaches. In chapter 2, I present the knowledge-sharing market based on my primary research -- close observation and usage of the market. Because there is little established or peer-reviewed literature on the current KSM in China, I draw some

data from market reports published by a Chinese consulting company, Analysys. As an undergraduate student with limited time and resources, I admit my primary research is neither exhaustive nor completely accurate. Chapter 3 comprises my review, compilation and hybridization of the literature from various disciplines including sociology, history, anthropology, information management and political science. Since my main goal is to present a fuller account of the social contexts of the emerging KSM, I do not favor one specific methodology over another. However, many of the historical details and other plausible social and political theories are still missed in this piece. I hope this project can be the beginning, not only for myself, but also for scholars from various disciplines with related interests to start contributing to the study of the KSM, innovation, and political economy.

Chapter 1

Three Frameworks for Understanding China's Innovation

Introduction

The remarkable economic development of China has always taken a different path from the Western one, as Giovanni Arrighi has commented (2008). Instead of following the western capital-intensive model of financialization, China has developed its own labor-intensive model of industrialization. However, the recent decrease in China's economic growth rate has not only indicated the declining power of this model, but also drawn the world's attention to China's innovation sector. Many scholars believe in the importance of China's capacity for technology development to solve its current socio-economic puzzles and to sustain its economic growth. They have therefore closely examined and rendered valuable critiques of China's innovation development (Gu and Lundvall 2016; Lazonick, Zhou and Sun 2016).

While scholars have focused on different segments in China's innovation sector, the concept of national innovation system (NIS) has appeared in the literature frequently. Originating in the study of OECD countries' industrial policies in the mid-1980s (Sharif 2006), the NIS concept means that innovation and technology development are results of complex interactions among a set of institutions, such as governments, academic and research institutes and enterprises (OECD 1997). In light of each country's own contextual particularities, the main developers of the NIS concept, such as Freeman, Lundvall, Nelson and Edquist, all oppose formulating a universal, standardized framework. Instead, they advocate for a flexible and situated application of the NIS concept (Sharif 2006). Therefore, the underlying principle of the NIS concept requires

scholars to consider what types of interactions, which sets of institutions and what kinds of innovations to apply in their examination of a country's NIS according to the context of that country. Upholding this principle, this literature review will introduce three frameworks that have served or could serve to understand China's NIS.

The first framework is the mainstream approach taken by the majority of scholars of innovation-related issues. In building upon the NIS concept, which arose from the examination of advanced countries' industrial policies, this mainstream framework has inherited its evaluation standard from the experiences of those countries. It thus mainly focuses on measuring China's efforts in research and development (R&D) and the invention of high-technology products. However, in doing so, the mainstream approach has failed to recognize that the particularities of the Chinese socio-political context have diverted China's NIS from pursuing high-end R&D. In this sense, the mainstream framework has not embodied the principle of the NIS concept to embrace different notions of innovation according to the country's context.

The second framework has been pioneered by Breznitz and Murphree (2011) to challenge and expand the mainstream notion of innovation. They first highlight China's crucial position in global production networks (GPNs) and the relatively uninstitutionalized nature of Chinese politics. Then, they contend that these contextual factors have shaped a different path for China's NIS, which has been efficiency-oriented and low-risk, as opposed to the patient and long-term financial commitment required by R&D. Recognizing this different path, Breznitz and Murphree favor perceiving China's

innovation in terms of its superior capabilities in organization, process and second-generation innovation.¹

The third framework is developed by Clayton Christensen (1997) to account for the emergence of “disruptive innovation”, a term given by his team. This framework would also expand the notion of innovation from the invention of novel products to the combination of existing technologies and business models. In addition, its fundamental theory could also help us grasp China’s structural position as an entrant in the global innovation market. Combined with the strengths in efficiency-oriented and low-risk types of innovation, the structural position of China as an entrant would allow us to see the potential for China’s innovation sector to disrupt the global market by serving different levels of consumer demands.

Through my review of these three frameworks, I conclude that in examining China’s NIS, scholars should first recognize the distinctive socio-political and cultural factors that have shaped China’s different path. Second, in light of these contextual factors’ influence, we should also recognize that China’s efficiency-oriented and low-risk innovation sector excels in the production of organizational, process and second-generation innovation. By entering from a lower-end market, China has further potential to disrupt global innovation industries.

Mainstream Framework

In this section, I will review the mainstream framework on China’s NIS by focusing on its metrics and analyses. Through this review, I suggest that the mainstream

1. Second-generation innovation, in a simplified sense, refers to products invented through learning and combining existent knowledge and technologies. There will be more elaboration about it in the second section, “the Run of the Red Queen”.

framework has not followed the principle of the NIS concept faithfully, and that the application of NIS framework should not rely on fixed terms and measures, but be practically applied according to the context of each country, for two reasons. First, it has only focused on R&D inputs and outputs, thus narrowing the conception of innovation to novel products invented through R&D and ignoring China's own unique innovation path. Second, the mainstream framework has also adopted the standard of effective R&D from advanced industrial countries, analyzing the distinctive features in China's socio-political context that have led China's NIS to fall short of the standard, instead of noting the innovation that China achieves.

Metrics

To measure the performance of China's innovation sector, previous scholars have looked at both its inputs and outputs. The inputs are indicated by the expenditure on R&D, the number of professional personnel and the investment in human capital (Fu 2015; Zhou and Liu 2016). The outputs are represented by the number of patent applications and published scientific and technical papers (Fu 2015) and the amount of high-tech and service exports (Fan 2014; MGI 2015). The data collected by these scholars show that both the inputs and outputs have grown exponentially since the start of Chinese economic reform in the 1980s (Fan 2014; Zhou and Liu 2016). Compared to its counterparts, such as Japan, Korea, US, India, and so on, the inputs and outputs of China suggest that they have grown faster than other countries (Fan 2014; Fu 2015). Not surprisingly, these indexes are chosen because data analysis done in OECD countries show significant correlations with the improvements in innovation capabilities in OECD countries (Smith 2005; Furman 2002; Fan 2014; Watkins 2015).

Another feature of Fu's research (2015) focuses on China's patenting efficiency, which would presumably reflect the efficiency of R&D. By using the stochastic frontier analysis approach,² Fu first predicts a country's patenting capacity, which stands for the idealized patent outputs when the country's innovation inputs are utilized with maximum efficiency. The explanatory variables for the patenting capacity include the strength of intellectual property (IP) protection, availability of venture capital, value-added share of high-technology industries, openness to foreign direct investment (FDI) and commercialization of technologies (Furman 2002). When comparing patenting capacity with actual patent outputs, indicated by the number of patents granted by the United States Patent and Trademark Office, the gap between them would represent the patenting efficiency of this country. Applying this model to China, Fu's research has found a substantial gap between patenting capacity and the actual patenting results, suggesting the low efficiency of China's R&D activities.

Similarly, the McKinsey Global Institute (MGI 2015) uses multifactor productivity to represent economic growth from innovation, such as new technology inventions, better processes of production and greater know-how, rather than from labor production and capital investment. It then examines the constituents of the GDP growth, finding that the proportion of multifactor productivity has in fact been decreasing for the past fifteen years. The finding thus suggests the innovation sector has been making fewer contributions to China's national economy .

In short, these studies converge in showing the limits of China's R&D and its relative inability to innovate, yet the methods measuring the performance of China's NIS

² The Stochastic frontier analysis is a type of economic modeling based on benchmarking. It is often used to evaluate a unit's performance by comparing it with a reference performance.

focus on variables that are most useful and relevant for OECD countries' experiences. Although they have found that China's R&D outcomes are not efficient given its inputs, the data and figures they have chosen for their study might not be adequate for us to fully understand the specificities of China's NIS.

Analyses

Recent qualitative analyses of China's NIS have taken China's socio-political and cultural context into account, but they have still focused rather narrowly on R&D inputs and outputs. In other words, qualitative analyses remain attached to using the socio-political and cultural elements in Chinese society to account for the failure of China's NIS, specifically, the failure to make progress in high-end R&D. As it is impractical to cover every article or book that has made a relevant contribution, I have divided the literature into three categories, with each of them focusing on one major feature of China that has been taken to shape its NIS.

The first category focuses on China's capacity to catch up with OECD countries, given its position in GPNs. Scholars have noticed a distinctive pattern of China's NIS, which in their opinion, constitutes the very reason for its lack of capabilities in high technology innovation. This pattern is marked by three major processes: introduction, absorption and re-innovation (McGregor 2010; Lindsay 2015; Cheung 2016; Fuller 2016). The first stage, introduction, refers to China's domestic institutions' exposure to and learning of new knowledge and technology from foreign sources, in particular from FDI, because of China's position in GPNs. The second stage, absorption, refers to the procedure whereby firms explore how to exploit and apply the newly acquired knowledge and technology (Cheung 2016). The absorptive capacity, signifying how quickly and

successfully a firm could understand and apply the knowledge (Cohen and Levinthal 2000), has thus become a key for local firms to develop through in-house R&D (Fuller 2016; Lindsay 2015). The last stage, re-innovation, means the final generation of the products or services that could better fit the domestic market.

Without much effort into original and indigenous research, this truncated pattern of innovation has been criticized as it perpetuates the lack of long-term efforts in domestic R&D, and concomitant incapacity for doing basic research and advancing in high-technology development (Gu and Lundvall 2006; Fan 2014; Fu 2015; Fuller 2016; Zhou and Liu 2016). Moreover, the reliance on foreign sources to develop domestic innovation products as a shortcut has also invoked criticisms about the lack of IP protection, which further disincentivizes domestic firms and researchers to conduct R&D (Fu 2015; McGregor 2010).

The second category of literature focuses on distinctive features of Chinese politics. Identified features often include but are not limited to state favoritism for state-owned enterprises (SOEs), the burdensome bureaucracy involved in making and implementing policies, and the discrepancies among regional governments (Fu 2015; Zhou and Liu 2016; Fuller 2016; McGregor 2010; Crookes 2015; Zhao et al. 2015; Jiao, Chun and Yu 2015; Liu, Woywode, and Xing 2012; Fan 2012; Fan 2014). In identifying these characteristics, the majority of authors, again, stress these features' negative impacts on R&D. State favoritism for SOEs, combined with China's highly-regulated financial markets, has made it easier for SOEs to get access to financial resources but not so for small and medium-sized enterprises (SMEs). As large long-term financial investment is crucial for continuing R&D, those private firms have been systematically

discouraged to conduct in-house R&D due to lack of available funding through bank loans. Additionally, state protection of larger SOEs has further indulged the low productivity and minimal motivation for R&D in SOEs, as their profits are not as tightly hinged to the actual performance of the firms (Fuller 2016). Moreover, Liu, Woywode, and Xing (2012) find that for Chinese firms, government ownership has been negatively correlated with R&D efficiency. Beyond state favoritism, bureaucracy is also rampant in academic institutes and private firms, and thus causing uneven allocations of funding in academic institutes and the low productivity of ongoing research projects (McGregor 2010; Fu 2015).

Another notable feature of Chinese politics is the discrepancies among regional governments. As different regions tend to rely on their own models of economic development and have distinctive cultural customs, local governments have adopted divergent methods to suit the local context in carrying out innovation policies and coordinating with other institutions (Fan 2012). Sometimes the differing governing styles of local governments influence the outcomes of their innovation policies. As the study by Zhao et al. (2015) indicates, business-oriented local governments have been particularly good at promoting R&D outcomes, while public office-minded governments have not. This conclusion is in fact aligned with the previous suggestion about the negative influence of bureaucracy, as public office-mindedness can be also seen as a form of bureaucracy.

