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Co-production and innovation in public services: What can we learn from the provision of childcare in rural China?

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The Research Project

Models of Co-operation between Local Governments and Social Organizations in Germany and China– Migration: Challenges and Solutions (LoGoSO Germany China) is a comparative research project of the Freie Universität Berlin, the Westfälische Wilhelms-Universität Münster and the Chinese Academy of Governance, funded by Stiftung Mercator.

This comparative research project looks at the co-operation between state and social organizations (SOs) in China and Germany. It focusses on social service delivery in the area of integration of migrating populations with special attention to the fields of education, employment, vulnerable groups and social assistance (incl. legal aid) as a crosscutting issue to all of the fields. Within this subject area, the project wants to identify different models of state-SO co-operation and analyze which models are successful and why and where this co-operation is problematic. It aims to capture the different models of co-operation in Germany and China, to analyze and compare the underlying structures and to show potentialities for development.

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1. Introduction

The role of policy makers in delivering public services has been the object of fierce debate in recent years. Professional service providers and civil servants are no longer seen as bureaucratic decision-makers but rather as collaborators and negotiators among and with many other service providers and even service users. Discussions worldwide on the rise of New Public Management have advocated greater involvement by civil society organizations in the provision of public services. Salamon et al (2003) argued that the emergence and development of civil society have enabled people to acknowledge the difference third-sector organizations can make to societies affected by perceived state or market failures. Marketization and socialization of public services have emerged in many parts of the world with the inability of governments to provide all the social welfare services