The third category of literature focuses on the influence of culture and education. Scholars have written on the culture of *guanxi*, which refers to social relationships that serve as an informal type of institution, namely, network strategies. If firms, particularly

SMEs could manage *guanxi* well either at a local level with governments or on an international level with multinational corporations (MNCs), it would be easier for them to conduct R&D (Liu, Woywode, and Xing, 2012). Some others have written on Confucianism's influence on the conformist way of thinking of Chinese people, suggesting it discourages individual creativity (Hannas, Mulvenon and Puglisi 2013). The national education system of China has also often drawn criticism for its suppression of student creativity (Zhao 2014; Fu 2015). These authors' arguments rely on the notion that individual creativity has been empirically proven relevant to novel invention, although different cultures have divergent understandings of what creativity means (Erez and Nouri 2010).

Analyses that pay special attention to China's distinctive socio-political and cultural context tend to identify how these factors have caused China to lag behind in R&D. Here, innovation development is only measured by progress in high-technology invention through R&D. However, perceiving innovation development in this way has rendered the framework blind to other types of innovation generated by China's NIS. This framework has thus violated the key principle of the NIS concept, that scholars should pay careful attention to national variations. To better reflect this principle, I will introduce a different framework proposed by Breznitz and Murphree (2011), whose examination would expand the notion of innovation development and deepen our understanding of China's NIS.

The “Run of the Red Queen”

To challenge the narrow focus on R&D inputs and outputs and its derivative claim of the backwardness of China's innovation development, Breznitz and Murphree

(2011) propose an alternative framework they call as the “Run of the Red Queen.”³

Instead of analyzing the Chinese socio-political and cultural factors as explanations for China’ lack of efforts in R&D, they perceive those elements as shaping China’s distinctive path in innovation. Specifically, they focus on China’s position in GPNs and the uninstitutionalization in China’s socio-political context, contending that these two major factors have caused China to thrive in efficiency-oriented and low-risk types of innovation in specialized segments of GPNs and second-generation products.

Contextualizing China’s innovation development in the formation of GPNs, Breznitz and Murphree suggest that GPNs would drive China to continue specializing and upgrading capabilities in specific segments of innovation industries. The GPN is formed by firms’ interests in expediting production process and lowering production costs to pursue higher profitability. They thus decompose and spatialize the production processes by assigning fragmented production stages to different regions with abundant cheap labor. As these regions become more specialized in the stages of production they are assigned to, they would also develop higher capabilities and skills than other regions in their specialized areas. China, as a major region that specializes in manufacturing and exporting products originally developed by foreign firms, has therefore acquired highly advanced capabilities in the organization of assembly lines, manufacturing techniques and logistics.

The specialization and capability building in specific production stages would help regional producers and suppliers further expand the economies of scale and scope.

3. The Red Queen is a character in Lewis Carroll’s *Through the Looking-Glass and What Alice Found There*. In the story, the Red Queen had to run as fast as possible in order to stay in the same place. Breznitz and Murphree use it as a metaphor to suggest that China’s innovation development has also been running as fast as possible to keep pace with the global technology frontier (2011, 2-3).

Since establishing superior capabilities in the specialized industries allow these suppliers to produce goods and provide services with higher efficiency, better quality and lower cost, Chinese suppliers are also able to draw on demand for their goods and services from firms worldwide: the more demand for what they supply, the greater their production scales could become. The increase of their economies of scope and scale, sequentially, pushes regional suppliers to continue advancing their capabilities and comparative advantages. In this way, specialized capabilities and large economies of scale and scope have together constituted a self-sustaining ecosystem and strengthened the interdependence among different regions through GPNs (14-19).

Such has been the case for China's manufacturing sector. To maintain the advantageous status as a global manufacturing center, China has been continuously upgrading its capabilities in organizational efficiency and production techniques. To Breznitz and Murphree, China's efforts in elevating its specialized capabilities are indispensable to the success of global innovation industries. Such specialized superior capabilities in different segments, in contrast to R&D, do not generate novel products. Nevertheless, they are necessary and beneficial to promote the efficiency of production and therefore indirectly influence the diffusion of those novel products. As they also substantially contribute to the national economy, Breznitz and Murphree perceive the specialized capabilities as central to China's NIS. In this sense, their notion of innovation development goes beyond the linear trajectory of progress in higher technology, as presumed by mainstream scholarship.

The distinctive features of Chinese socio-political culture, termed as "structured uncertainty" can further elucidate the different path of China's innovation development.

Defining structured uncertainty as “an agreement to disagree about the goals and methods of policy, which leads to intrinsic unpredictability and to inherent ambiguity in implementation” (38), Breznitz and Murphree suggest that this uncertainty is structured by four factors in Chinese political culture. First, as local governments and firms need to balance between adopting free-market mechanisms and adhering to the socialist ideology of the state, they always face uncertainty in experimenting with economic reforms (40-42). Second, as multiple layers and sectors within the bureaucratic structure complicate power dynamics among different departments and institutions, leeway in policy implementation is required to allow different departments to avoid conflicts of interest (42-44). Third, the informal institution of *guanxi*, which was mentioned as part of the weakness as Chinese culture in the mainstream literature, further complicates the interpersonal power relations among government officials, bureaucrats, businessmen, and even scholars. Such diffused and unofficially registered power relations also increase the uncertainty for multiple parties attempting to collaborate under the broad network of China’s NIS (44-48). Last, as the goals and means of economic reforms are not always clearly defined, sometimes even undefined, each formal institution has its own ways of carrying out plans to pursue economic growth (48-49).

Breznitz and Murphree contend that structured uncertainty deeply embedded in Chinese socio-political culture has led China’s NIS to excel in developing the types of innovations that could bring immediate gains with low risks. On one hand, the pressure of economic growth imposed by the central government compels local governments to focus on short-term gains. On the other hand, ill-defined policy goals and means induce regional governments to sustain multiple interpretations and ways of implementing

policy. To show how structured uncertainty differentiates the landscapes of regional innovation development within China's NIS, Breznitz and Murphree closely examine three regions: Beijing, Shanghai, and Shenzhen and the Pearl Delta.

In Beijing, where a number of IT start-up companies are located, the structured uncertainty has created difficulty for local entrepreneurs to gain access to financial capital for investing in R&D to generate novel products. The need for rapid returns pushes them to instead, imitate and produce second-generation innovations targeted at domestic consumers (123-125). In Shanghai, with a large base of foreign enterprises and SOEs, financial resources could be easily obtained to lead capital-intensive projects, such as high-end design and research as well as upgrading manufacturing capabilities (157-159). In Shenzhen and the Pearl Delta, despite a systematic lack of R&D talent, the strong local manufacturing capacities and the flexible coordination supported by local government, generate two successful models of innovation (193-194). One is led by ZTE and Huawei,⁴ which arose from a bottom-up specialization in technologies seen obsolete by foreign MNCs (177-180). The other is led by industrial clusters in Dongguan's uninterrupted power supply industry, which has been relying on the collaboration among local SME communities and governments (180-192).

Among all major types of innovations represented by these three regions, second-generation innovations stand out as products invented through learning and combining existent knowledge and technologies. As the R&D process of second-generation innovation often focuses more on absorbing and adjusting existent technologies, it provides lower risk and requires less up-front investment but can generate products and

⁴ Huawei and ZTE (Zhongxing Telecommunication Equipment Corporations) are two major multinational telecommunication companies of China.

services more quickly. But to make this type of innovation successful, there must be a potential market so suppliers can tailor the features of the products to satisfy consumer demand. In fact, the growing Chinese market, where a huge number of consumers have diversified demands and levels of consumption, has contributed to the proliferation and success of second-generation innovations. These spectacular successes result from their low-cost and good-enough quality, which could easily satisfy the diverse needs of Chinese consumers, who are willing to buy cheaper Chinese products in place of more expensive foreign products (201-202).

To recap, although the mainstream framework and Breznitz and Murphree's argument have identified similar distinctive features of the Chinese socio-political context, they have derived different conclusions. The mainstream framework perceives the technology catch-up process and the deinstitutionalized governance of China as the fundamental reasons which result in China's "backwardness" in undertaking high-end R&D. While Breznitz and Murphree also acknowledge this weakness, they recognize that these same contextual factors have also led to China's superior capabilities in organization, production, and second-generation innovations. Moreover, they also underline these capabilities' importance to sustain both global innovation market growth and China's domestic economic growth.

Disruptive Innovation

The Original Framework

Similar to Breznitz and Murphree's objection to scholarship which considers innovation mainly in terms of novel inventions, Clayton Christensen's theory of disruptive innovation [1997] (2013) also challenges the mainstream framework and

broadens our conception of innovation.⁵ From Christensen's perspective, innovation could refer to any processes by which companies "transform labor, capital, materials and information into products and services of great value" (Introduction xiii). Given this notion, the theory of disruptive innovation would also reveal the important dynamics between innovation development and market demand, which are often absent in the mainstream framework. For these reasons, this theory could further elucidate the contextual factors that have shaped China's distinctive NIS, in particular, its strengths and future potentials. By linking this theory with Breznitz and Murphree's suggestions about the different path of China's NIS, I suggest that the innovation capacity of China indeed lies in its potential to generate innovations not by high-end R&D capabilities, but by a flexible adoption and combination of existing technologies and business models to serve the diversified needs of domestic and global markets.

Christensen, Raynor and McDonald (2015) define disruptive innovation as the process by which a small, entrant company with fewer resources establishes a foothold in the market, by delivering certain products or services with lower cost, inferior quality but with more suitable functionality in the segments overlooked by incumbent industries.⁶

From this definition, it is clear that disruptive innovation takes place in the relations between entrants and incumbents, whose structural positions in the market are different.

⁵ The theory of disruptive innovation was initially proposed by Clayton Christensen [1997] (2013) to account for innovation that successfully challenged incumbents' markets with unexpected and often overlooked technologies or business models, and to explain why incumbent firms have failed to generate effective responses to disruptive innovation.

⁶ In the past twenty years, as numerous new modes of "disruptive innovation" came out and scholars have made adjustments and qualifications in applying the theory to accommodate their analyses, Christensen, Raynor and McDonald revisited, revised and explained the theory of disruptive innovation in their article "What is Disruptive Innovation" published by Harvard Business Review in 2015.

That is, incumbents are firms that have gained footholds in the market and stabilized their business models and market share, whereas entrants are firms with fewer resources and capabilities that have just started in the market.

Given entrants' and incumbents' relative structural positions in the market, they also have different approaches and rationales for conducting businesses. Christensen's initial study [1997] (2013) of several cases of disruptive innovation led him to suggest that incumbents tend to only focus on serving existing customer groups and following established profit models. In doing so, incumbent firms are naturally induced to improve their products and services according to their estimation of existing customers' future demands along the previous performance trajectory. As a result, their prospects are restricted because of their very attention to already-identified customers and simultaneous ignorance of non-identified customers. While there might be other types of demand in the market, those demands are either intentionally or unintentionally ignored. Moreover, sometimes the pace of incumbents' technological progress grows so fast that the improved products would over-serve or outstrip customer demands. In short, incumbents are disadvantaged by virtue of their established customers, profit models and products.

By contrast, entrants are firms that have started in a lower-end market with weaker capabilities and fewer resources. Although it would appear that entrants might have more possibilities to develop profitable models to appeal to potential customers, as they are not constrained by existent ones. Incumbents' domination of the market often render it hard for entrants to succeed. Consequently, entrants' breakthroughs depend on their ability to provide products and services with features that could either fulfill niches of unsatisfied needs or better match certain needs overlooked by incumbents.

Historically, a lower price with good-enough quality has been a frequent form of breakthrough for entrants. Additionally, given their fewer resources and weaker capabilities, entrants often innovate by combining existing technologies with new business models or other technologies.

Applying the Framework to China

In fact, the relationship between an entrant and an incumbent could well serve as an analogy for the relationship between China's NIS and advanced industrial countries' NIS in the global innovation market. Not only would China's innovation sector appear as a latecomer, but also its technological backwardness equates to possession of fewer resources and weaker capabilities. When the mainstream framework uses the term "catch-up" to name the challenges facing China's NIS, it also simultaneously implies China's lower position as an entrant to the global market of innovation.

If we were to compare advanced industrial countries' NIS as the incumbent, and China's NIS as the entrant, their different landscapes in the global innovation market could open up possibility for disruptive innovations. First, the global economic divide between the developed and the developing countries has created multiple layers of markets in which consumers have different tastes and income levels for consumption. In this global market, the products and services provided by high-technology innovation industries are rather special and could only reach to a limited range of customers. To put it simply, not only the Chinese market but other regional markets contain large pools of poorer consumers who could not afford the novel products invented by advanced countries' R&D activities.

Second, besides price level, those consumers may also have unique needs for particular functions of the products because of the specificities of their social environment (Breznitz and Murphree 2011, 201). These demands are even harder to discern and satisfy without close observation and accurate knowledge of the local markets.⁷ Thus, the spatialized economic and social divide has led advanced innovation industries to overlook the lower-end of the global market or leave it underserved, while the consumers within this lower-end market might still have demands for the functionalities of their innovations. As a result, China's innovation sector, starting as an entrant at the lower-end of these markets, is well suited to meeting these needs by delivering products with good-enough quality and lower prices, while generating substantial economic value in China from the process.

Breznitz and Murphree's analysis of the structured uncertainty in China's NIS could further reveal the potential for China's innovation development to disrupt the global market. On the one hand, complex bureaucratic structures and personalized power dynamics make it difficult for start-up firms and SMEs to obtain financial resources and institutional support to conduct high-cost and risky R&D activities. On the other hand, the central government constantly pressures local governments to spur and sustain economic growth. Because of this social context, both local governments and private firms in China have become practical and flexible in looking for market niches, which allow them to gain quick economic returns despite fewer resources for investing and lower capabilities for developing high-technology. The proliferation of second-generation

7. Fuller (2016) found that among foreign multinational corporations in China, those that are hybridized with Chinese domestic firms have outperformed those that are not, because of their better understanding of the local markets and provision of better-suited products and services.

innovations pointed out by Breznitz and Murphree seem, in this light, to signify the disruptive innovation of China in the global market.

So how could the distinctive features of China's innovation development generate disruptive innovations? Among current forms of industry indicating the potential for disruptive innovation in the study of Christensen et al. (2017),⁸ two of them are particularly relevant. The first one is called hybrid offerings. It refers to a combination of an emerging innovation, either in the form of technology or business model, and existing industry to generate new products or services. As the emerging innovation could either help existing industry to improve its performance, or to appeal to a different market, the underlying rationale resonates with disruptive innovation well. The second form is platform businesses, (e.g. Amazon, Airbnb, Netflix) which enable the competition among independent entities on the platform. As the modular structure of platform businesses allows easier ways of internal innovation within the platform, while the network-based structure also connects the platform with external third parties to develop complementary products and services, platform businesses have shown great potential for disruptive innovation.

As both hybrid offerings and platform businesses could be more easily achieved by the internet and smartphones, they do not require the innovators' superior R&D capabilities in high-end technology. Rather, they require the capability to adopt, adapt and combine existing technologies and business models flexibly and practically to suit

8. Christensen et al. (2017) review historical literature on disruptive innovation in 2017 again, and examine several newly emerging technologies and forms of businesses that may serve as disruptive innovations. Their paper, titled *Disruptive Innovation: Intellectual History and Future Paths* is still in proceeding.

diverse market demands.⁹ The dynamism of Chinese consumer markets, consisting in the large size of Chinese population and the distinctive socio-cultural environment for consumption, in this respect, further elevates the potential for Chinese businesses to proliferate in accordance with the logic of disruptive innovation.

From Disruptive Innovation to the Social Context for Innovation

While the theory of disruptive innovation seeks to account for failures of incumbent firms and successes of disruptive entrants from the perspective of business management, its significance also lies in its revelation of the heterogeneity existing within a globalized market.

The theory first points out that failed incumbent firms have often followed a linear trajectory in developing their goods and services, that is, developing along the line of improving established functions and serving observed customers. The drawbacks of this method are: (1) the improvements may exceed the realistic needs of the customers; and (2) the needs of other customer groups remain unexplored. In either case, the process of innovation would be gradually detached from the social environment and form into an autonomously functioning entity. Innovating in this narrow sense of either improving established technology or inventing cutting-edge technology thereby implies an assumption that consumers are treated as fixed, homogenous, and undifferentiated. By contrast, disruptive innovators succeeds by uncovering and satisfying those ignored or emergent differences in terms of market needs. Their success exposes the existence of heterogeneous consumer groups.

9. Tse (2015) found Chinese entrepreneurs, especially in the proliferated IT industries, have shown particular flexibility and practicality in their fashion of doing business.

The revelation of the heterogeneity within the context of a globalized market makes it plausible and worthy to examine societal differences that have shaped distinctive consumption needs and cultures, which, in turn, influence the patterns and results of local innovation development. In this sense, evaluating and understanding innovation development means much more than quantifying and qualifying national R&D efforts. In China's case, while its structural position as a latecomer gives Chinese firms the advantages of developing disruptive innovation from a technical perspective, the unique social changes happened in the past two decades have further rendered Chinese consumers' preferences and needs distinctive. On one hand, discourses in favor of both capitalist development and liberal individualism that are historically stemmed from Western advanced societies, have gained more currency among Chinese consumers through the internet and digital technologies. On the other hand, Chinese indigenous cultural values and social institutions still influence the ways in which Chinese citizens perceive and manage their social relations. Complex encounters between the two forces have led Chinese consumer-citizen to develop unique consumption desires and behaviors, allowing particular innovations to rise and succeed. Thus, applying the insight revealed by the theory of disruptive innovation in China means adopting a sociological view of innovation; that is, examining the social contexts, namely the processes and rationales underlying the emergence of particular types of innovation.

Chapter 2

China's Knowledge-Sharing Market as a Disruptive Innovation

Introduction

To illustrate my point about the relationships between disruptive innovations and their social contexts with a concrete example, I have chosen to focus on the emergent knowledge-sharing market (KSM) (知识付费 *zhishifufei*, 'paying for knowledge'; 知识共享 *zhishigongxiang*, 'sharing knowledge') in China. In a simple definition, the KSM refers to an economic system in which knowledge producers transform their knowledge, experiences and skills into standardized digital products, share them on social network sites (SNSs) and gain financial rewards from their audience (Analysys 2017; Zhang, Jiang, Xiao and et al 2018). Currently, Chinese firms have taken the lead in developing this market (Wang 2017; Zhou 2018), and business models similar to the KSM have not appeared common on a global stage.¹

There are three reasons for my selection of the KSM. First, the KSM not only has the characteristics of disruptive innovation; it also allows more insights into the social transformation undergone by Chinese consumers because knowledge-sharing itself, represents a type of social behavior, rather than an object that could be as forcibly and artificially made as other technological improvements or inventions. In this respect, it broadens the conventional conception of innovation from tangible forms of products, findings to new ways of life. Second, as a user of China's internet myself, I have

1. My research scope is limited because I have not investigated much about regions besides China and North America. Although Chinese scholars suggest the leading position and particular success of Chinese firms in this industry, it is still possible that similar markets have also appeared in other regions of the world but have not gained attention.

witnessed the rise of this market and personally explored its services. My close exposure to the market has deepened my interest in studying it. Last, because this market is still infant, there has not been much relevant peer-reviewed literature in scholarly work. My project could serve as a small step contributing to the research in this field.

In this chapter, I will first introduce the general landscape of the KSM in China, namely, what services it provides, how it operates and what roles its participants play. Then, I will demonstrate how it could be considered as a disruptive innovation from a technical perspective, that is, how it manages to sustain successful business operation with low-costs and relatively low-quality. In the end, I will point out that, despite the apparent shortcomings of the products, the KSM has still arisen because it satisfies the emergent demand of the modern digital generation of Chinese consumers, who have gradually formed new consumption behaviors and cultures due to the social transformation China has experienced in an age of globalization and cosmopolitan modernization.

What is the Knowledge-Sharing Market in China?

As briefly mentioned in the last chapter, the KSM, also called “paying for knowledge” in Chinese, refers to the economic system in which knowledge producers transform their knowledge, experiences and skills into standardized digital products, share them on social network sites (SNSs) and gain financial rewards from their audience.

Currently, the most popular SNSs and other start-up platforms participating in the market include Zhihu Live, Douban Time, Ximalaya FM, IGet, and Fenda (Analysys 2017). Although their service models have become more homogenized due to

commodification, each of them initially entered the market from different backgrounds and served divergent functions. Both Zhihu Live and Douban Time are subdivisions of previously-existing SNSs, Zhihu and Douban. While Zhihu is a pure question-and-answer website, Douban is an online cultural community for discussions around movies, TV shows, music, books and cultural entertainment activities. Ximalaya FM initially emerged to replace Apple Podcast,² which is blocked in China. IGet and Fenda are start-up firms that directly began with embryonic business models for knowledge-sharing, such as directly paying for online lectures and answers provided by other users.

Because of the prosperity of the internet and information-based economy in China, numerous new websites and platforms have appeared to compete in this market. It is beyond the scope of this project to lay out the details about how each platform runs differently. Instead, I will introduce the overall shape of this market by describing their service and payment models, main user identities and popular categories of the content. Meanwhile, by adding complementary explanation, I bring attention to invoke a deeper understanding on the nature of this market, as this understanding will be related to content in Chapter 3, which reveals why Chinese internet consumers are willing to participate in the KSM.

Service models (Analysys 2017):

- Written short/long answers to questions.

This type of service requires the consumers to ask questions first. The knowledge shared is therefore directed towards the question asked.

- Scientific articles, argumentative essays and prose.

2. A podcast is a downloadable audio or video file whose content can be composed by a variety of content such as talk shows, audio books, albeit mostly programs. It is initially developed and popularized by Apple.

Most of these articles are written without much intention for gaining profit but out of the voluntary initiatives of the writers. The professionalism and depth of the content often suit the readers' intellectual capacity and demand, as the language would not be obscure and dense, but the underlain message invokes some level of thinking. However, this category is also the least likely to gain financial rewards for the writer, as it often relies on voluntary giving from the readers.

- Downloadable audio/video lectures.

The content producer codifies their content into digital forms such as audio or video files and publishes them on the platform. Other users may choose to download the files and listen to them offline. This is currently the most profitable and popular form of service.

- Downloadable audio books.

The only difference between audio books and audio lectures is that while lecturers organize and edit the content by themselves to sell the products, book authors do not need to be involved in the publishing process. Many of the audio books are not initially created in order to participate in the online market. They pre-exist the KSM and are later transcribed by third-party that received authorization from the original authors. However, there is a trend for occupational content producer to start writing and publishing books concomitantly with the audio programme they produce on the platform.

- Live lectures.

This type of service connects the listeners with the lecturer on a temporal dimension in spite of their spatial disjunction. It allows the listeners to interact with the lecturer and thereby increases the credibility and the quality of the service better than downloadable audio lectures. This form of knowledge-sharing is also closer to traditional offline

teaching. While traditional offline teaching is more systematic and organized by non-market actors, the topics, length and structure of live sessions are often more fragmented, diverse and subject to market determination.

- One-on-one online consulting, or question and answer.

This is currently the most expensive type of service, because it requires a higher level of knowledge, skills and experiences in the area from the knowledge provider, as well as the credibility of the platforms. The subjects for consulting are also personalized, crossing from mental and physical health to career development and specialized skill training.

Different platforms tend to adopt distinct models to suit their main customers' interests. For instance, the Zhihu community stands out for its elitist image because it initially allowed members to answer questions only if they are invited by other users, meaning their expertise and authority in related fields are recognized and trusted by the inner circles of their fields. Therefore, Zhihu is more well-known for the live lectures and consulting sessions provided by offline experts participating in the market than other platforms, where grassroots amateurs

Common identities of content producers / knowledge sharers (Analysys 2017):

- Grassroots individual user

This group refers to ordinary people who are interested and have invested in certain fields as amateurs to the extent that their knowledge about the subject can exceed the average level, or helpful enough to other users who are not specialized in the field.

- Offline experts and professionals in the field

This category is composed by a diverse range of professionals such as doctors, therapists, human resource managers, career advisors, actuaries, stock market analysts, journalists,

scholars, professors and scientists. Their major task is to codify their expertise into written or recorded digital forms either voluntarily or through other agents' invitation.

- Internet celebrities with no professional backgrounds but social influence

This group can overlap with the first category in the sense that many of them came from grassroots backgrounds and became famous because of their special skills or talents.

They can also be celebrities who initially gained fame in the offline world and moved to the online world later. Once internet celebrities confirm their status, their value in the KSM to an audience, more often comes from their social influence and a sense of distance.

- Occupational production teams

Emerging occupational production teams treat participation in the KSM as their full-time occupation. These teams not only produce content but also recruit members who will be trained to become an occupational content producer. People recruited are often college graduates who have studied relevant fields. Currently, there is an increasing trend for the platforms to collaborate with occupational production teams to cultivate new occupational content producers, forming production lines and networks in sustaining the industry.

Payment models (Analysys 2017):

- Membership fee

Depending on the platforms, memberships of different platforms allow users to enjoy different scales and types of services. Some platforms may make all the services free after charging membership fee, and some may only give discounts for individually provided services.

- Subscription to a specific channel or series of lectures on the platform

This model is the most common one for both downloadable audio files and live lectures, if the host/lecturer makes a series of lectures under certain topic, subject or category.

- One-time charge for one-time use

This model is most and common suitable for question and answer, consulting and one-time live lecture.

- Voluntary reward to the content producer after receiving the service

Articles and passages shared on SNSs usually receive this kind of financial reward. The amount is totally subject to the viewer's decision.

- Bounty offered to attract other users to answer specific questions

Sometimes there are questions that are too professional and difficult for common users to answer; there are also people who ask questions specifically directed to established, well-known answer providers, such as opinion leaders, online and offline celebrities. Under these circumstances, it is expected that the answer seeker would offer certain amount of bounty in exchange for answers.

In all cases, the platforms earn profit by taking a yield of ten to twenty-five percent from the total income of the content producers, be they individual user or content production team. The price level ranges from 0.1 yuan as a self-decided bounty or voluntary reward to 200 to 400 yuan as an year-long membership or subscription fee.³ The transaction can all be easily done via WeChat Pay or Alipay, which are both the most common and popular online-mobile payment methods in China. It is also important to note that the major profits of these platforms do not come from the payment for

3. Currently, 1 Chinese yuan equals to around 0.15 US dollars.

knowledge products, but advertisements and platform-made material products made in collaboration with other industries.

The Top 10 fields receiving the most amount of consumption in 2017 (Analysys 2017) ⁴:

- Cultures
- Parent-child relationships
- (Personal) Growth
- Finance and economy
- Skills and techniques
- Commerce and business
- Career Development
- Arts
- Health
- Sex and sexual relationships

Through the fields listed here, it may appear obvious that the substance of the “knowledge” sold in the market cannot be categorized as scientific or academic knowledge. Nor do these fields resemble subjects in humanities and sciences that are taught in traditional school settings. Rather, they all seem to provide specialized guidance as to how to live a better life, including being a good parent, an excellent worker or a healthy person. While it is to some extent true that the desire for knowledge and better well-being are innate to human self-interests, the specific timing of KSM’s advent and

4. The data is gathered from a white paper written by Analysys (2017), but the original report does not give any elaboration on what how the fields are defined.

the format by which knowledge-sharing is conducted prompt my inquiries into the contexts that have shaped these products and desires.

How is it a Disruptive Innovation?

According to Christensen and other developers of the theory of disruptive innovation, a disruptor either starts from low-end market or creates a completely new market by adopting low-cost business models and technologies and providing low-quality goods and services (Christensen 1997 [2013]). The characteristics of being low-end, low-cost and having low quality constitute the first set of conditions for being a disruptive innovation. In this light, to decide whether an innovation is disruptive, there needs to be a reference point or a comparable entity, as it is only when compared with an incumbent that an entrant gets the “lower” features in many aspects. Moreover, it is precisely because the entrant with these lower features can still gain considerable market share in a larger economic context that it becomes disruptive. Following this logic, the second set of conditions for being a disruptive innovation refers to factors underlying the existence and continual success of the KSM. In other words, they are the social contexts that allow for and induce consumer demand for its products and services.

Regarding the first set of conditions, I suggest that the comparable entities to the KSM are traditional media industries and educational institutions, including both online and offline channels. Whether it is digital books, news and courses or offline printing and publishing, they all have a longer history of stabilized existence. In the developed world, they are also featured by privately-controlled status and thus higher costs for consumers. The KSM has instead provided its services based on lower costs and more affordable prices through the platform-based business model and hybridization of existing

techniques in other industries. In addition, the content and services of the KSM have relatively lower quality because they are often influenced by individual sharers' backgrounds and perspectives, which can appear less professional and well-organized than carefully filtered and systematically formulated content in traditional publishing industries and educational institutions.

Regarding the second set of conditions, the KSM has arisen against the backdrop of an emerging group of Chinese consumers' changing conceptions of consumption -- of what can be consumed and what levels and kinds of consumption are desirable. But the foundation upon which the KSM legitimately exist lies in the increasing acceptance of intellectual property rights (IPR). Further, it is also built upon the online-offline integrated lifestyle because of the popularization of online-mobile payment methods led by Alipay⁵ and electronic commerce. Last but not least, the recent socio-political, economic and cultural transformation has caused anxiety to diffuse among the young generation of Chinese internet users, who also receive the influence of neoliberal discourses on self-development. The demand for the KSM thus appears as an direct response taken by individual consumers to cope with anxiety and manifest their spirit of self-development. All of these social changes are not inherent characteristics of China but the results of complex encounters between global capitalist institutions and indigenous social and cultural institutions. To reveal these inter-relational processes that brought about the rise of the KSM from a sociological perspective, I will lay out more details about them in Chapter 3.

5. Alipay is the current largest third-party online and mobile payment platform established in China (Heggestuen 2014).

In this chapter, I will focus on illustrating how the KSM satisfies the first set of conditions in operating and sustaining itself with relatively lower costs of production. Meanwhile, I will explain how its products and services are relatively low-quality in terms of the effects in knowledge acquisition and usage. Both discussions will illuminate the importance of taking a sociological perspective in examining the appearance and success of the KSM, as it is essentially the transformation of Chinese society that has not only let Chinese consumers accept the service models and desire for participating in the KSM.

Lower Cost

Platform Business

As pointed out by disruptive innovation theorists, platform business is one promising path for developing disruptive innovations because of its network-based quality (Christensen et al. 2015). From the perspective of the platforms in the KSM, their networked nature distinguishes from traditional media and education institutions. In traditional media and education industries, the procedure of researching -- collecting and processing raw information, producing content -- organizing and outputting knowledge, and selling the products and services, often takes place within an internally integrated entity, such as a newspaper or an university. However, the platforms for knowledge-sharing decentralizes the procedure and outsources it to platform users themselves. The tasks for platforms remain rather simple. They first serve as intermediaries that direct consumers and businesses to consumers (C2C and B2C). Second, they collaborate with users to maintain and attract more consumers to use the platforms, that is, to reproduce the conditions for content production and circulation on the platform.

Reproducing those conditions means to improve the services provided by the platform in terms of its convenience, flexibility and credibility to sustain user supply and demand. As each individual service provided by platform users themselves constitutes the services of the platform, in being open to user interaction, platforms are already constantly upgrading their service performance through users' own initiatives and usage. They therefore could better respond to user demands in comparison to traditional industries, which mostly rely on in-house supply chains for improvements. In employing in-house supply chains, researching by internal personnel may slow the improvement process while adding extra labor costs. Relatively speaking, a platform-based business model may save production and reproduction costs for business runners while enabling them to perform better in letting users themselves to develop the services.

On the other hand, from the perspective of platform users, the C2C model allows consumers to directly interact with service providers without going through a channel of redistribution, thus largely reducing the transaction cost. Meanwhile, the immateriality of the services renders themselves non-rivalrous commodities that can be shared and reused by consumers. The cost of the services, in being shared by all users, can be even lower. What's more, many content producers who exchange their content through the platforms do not take this as their occupation but rather a part-time job, an expansion of personal interests, so they do not rely on the financial reward from the internet as their sole income. All these factors have rendered the products and services in the KSM cheaper than conventional means of media and education.

Hybrid Offerings

A second promising path for developing disruptive innovation is to offer service by hybridizing existing technologies and business models (Christensen et al. 2015). Specifically, the KSM is composed by combining elements of other industries. While what combination would work to gain popularity and what would not are also determined by social conditions, the point here is hybrid offerings allow firms to innovate with lower cost from a technical perspective. In this section, I categorize the services transplanted from other industries into three aspects, each of which plays a central role in constituting the structure of the KSM.

First, internet platform is the foundational element of the KSM. On one hand, there are question-and-answer (Q&A) websites and social media platforms, which originally emerged for people to freely express, exchange and absorb ideas and information. Platforms that belong to this category rely on carrying advertisements for profit. On the other hand, there are also commercial platforms such as Amazon, eBay and China's Taobao that focus on online shopping and connecting business and individual sellers to consumers. The KSM can be regarded as a combination of these two kinds of platforms, connecting businesses and individuals who have immaterial and intellectual products and consumers who have demands for them.

Second, the KSM has introduced and combined various existing content transmission service models from other industries. For instance, a live lecture session combines elements of both live streaming and voice messages that could be sent through instant messaging mobile applications. A live lecture thus can allow both real time interaction between the lecturer and the audience while saving internet data usage for

them, because voice message requires less data flow than video streaming. Another service model comes from Podcast, which refers to downloadable/online audio files (an online version of radio channels). In short, the means of transmission are adopted from other markets and adjusted to adapt to the need of KSM consumers. The platform businesses participating in the KSM therefore did not need to take efforts in initiating any original model development.

Third, the online payment system, Weibo, a dominant Chinese social media platform initially introduced this system, allowing its platform users to pay voluntary reward to the authors of answers and passages they have read on the platform. On traditional Q&A websites, similar mechanisms have existed for a long time. However, the rewards used to be virtual currency, which can only be exchanged within the website's community. Today, similar systems of virtual rewards still exist on many platforms, as they indirectly indicate the credibility and authority of the platform users. But the convenience and ubiquity of online-mobile payment methods, such as Alipay have made online transaction much easier and more common to the Chinese Internet users. The shift from virtual to monetary rewards consequently becomes plausible. In addition, some platforms in the KSM have also adopted the mechanism of charging subscription and membership fee that has been commonly employed by major Chinese music and video websites today. Paying for music and video services, is a rather new thing to most Chinese consumers, as underlying the public acceptance of the mechanism are both the government enforcement of copyright laws and the public internalization of IPR regime.

None of these elements is invented as a completely novel model by a single actor in the KSM. They have emerged from divergent contexts and been in use previously. The cost for the businesses to employ them in the KSM is thus expectedly low. But besides a lower production cost required by these hybrid offerings, the fact that the hybridization of these particular elements is able to succeed deserves even more attention, since, as disruptive innovation theorists point out, hybrid offerings do not succeed all the time (Christensen et al. 2015). Rather, the successful combination hinges on practical understanding of specific social and local needs (Christensen et al. 2015). For this reason, I will scrutinize additional elements of the social context for successful mergers and the adoption of other models in the KSM in Chapter 3.

Lower Quality

Another trait of disruptive innovations lies in the lower quality of their products and services. For the KSM, its lower quality comes from the fragmented organization and simplified presentation of knowledge caused by its decentralized, platform-based and therefore individually-determined system of knowledge-sharing. In traditional sources of information and knowledge, such as newspapers, publishing houses, academic journals and schools, the process of selecting information and generating knowledge often goes through centralized supervision and organization, which allow the audience to acquire knowledge in a systematic way with ensured quality, such as a series of courses, peer-reviewed and edited books. However, the products and services provided in the KSM are open to grassroots contribution. That is to say, the quality and organization remain subject to each individual contributor's decision. Since the identity of knowledge sharers are mixed by both professionals and amateurs, and each individual may have diverse

perspectives and understandings even on the same subject, the quality, professionalism, comprehensiveness and the depths of the content vary to a great extent in the KSM. By virtue of that, the knowledge circulated in the KSM comprises fragmented, scattered and unsystematic pieces of knowledge. Meanwhile, acquiring knowledge relies heavily on consumers' own initiatives to seek and judge what they need and to put personal efforts into consolidating what they have learned. Consequently, the effectiveness in acquiring knowledge and applying knowledge for further uses may not turn out ideal.

However, since disruptive innovations draw attention precisely because they offer services that highlight different functionalities to satisfy unnoticed and emergent demands in the first place, comparing disruptive innovations with their incumbents in terms of incumbents' major functions to suggest their lower quality remains unconvincing and misses the key about disruptive innovation. For the KSM, not only its main types of content but the mediums through which knowledge is shared are the new functionalities that traditional media and educational industries in China fail to offer. This insight provides the basis for us to reflect on why a group of Chinese consumers are willing to participate in this form of knowledge-sharing and have demand for those content. In other words, the second set of conditions, which constitute the social contexts for the rise of the KSM also requires examination.

Chapter 3

The Social Context for the Rise of the Knowledge-Sharing Market

Introduction

The KSM has arisen as a relatively unique phenomenon of China. To begin with, the prosperity of China's online economy is situated in the country's economic rise and the advent of a digital age; it is also conditioned by the increase of national disposable income (Statista 2018). However, the willingness and the desire to consume not merely hinge on how much income people receive and what things are available for them to consume, but also depend on how consumers identify themselves and perceive what it means for them to consume specific products through particular means. My main goal in this chapter is to provide plausible answers to these questions in regard to the rise of the KSM, by revealing and examining relevant socio-economic, cultural and political context of China in four sections. In each section, differences from the US, a representative example of the developed economies will be drawn and discussed to illustrate international impacts on the Chinese online and consumption space.

The first section suggests that the regime of intellectual property rights (IPR) has arisen as a legal norm and penetrated the Chinese internet by virtue of both the Chinese government's legal efforts and its netizens' changing attitude. Its rise underlies the rationale for the KSM, that is, information, knowledge, and all kinds of immaterial production deserve to be paid on the internet. However, uncovering how IPR came into being through different mechanisms in the US and China leads one to realize that the current understanding of IPR in China still lacks a cultural-ethical dimension that shows

high respect for originality and emphasizes the notion of private property. Yet it is precisely because the lack that the KSM can on one hand, legitimately charge money for sharing information and knowledge, while on the other hand, does not monopolize knowledge production and dissemination.

The second section pays attention to the online-mobile payment method -- Alipay. It reveals that the rise of Alipay, in supporting the e-commerce development in China and moving from online to offline, has radically changed conventional thinking about consumption, blurring the boundary between online and offline economic life and making commodities more mobile, diverse, dynamic than ever. It is against this backdrop that information and knowledge that used to circulate through offline channels or be freely disseminated has been able to transform into digital commodities. In fact, this change could not happen without China's initial absence of a credit card payment system and suitable institutions for trust-building, both of which were found key to the e-commerce development in the US. They therefore urged the advent of Alipay, which managed to fulfill the functions of those institutions and prepared the ground for today's online-mobile consumption in China.

The third section examines the direct causes of the desirability of the KSM. It identifies the social-psychological needs of today's modern digital generation of Chinese consumers. This generation neither trust and relay on the current party-state authoritarian government, nor do they aspire for conventional liberal democracy in the Western tradition. Their pragmatism has led them to be increasingly self-reliant and individualized. The need to be self-reliant in turn, causes sense of insecurity, as traditional types of social relations on which people use to rely on are gradually

undermined. Meanwhile, the reality of increasing social and economic competition further elevates the intensity of anxiety. As many of the generation are also the single-child generation, they face even higher pressure from Chinese values on family, which require them to support their parents and provide good environment for their children. Anxiety has thus diffused Chinese internet world. The KSM, by providing expert knowledge as an alternative source for life guidance, while allowing self-organized and individualized form of participation, has successfully satisfied the social-psychological needs of this modern digital generation. For all these three contextual factors, the KSM has occurred as a disruptive innovation.

The Rise of Intellectual Property Rights

Under the current international legal framework, IP includes four types of content: patents, trademarks, copyrights and trade secrets (WIPO 2019). In regard to how IP influences the KSM, copyright law might be the most relevant subject of concern. Copyright means to protect original works of authorship in literary, audio and visual forms from being used, copied, reproduced or published without the author's legal permission (WIPO 2019). However, in this section, the use of the phrase "intellectual property" refer to both a legal concept and a norm that suggests knowledge is a type of private property owned by a subject, who can either exclude others' access to it or allow access in exchange for other valuable objects. The success of the KSM is first situated in the increasing tendency to embrace this notion on IP.

Ever since its economic reform, China has been criticized for both the citizens' rampant violation of IP laws and the government's failure to regulate IP-related fields by the Western societies. On the internet, Chinese netizens had been downloading pirated

music, playing games and watching videos and movies for free. In real life, illegally copied books, counterfeit products always had big markets because of their lower prices.

However, if we take a broader view of China's internet today, it is evident that most websites have now strictly enforced copyright law. Not only websites that used to allow free access to pirated work have been banned, penalized or required to delete the content, but mainstream music and video websites have also introduced subscription systems and other charging services. Websites involved with content production, be that words, photos, or videos, also stress their compliance with copyright laws and asked their users to sign agreements to the conditions before they can register accounts. Certainly the state's continuous efforts in strengthening IP law enforcement helped bring these results, but the public willingness to conform to these rules needs more examination, given how rampantly the public used to ignore and violate IP laws.

In fact, the process by which Chinese netizens shifted their attitudes towards IP laws has stemmed from a rather different origin than the Western context for the rise of IPR protection. Although the cultural roots in Confucianism and authoritarian and socialist political environment were both identified as obstacles to the development of IPR protection in Chinese society, China's economic progress, industrial transformation and a younger generation's individual aspiration for global/western modernity have led to the wide acceptance of IPR as a norm. To illustrate how this is so, I will start with comparing the historical and cultural differences between the US and China in approaching intellectual work. Then, I will discuss how the regime of western modernity -- economic and civilizational development endorsed by advanced societies has induced

both state coercive rule and individual voluntary consent in China. In the end, I will reveal the significance of this process on shaping the foundation of the KSM.

The idea of IPR gradually prevailed for both economic and ideological reasons in the United States (Fisher III 1999). Due to the transformation of the basis of the American economy, which extended from agriculture and manufacture to jobs engaged with informational substances, the demand for IPR protection concomitantly increased. For the same reason, American people have gradually transformed their roles from content consumers to content producers or inventors. Moreover, trademarks and tradenames, in symbolizing the reputation of the firms, received much attention since the means of advertising and marketing became important for firms to attract and stabilize consumers in making profits. These economic factors together brought about the legal endorsement of IPR.

Ideologically, the idea of private property, which inherits from John Locke's labor theory of production, suggests that one deserves to own what one produces from his own labor. Beyond understanding private property in this way, the rise of classical liberalism in the early twentieth century, in distrusting and opposing government supervision of inventive activities, further promoted the construction of IP laws to protect and incentivize artistic and scientific production. Lastly, American culture has a history in romanticizing the heroic image of inventors and original authorship; thus, there is also an ethical root in Americans' respect and endorsement for IPR (Swinyard, Rinne and Kau 1990). As a result, IPR obtained significant legal and customary status in the US.

However, neither legal nor customary respect for IPR, copyrights in particular, can be located in ancient Chinese history. Not only did Chinese laws not embody

systematic regulatory frameworks for intellectual property until imperial China's encounter with the colonial West in the late nineteenth century, but copying and quoting without citing the sources have been common in the history of Chinese intellectual fields (Willard 1995). In fact, in imperial China, the ideas and practices around writing, copying, quoting and the conception of IP had drastically different and even contradictory grounds from Western history (Stone 2008).

Scholars explained in detail the cultural values and beliefs underlying these practices. On one hand, it is not that the sources of quoted texts are not important that scholars never properly cite the original authors, but that the readers of classical Chinese texts, in ancient times, are always expected to "recognize the source of the borrowed material instantly...If a reader is unfortunate enough to fail to recognize such quoted material, it is his fault, not the author's" (Stone 2008, 202). On the other hand, from the perspective of an author, borrowing and copying are always seen as affirmative, honorific and essential actions, in the sense that they show the users' comprehension and appreciation of the work, as well as their devotion to building the present civilization upon the past (Alford 1995, 27; Willard 1995, 416). For these reasons, neither an original author nor a copier would consider the act of copying and borrowing to be violating any sorts of rights, but contributing to the inheritance and development of knowledge and civilization.

Besides the common interpretation of Confucianism's influence on Chinese intellectual culture, Stone (2008) also hones in on the influence of Buddhism, which fostered the convention of text copying and thereby book production before printing was invented in imperial China. Its influence reveals that copying also had a purely religious

motivation to selflessly distribute the wisdom of the Buddha. Furthermore, the very philosophy of Buddhism that contains an “austere ideal of renunciation of the world of things” is also unlikely to celebrate the notion of property or ownership (Stone 2008, 226). In this light, Chinese culture starkly differs from American/Western culture in its treatment of immaterial and intellectual works -- while the former tends to focus on the social benefits of distributing and imparting the work,¹ the latter tends to focus on the significance of the individual behind the work.

Previous scholars studying the enforcement of IP laws in China have also pointed out that ancient Chinese imperial rule and the previous socialist regime produced and sustained a suppressive political culture. Such culture impeded freedom of expression and restricted the development of IP-related creative activities (Alford 1995; Willard 1996; Palmer 2001). Without sufficient inventive activities, IPR protection would certainly not receive much attention. This viewpoint suggests that freedom of expression helps engender creative activities and outcomes, but this insight is problematic since it fails to realize that the conceptions of what constitutes creativity and what causes actions differ across cultures in the first place.² In other words, for Chinese people, the drives behind IP-related production can arise from a context different than liberal ideas of freedom of

1. Shi (2008) points out that such Confucianist cultural values should be distinguished from the causes of rampant piracy and counterfeiting during the earlier years of China’s economic reform. Shi further argues that it is China’s unique socialist ideology, administrative decentralization, inadequate judiciary and huge but inefficient bureaucracy which have made intellectual property enforcement intractable and unpredictable in China.

2. Two relevant studies may further the discussion on this topic. One is on the measuring of creativity, which indicates that students from East Asian cultural backgrounds tend to measure creativity based on the practicality of the creation, while Western culture tends to measure creativity based on the originality and artfulness of the creation (Leung, Kwok and Wang 2015). The other study explores their differences in making moral decisions, and reveals that Singaporean culture tends to base moral decisions on the outcomes of their decisions, whereas Western culture tends to base moral decisions on the nature of the decisions (Swinyard, Rinne and Kau 1990).

expression, as much as the mechanism for internalizing IPR as a norm stemmed from something other than an individualist culture.

Against the backdrop of cultural differences in conceptualizing IPR, a complex set of institutions has precipitated the public acceptance of IPR in China. To elucidate the complexity of these institutions, I draw on Beck and Chang's insights into the advent of a second age of modernity, which marks the transition from the nation-state-based unit to a cosmopolitan-based unit of international relations. In this second modernity, economic, political, social and/or cultural changes happen in a shortened time-frame and at individual, state, regional, and cultural levels (Beck 2000; Chang 2010).

In the first age of modernity, the relationship between developed and developing countries was more asymmetric. The driving forces of modernization -- scientific, economic and civilizational development -- for the former more originate from their own intent and power, while because of colonial and neocolonial reasons, the latter was made to depend on and imitate the former in pursuing modernization as a national project for domestic interests. The system thus bases its configuration on seeing nation-state as the main unit. As a result, developing countries and countries that used to be developing countries (e.g. Japan and South Korea) quickly replicated the technical and economic institutions endorsed by developed ones through state-led economic reform (Chang 2010).

The joining of the World Trade Organization (WTO) for China is a part of this system. It was indeed the economic need to become a member of the WTO and with that the expectation of compliance with the prescriptive requirements found in the WTO Agreement on Trade Related Aspects of Intellectual Property Rights that have provided

the greatest influence on the shaping of China's intellectual property regime today (Stoianoff 2012). The actual rulers of the WTO, the US, Japan and the EU, as China's trading partners who also had economic interests in entering into the Chinese market, utilized the entrance to WTO as a leverage to force the Chinese government to improve the legal framework and enforcement of IP laws (Morin and et al. 2018).³ However, it was in the pattern in the second age of modernity that the public Chinese netizens have started to actively embrace the idea of IP and willingly conformed to and even endorsed IP laws.

In the second age of modernity, the conventional principles of territoriality, collectivity and frontier are being questioned because economic and social ways of acting, working and living no longer take place within the container of the state (Beck 2000). In some aspects, the spatial and temporal differences between developed and developing countries have been eliminated as people started to consider themselves living in the same global space, learning how to behave not within national borders but a world society (Beck 2000, Chang 2010). In other words, modernization has become a process that takes places more multi-dimensionally yet is experienced and perceived more individually (Chang 2010).

The rise of the public acceptance of IP in China is precisely situated in this more cosmopolitanized and individualized modernizing process, by which western-dominated neoliberal forces have circumvented indigenous collective and cultural resistance and transcended geographical boundaries, successfully reaching out to each individual agent. In the case of IPR regime, the enforcement of IP law is no longer simply perceived as a

3. See more on China's joining of WTO in Stoianoff (2012).

coercive action imposed by the state, but a universal norm that is inherently correct and thus should be complied to by a responsible individual who locates them in a world society. As the current Chinese netizens are better facilitated with communication technologies, they have been more easily and tightly connected to the world in which Western modernity has become a cosmopolitanized and individualized project. Since IPR protection in both economic and ideological terms, symbolizes a step towards Western modernity, it has been able to penetrate Chinese society more pervasively from the bottom-up. In this way, previous failure in enforcing IP laws due to both state institutional weaknesses and the citizens' indifference to IPR has turned into today's wide acceptance of IPR protection as a norm on the Chinese internet.

In short, the IPR regime on the Chinese internet today has derived its normative status from both the Chinese government coercive efforts and individual voluntary consent, although the latter occurred more recently. However, the keys underlying the rise of the IPR regime are twofold. First, as a set of legal and ideological concept with moral meaning, the IPR regime cannot find a similar root in Chinese culture and history as it arose in the Western context. Second, because of the first point, the essence of the Chinese public acceptance is still distinct -- IPR remains as a learned, external element in the seeking of modernity -- for state, it means national economic growth; for an individual agent, it means a new relationship with the world.⁴

The particularity of IPR's status in China and its significance on the KSM in turn, lie in the specific timing and the nature of its rise. On one hand, it has only arisen in a recent period in which social networks have just begun flourishing in the world. In fact, it

4. According to Morin et al. (2018), more nuances and conflicts exist in China's negotiation with international IPR regime, but those are beyond the scope of what this project is concerned with.

is partly because of the rise of social network platforms that Chinese educated netizens have been more diffusively influenced by the globe. The rise of IPR thus provides an ideal environment for producing and exchanging immaterial commodities on the internet. Things that used to be freely shared through the internet can now legitimately charge money because knowledge, information or any immaterial product circulated on the internet is a form of intellectual property.

On the other hand, as a quickly learned and accepted norm in chasing modernity, a synonym for national and personal economic development, IPR in China does not have strong roots in sincere respect for the original authorship but only symbolizes a new type of socio-economic relationship. Thus, the concept of IP, at least on the internet, does not monopolize or exclude others from access. Rather, it encourages shared access and allows public use insofar as consumers commit payment to fulfill their duty in this relationship. Arguably, these two aspects of the rise of IPR on the Chinese internet together built the foundation of the KSM.

The Rise of Online/Mobile Payment Method and Electronic Commerce

While in the early 2000s, the major internet users in the world were still American, by 2018, the number of Chinese internet users have reached twice the size of US population. As of December 2017, the number of China internet users totaled 772 million (China Internet Watch 2018). As Yu also points out, China's urban population is also much more "advanced" when it comes to mobile internet activities, including online consumption than the American urban population (Yu 2014, 52-53). Indeed, today's Chinese internet consumers have largely exceeded any national group in the world in consuming on the global internet space. However, both the internet and electronic

commerce originated from the US, rather than China. This phenomenal shift can certainly be explained by the quick diffusion and adoption of information technologies such as 4G technique and smartphones, which have been made increasingly affordable to Chinese consumers. Nonetheless, the online payment method -- Alipay plays an even more instrumental role in facilitating the development of electronic commerce. The payment method has further radically transformed how Chinese consumers conceptualize the space for their social and economic life.

In this section, I identify the existing technical and social institutions that aided the development of e-commerce in US recent history. Then, I will reveal the difference -- the lack of those institutions -- in the Chinese society and examine how Alipay emerged as a practical and audacious attempt to cope with the situation, and consequently, improved the environment for developing e-commerce in China. In the end, I further suggest that in transitioning from a PC-based payment platform to a mobile payment platform, Alipay more radically changed the way in which Chinese consumers conceptualize the space and content for consumption, enabling wider possibilities for consumption.

In the late 1990s of the US, e-commerce entered American people's life with Amazon and eBay's emergence in the market. Despite a series of initial challenges in providing satisfying modular services to consumers, e-commerce developed rather quickly. According to Hanson (2008), this is because the pioneers in e-commerce, such as eBay, were able to develop a series of modular services adapted to consumer needs in information, assortment, convenience and entertainment. Online shopping in turn became

a complementary activity to offline shopping. However, in Hanson's analysis, the role of existing social and cultural institutions in America is absent.

Oxley and Yeung (2001) identify that both a national respect for "rule of law" and sophisticated credible payment systems are crucial for societal adoption of e-commerce. The respect for "rule of law" can largely affect the way in which people determine their behaviors and their relationships with others. In a society where people have a higher faith in "rule of law," there is greater transparency and stability in regard to acceptable behaviors, because laws, contracts, written agreements are highly trusted, valued and relied on (Oxley and Yeung 2001). Thus, in the context of e-commerce, whose virtuality creates a barrier for real and close interaction between buyers and sellers, a strong social belief in and actual foundation of "rule of law" can help reduce the uncertainty and risk involved in online transactions. As legal institutions have established a longer and stronger ground in American history, it was easier for American consumers to trust the internet as a medium for conducting economic activities.

In addition, the availability of the credit card payment system was also conducive to the public adoption of e-commerce in the US. For American consumers, using a credit card for online shopping is easy and direct, as they only need to move traditional offline payment method to the online space. Even at the beginning stage of online shopping, 70% of American consumers had at least once paid with a credit card (Bin, Chen and Sun 2003). While they could also pay through third-party payment platforms like PayPal and Escrow, these platforms also process credit card payments more often than others (Bin, Chen and Sun 2003).

More importantly, underlying the prevalence of the credit card payment in the US is a longer history of financial development as well as the exercise of “rule of law”. The core rationale of credit card’s existence comes from the idea of credit, which allows a card holder to get a loan in spending first and paying the loaner back later. The essence of credit therefore symbolizes one’s perceived social and economic trustworthiness, which again, in a society regulated by “rule of law”, can be determined more easily and quickly. In this sense, online payment methods in the US are the natural extension of traditional offline payments (To and Lai 2013).

By contrast, neither a respect for “rule of law” nor credible payment method could be found in the earlier stage of e-commerce in China. At a superficial level, their lack might be attributed to a rather short period of state-directed economic reform in China, that is, China was still at the developing stage. For this reason, legal institutions were not as effective and efficient as they are in developed countries. Besides, the Chinese government was extremely cautious and conservative about financial liberalization for a variety of reasons.⁵ Consequently, financial resources and means were highly monopolized by the “big four” state-owned banks.⁶ Both the highly regulated financial sector and the bureaucracy of the state-owned banks hampered the issuance and popularization of credit cards and any other credible forms of payment that could ease online transactions.

Nevertheless, a deeper cause of the lack lies in that Chinese people have different values and conventions not just in consuming but in ways of living, to which the

5. See more on this topic in Greta R. Krippner (2011), Arthur Kroeber (2016a, 2016b), Joseph Stiglitz (2000).

6. They are the Bank of China (BOC), the China Construction Bank (CCB), the Agricultural Bank of China (ABC), and the Industrial and Commercial Bank of China (ICBC).

rationales for accepting online shopping and credit card payment are almost antithetical. First, face-to-face intimacy and collectivist-oriented thinking are crucial to Chinese consumers in making purchasing decisions, because to them, trust and credibility are rather accumulated through social interactions than being derived from “rule of law” (Yu 2014). Since the physical constraint inherent to the internet prevents consumers from having closer contact with the sellers online and getting to know peers’ evaluations, it would be hard for them to resolve the uncertainty and risk involved with online shopping. Second, credit and debt were indeed relatively new concepts in Chinese culture (Worthington et al. 2011). Conventional Chinese values in spending and saving convince people to avoid debt and spend according to savings (Sharpe, Yao and Liao 2012). Even in situation where borrowing money becomes necessary, Chinese people more often turn to informal resources such as family members, friends and relatives at low or zero interest rates (Worthington 2005). Therefore, although a small group of Chinese consumers did own credit cards at that time, they rarely used them whether online or offline (Worthington 2005). In fact, for e-commerce, over half of the payment was completed by cash upon delivery, with the rest split between bank and post office remittances (Bin, Chen and Sun 2003). These payment methods inevitably slowed the transaction process while remaining risky to the consumers, since it is harder to recover the loss of cash or paper-issued remittances than credit card losses. By virtue of these technical and institutional differences, domestic e-commerce development in China faced serious challenges (Ou, Sia and Banerjee 2007).

However, the sheer business potential and profitability of e-commerce still led the Chinese government to highly promote domestic e-commerce (Kwak, Zhang and Yu

2018). Against the backdrop of this distinctive socio-cultural and economic context, Alibaba, a B2B model-based e-commerce company and its C2C model-based division, Taobao, together became the pioneer of Chinese e-commerce. Compared with eBay that operated by C2C model for five years longer, Taobao's growth was limited in terms of market size and penetration rate (Li, Li and Lin 2007). Yet when eBay entered the Chinese market, it spurred the reformative action of Taobao, leading to the advent of Alipay.

“Across China , Taobao opened bank accounts in branches of every bank in every city, depositing just enough money into each one of them to ensure that transactions would be cleared. Behind the scenes at Alibaba, programmers built systems to record and track the necessary transactions. To make a purchase, a buyer transferred money into one of Taobao's accounts. On receipt of the funds, Taobao notified the seller, who would then dispatch their goods” (Tse 2016, 35). This was the initial working mechanism of Alipay, the current largest online payment platform in the world (Xu, Ghose and Xiao 2016).

What's significant about Taobao is that it not only invented an online payment method to replace the role of the credit card system in the US, while basing itself on a rationale different from credit cards, but also brought about a series of institutional improvements to make online shopping an acceptable and desirable experience in China (Kwak, Zhang and Yu 2018). First, at the outset, Alipay has allowed the customers to spend according to their savings rather than giving them loans. Second, in protecting the customer's interests, even after a purchase is made, Alipay does not immediately transfer the money to the seller but keeps it in the buyers account for the next 15 days unless the buyers approves the transactions on their own or confirm the delivery of the item.

Furthermore, it also introduced additional customer services, which include unconditional return or cancellation of a transaction within seven days of a purchase made. All these rules and services do not require much efforts from the customers, while they still help ensure customers' security and minimize the risks in their online shopping.

To ameliorate a stranger-dominated and physically separated setting of online shopping, Taobao further adopted multiple services to facilitate trust-building communication among sellers, buyers and the platform itself. While traditionally, e-commerce businesses have promoted the functionality of customer ratings and comments, these mechanisms often did not lead to prompt feedback from the sellers or the platforms themselves. However, Taobao allowed its customers to start chatting with the seller even before they make purchases to help buyers learn more about both the sellers and the products (Kwak, Zhang and Yu 2018). The chatting system was the early shape of today's large network-based economy (Yu 2014). In this sense, what was hampering e-commerce development -- the absence of traditions in "rule of law" and credit card systems -- opened up the possibility for Taobao to come up with practical solutions, including the creation of a socialized network within the terrain of online shopping and a new customer-oriented service.

Then, Alipay greatly extended its influence when the online payment system evolved along with the advent of smartphones. As much as Laudon and Traver suggest that the ubiquity of smartphone has made e-commerce a social, local and mobile experience (2018), Alipay has facilitated and expedited this transformative process in China. With the widespread use of smartphones, Alipay successfully transitioned from a PC-based online payment method to a smartphone-based mobile payment method. In

contrast to the traditional online payment method, which happens remotely, meaning, the customer cannot physically interact with the seller or the product, a mobile payment method allows one to pay with their phone instead of cash or credit card in physical life. Today, Chinese people no longer take cash with them, as they instead, only scan the QR code, indicative of their Alipay or Wechat account on their smartphone, to purchase everything. Alipay, and a series of other rival payment platforms, such as WeChat Pay and Baidu Wallet have become the substitutes for offline card-present or cash payment (Xu, Ghose and Xiao 2016), and they also dominate the whole e-commerce sector in China.

Although the transition to online-mobile payment appears natural and sequential as a result of technological progress, it is indeed a subversive step in that it has diverged from the developmental trajectory taken by the developed economies:

The developed economies of the USA, Western Europe, and Japan evolved their consumer cultures decades before the internet became ubiquitous. As such, online shopping evolved, gradually, and often merely augmented deeply rooted practices in the offline world of brick and mortar shopping. In contrast, China's consumer revolution occurred during the very same historical period that computers and their virtual worlds became globally accessible. (Yu 2014, 16)

Today, the status of mobile payment methods has significantly changed Chinese consumers' perception about what and where to consume, enabling a dynamic fusion of online and offline spaces and experiences. The duality of Alipay in being both online, as remotely controlled, and offline, as physically mobile, renders the consumption experience of Chinese people no longer easily definable, because no matter what type of goods there are -- material and immaterial, and where they exist -- online or offline, they have been merged via the payment method into a collective. Against this backdrop,

economic and non-economic activities traditionally conducted offline can easily travel to the online space and turn themselves into commodities. Consumers also seamlessly travel between physical and virtual world in being social and conducting economic activities.

While Yu states that the inextricable bond between consumption and communication, between acquisition and connectivity is forged by the internet, I perceive the advent of mobile payment method a more radical and influential mechanism facilitating the bond. The KSM exists as an embodiment, reflection and example of this newly formed consumption space, experience and culture: on one hand, face-to-face teaching and interactive education that used to exist in offline physical space have been transferred to the online virtual space; on the other hand, dissemination and sharing of information and knowledge that used to allow free access have been absorbed into a market exchange system.

In recap, the rise of Taobao and Alipay first made up the absence of technical and social institutions that are necessary for e-commerce to prosper in China, bringing about the embryonic form of fusing social network-building into online shopping experience for the Chinese consumers. Then, the particular time period it arose at, that is, the smartphone age, enabled them to significantly transform the ways in which Chinese consumers conceptualize the space for economic and social life, as the consumption experiences have become more mobile, diverse, dynamic and socially shared. It is within this context that the KSM has been able to thrive on the Chinese internet today.

The Modern Digital Generation of Chinese Consumers

The rise of IPR regime and the popularity of online-mobile payment methods both provided the foundation for the existence of the KSM, in the sense that for Chinese

consumers, paying for online intellectual products has not only become imaginable but widely accepted as a normal part of life. Yet, for the KSM to flourish in the context of people's willingness to pay for knowledge, the market also has to fit specific consumer demands. To uncover what have induced consumer demands for the KSM, this section examines the social environment that has changed the modern digital generation of Chinese, who are the major consumers of the KSM. By contextualizing Giddens' theoretical view on the relationship between self-identity and social changes in contemporary Chinese society, I suggest the modern digital generation have become more pragmatic and self-reliant in identifying and managing their relations with the society. For this reason, they suffer from anxiety that precipitates more demands for knowledge. Knowledge, in this context, both serves as a source of life guidance in replacing suppressive and inefficient traditions, and a tool for achieving self-development. As the knowledge provided by the KSM fulfills these conditions, it has successfully drawn and maintained consumers' participation in it.

Viewing social experiences have become more mediated and individualized in the period of late modernity, Anthony Giddens discusses the increasing interconnection between self-identity and society, providing an explanation for the increasing prevalence of individual ontological insecurity and anxiety in the Western context (Giddens 1992). In late modernity, the conception and function of time and space are radically reconfigured by the increasing temporal connectedness among the globe in spite of spatial separation. In the meantime, with the development of disembedding mechanisms - symbolic tokens and expert systems that abstract social relations from specific locales,⁷

7. For more details on disembedding mechanisms, see Giddens (1991).

people tend to confuse their locality and temporality with others'. The content and nature of day-to-day social life are profoundly transformed by such disrupted ontology of space and time (Giddens 1992). Against the backdrop, traditional institutions and regimes that once defined societal shapes and guided people how to live have been challenged and undermined.⁸ An emerging multiplicity of choices and opportunities has pluralized the contexts of actions (Giddens 1992). As a result, instead of relying on traditional types of social relations for decision-making in pre-modern period, people in a late modernity need to rely more on self-reflection of their identity and relationship with the world in order to act (Giddens 1992).

Within the same context of entering into late modernity, anxiety has become prevalent (Giddens 1991). First, when the phenomenal world seems to display a multiplicity of choices to people, it is indeed mediated by disembedding mechanisms of abstraction and deterritorialization, which obscured the fact that things came into beings by historical and local contingencies. The world perceived by oneself thereby entails a discrepancy between others' context and one's own, as well as a confusion between others' histories with one's own present and future. In this case, the anticipation for one's own future is built upon a diversified range yet abstracted, mediated information, which seems to provide more choices and opportunities. As anxiety "derives from the capacity - and, indeed, necessity - for the individual to think ahead, to anticipate future possibilities counterfactually in relation to present action" (Giddens 1991, 47), the more counterfactual possibilities -- choices, opportunities and freedom -- there are, the more easily one becomes anxious. Second, in the meantime, as the authority of traditions has

8. Though implicit in his book, Giddens was writing against the backdrop of the decline of Fordism, Keynesian Welfare State and the rise of Neoliberalism.

been challenged and undermined, the self gradually loses the emotional and moral grounds for daily actions. What have arisen instead are anxiety and the search for coherent narratives in self-identity in continuing daily life.

Significant social changes happened in China as results of the radical breakaway from Maoist socialism, the rapid economic growth and the widened access to the internet. The transition into a postsocialist era in the 1980s led Chinese people to first realize that the world is no longer configured by the antagonism between socialism and capitalism, but opened for a diversity of possibilities for social imaginations and desires (Rofel 2007). Economic growth in the following decades brought hundred millions of people out of poverty, improved their living conditions and allowed them to pursue more personal economic freedom. After twenty years, 70% of Chinese citizens today have access to the internet (CNNIC 2017), where media and communication technologies can better display and mediate information and connect people regardless of their locations and the temporal stages of their locations. As most of the Chinese internet users access the internet through mobile phones (CNNIC 2017), the offline-online integration has made the experience of the phenomenal world even more mediated.

In light of these transformations, Giddens' theoretical insight into the challenge imposed on self-identity by late modernity implies that ontological insecurity and anxiety have been growing rampantly since the postsocialist era until today. However, the diffusion of anxiety among the more recent Chinese society, in particular, among the modern digital generation needs more particular and contextualized analysis besides Giddens' generalized view, which is likely based on the Western experience. This modern digital generation specifically refers to the dominant group of Chinese internet

users, who are aged between 10 and 39, most of whom are in their 20s (CNNIC 2017). They also mainly comprise college students and enterprises' young staff members with degrees above junior high school (CNNIC 2017). Arguably, this digital generation is primarily composed by a group of highly educated single-child generation.⁹ Further, born after China's transition into a postsocialist society, this young generation has been growing up in an milieu of individualization, commercialization and digitization resulted from capitalist development (Tyfield 2017). Yet indigenous socio-political and cultural institutions still have strong influences on their decision-making. For all these reasons, their anxiety and self-identity are induced and shaped by distinctive contexts and reasons that are too complex to merely attribute to societal changes.

First, anxiety emerges from the individualization of the modern digital generation, who have become more pragmatic and self-reliant in managing their relations with government authorities. Having received official education that condemns the socialist suppression under Maoist regime, this generation has starkly abandoned the traditional socialist ideology (Rofel 2007). However, seeing both the immovable presence of the current authoritarian government and the increasingly corrupt practice of electoral democracy in the Western sphere, they have rather chosen to adapt to the reality (Tyfield 2017). That is to say, they neither sincerely trust or rely on government authority, nor have the expectation for the government to be changed. The utility of government authority only derives from pragmatic and case-by-case judgment, whereby people decide whether to unite with the government or to rely on themselves.¹⁰ Through this

9. Most people in this group can be expected as the single children of their families because of the national one-child policy implemented by the Chinese government from 1979 to 2015.

10. Empirical evidence shows that in controversial issues regarding China's international image and status, strong nationalistic sentiment often unites a large group of Chinese netizens with the government ().

pragmatic understanding, this generation has become more aware of the need to be self-reliant, thereby feeling anxious as self-reliance also means less connection with their social surroundings. David Tyfield nicely summarizes the reality with which this Chinese generation are faced:

On the one hand, individuals have become increasingly exposed to the double-edged sword of growing socio-economic autonomy, as opposed to having their life mapped out any longer by their position in the Party-state, and thus ‘individualized’. Yet, on the other, the immovable presence of the latter persists in systematically discouraging expressions of individualism in terms of the moral and political priority of the individual – and, therefore, also of new collective associations and identities of individuals in civil society. This, in turn, engenders a general mood of individualized hyper-competition, stress and anxiety, further feeding lived concern about these profound security risks to oneself and family. (Tyfield 2017, 132)

The second source of anxiety also comes from this generation’s pragmatic understanding of the reality. In this reality, while there is no alternative for Chinese young people to competing in the job market, local social institutions can further limit their opportunities and expose them to perpetual precarity. As the majority of the modern digital generation comprises college students and young office workers, they have particularly strong needs of achieving secure work and high income in order to maintain personal well-being. Yet it is also them who have to confront institutional constraints, or, “structured uncertainty” (Breznitz and Murphree 2013). These can include but are not limited to: (1) a series of rural-urban divides created and intensified by the household registration system *Hukou*, (2) a hierarchical ranking of cities based on their developedness, (3) differentiated provision of medical insurance based on employers, (4) college entrance exam and admission with difficulties varied across regions, and numberless others. All of these institutional factors affect the chances for people to acquire resources and opportunities based on their physical locations and social

standings. The structures are starkly solidified that they only lead to infinite feedback loops of incremental competition and perpetual inequality (Tyfield 2017). Realizing the conditions for them to survive in the large contexts -- job competition and life security threatened by environmental crises and work-related health problems, the modern digital generation are in a constant state of fear, and thus anxiety.

Last, despite an inclination for the modern digital generation to become more individualized, the family-centered cultural value still largely influences their decision-making; it increases anxiety by requiring consideration for one's family in addition to oneself. Inherited from Confucianism, the concept of family has always existed throughout Chinese history. Both filial piety and parenthood are fundamental to Chinese morality, guiding Chinese people's thinking and behaviors. However, for the modern digital generation, their distinctive status as the single child of their family renders family value a special case in regard to the degree of their anxiety.

Being the single child in the family and in a culture that highly values family ties has allowed this generation to receive extraordinary attention, care and investment from their parents, in turn leading to higher expectations to thrive and succeed in all aspects. Given Chinese cultural value of filial piety, the new generation put greater efforts in supporting their parents after retirement, to repay the extra attention their parents spent raising them up in single child families. Additionally, from a more practical perspective, being the single child also places higher financial and mental burden on this generation compared to the past, when siblings could share the responsibility for taking care of their parents. Meanwhile, in a culture where family value is important, the thinking about future inevitably induces more worrying and planning for family members, especially for

the next generation. Since many of the digital generation are in the conventional age range for bearing or raising children, the amount of future possibilities that need their calculation is magnified in including their children's future. Bearing and raising children also assigns the digital generation a new identity of being parents in addition to being someone's sons/daughters and workers. The categories that define their personal success thus encompass parenthood, engendering more anxiety.

For all these contextual factors, anxiety has exploded and precipitated the generation's demand for knowledge to obtain alternative sources of life guidance and self-improvement. The KSM, by outsourcing knowledge production and distribution to grassroots experts has successfully satisfied both of the conditions. First, in contrast to either authoritative and suppressive instruction imposed by government, or traditional social relations that are inefficient to catch up with the pace of social change (Rose 1999), expert knowledge offered by the KSM serves to give straightforward instructions on life planning. Second, in allowing expert knowledge to rise from grassroots recognition and distributing knowledge through democratic and self-organized system, the KSM aids its consumers to find niches between the distrust of traditional sources -- the inclination to individualized, self-reliant decision-making, and the insecurity in being disoriented without traditions -- the psychological needs for social group identification and connection. Second, in responding to the demand for knowledge as an instrument for self-improvement, the KSM provides a diverse range of content informing ways to develop personal competency and to promote one's well-being. This can be illustrated by

the most popular subjects in the KSM, most of which are related to career development, parenthood, child education and financial management.¹¹

In light of these major functions of the KSM, it stands out clearly that the knowledge provided by the KSM has different meanings from knowledge distributed through traditional means, such as teaching, academic publication and news articles. Regarded as an alternative source of life guidance and a tool for self-improvement, the expert knowledge in the KSM entails a forward-looking, action-attentive nature. That is to say, it appears as a codified form of tacit knowledge, as the knowledge on how to do something. However, in reality, tacit knowledge can never be easily acquired by written or verbal instruction without real personal practice. Thus, although at one point, the consumers decide to purchase certain knowledge products because they suppose the use-value of those products can help them accomplish something, as soon as they realize the actual discrepancy between knowing how to accomplish and accomplish, the supposed use-value is self-undermined. What replace the supposed use-value of knowledge to sustain consumer demands then shift to the social-psychological effects that have been generated in the process of consuming knowledge.

As Bauman suggests:

Individual needs of personal autonomy, self-definition, authentic life or personal perfection are all translated into the need to possess, and consume, market-offered goods. This translation, however, pertains to the appearance of use value of such good rather than to the use value itself; as such, it is intrinsically inadequate and ultimately self-defeating, leading to momentary assuagement of desires and lasting frustration of need. (quoted in Giddens 1991, 198)

11. See page 35-36 in chapter 2.

Here, the inquiry about why consumers participate in the KSM has turned into an inquiry about the philosophies behind consumption. Yet it is beyond the scope of my project to engage with a deeper discussion in that respect, as the more important point for me is to reveal what factors have led to consumer needs of the KSM, thereby making it prosper as a disruptive innovation. As the theory of disruptive innovation indicates, the disruptiveness of disruptive innovation precisely lies in its capability to satisfy unnoticed or emerging demands. Here, the KSM differs from traditional media industries and educational institutions in that it more serves to satisfy consumers' social-psychological needs, rather than educating.

In short, the rise of the KSM is not made by forcible attempt, but grounded in and shaped by the changing social environment in China. This environment has now been marked by new ways China's modern digital generation identify and manage their relationships with the society. In this sense, presenting the KSM as a disruptive innovation not only adds a new model for examining innovation development, that is, to consider specific social context, but also suggests that the advent of innovation always signifies simultaneous changes happened in society. By placing disruptive innovation in a global context, it can prove the existence of heterogeneous societal shapes, which are built on their own temporalities and spatialities, in spite of their concurrent existence within one universe.

Epilogue

Drawing on the framework of disruptive innovation, this project focuses on the KSM in China to provide a contextualized model for the evaluation of China's NIS. By examining China's distinctive social institutions and changing cultural values and comparing them with their Western counterparts, I have shown what enabled and motivated a group of Chinese internet consumers to participate in the KSM. Specifically, these consumers have not only embraced the regime of IPR as a norm, but also lived in an age in which online/offline experience and social-economic life have been reconfigured and fitted into one space. In addition, many of them suffer from greater anxiety in thinking about the future for themselves and their family members, because of the tendency to be more self-reliant in a suppressive and competitive social environment.

Three implications derive from this project to appeal for rethinking what innovation could mean. First, in response to the mainstream perspective, which focuses on quantifiable measures in high-technology and scientific research and development, I suggest a broadened understanding of innovation as to include systems that provide new ways of social and economic life.

Second, this project has also offered perspectives from sociology, history, cultural studies and anthropology to enrich plausible methodologies that innovation theorists and political economists can use to examine and evaluate innovation development. As Freeman, Lundvall, Nelson and Edquist would remind us, the concept of NIS, at its onset, supposes that economic, political and socio-cultural contexts. Contextualization are therefore essential for any evaluation of a NIS.

Last, the project has challenged the assumption of a universal temporality under which regional innovation capabilities are evaluated, because the rise of disruptive innovation and the context of its rise together demonstrate how spatial differences can also lead to innovation. Consequently, those spatial differences are no longer only identified within a universal temporality as being developed /underdeveloped or being advanced/backward, but indeed constituting different temporalities through their own innovative achievements.

For the same reason, this project also sheds new light on the spatial configuration of global value chains, which are predicated on the temporalized differences of world regions. The temporal features of being developed or underdeveloped entail their different levels of capitalist accumulation and varied conditions for capitalist mode of production. Because of this, each region has participated in divergent segments within a global production chain that its local and temporal specificities are suitable for. As a result, developed/core countries are often in charge of designing products and providing immaterial services, semi-periphery countries specialize in manufacturing material products, and periphery countries mainly export raw materials. In this way, different stages of capitalist mode of production are distributed spatially to sustain global capitalist development, forming a spatial hierarchy in global production network.

However, the successful emergence of disruptive innovation can lead to a breakthrough that alters the current configuration of global production network. This is because the purpose of regional production, instead of being one segment of a global production network, can now directly stem from local consumer needs. If regional specialization has the potential to directly serve the demands that global markets fail to

notice or satisfy, the meaning of temporalized differences is no longer merely exploited and confined by the hierarchical spatialization of global supply chain. Instead, it would mean multiple modes and purposes of production originating from the local to be appropriated across space and time.

From my perspective, this project is not only about innovation and China. It also suggests a new way of understanding and managing relationships for all “units” of actors in the world. Insofar as the world is in fact composed by complexity and contingency, to abstract beings and obscure the historical and local particularities behind them remains a narrow approach to understanding the world. Furthermore, since it is hard to avoid value judgments in making evaluative claims, abstraction and universalization operate as forms of injustice by either inducing people to conform to one logic or depriving them of their own narratives. This unjust treatment may in turn cause grievances and antagonistic responses, leading to more conflicts in international relations.

To the extent that knowledge production and diffusion through research and education institutions can influence what people think and how people think, it is even more important, from a scholar’s standpoint, to value the importance of understanding how things come into being and what end they serve, before defining what they are and judge how they should be.

In pointing out directions for future research, this project has touched on aspects of various disciplines. For example, Chapter 3 has illustrated how social changes indeed happened as results of the encounters between globalizing forces and local initiatives. While the dynamics between globality and locality have been well captured by many anthropologists, scholars from other fields can also produce more fruitful results by

studying “local” appropriations and adaptations of “global” social and cultural institutions. Second, the dynamisms within the KSM have embodied the rise of the attention economy and gig economy, which could shed new light on the transformation of social relations of production, and the emerging mechanisms and objects of commodification.

This project is thus only a beginning, not only for myself, but also for scholars from other disciplines with related interests to start contributing to the study of the KSM and innovation within IPE. In the end, whether or not the audience would agree with me in thinking about innovation differently, I hope the project has been inspiring.

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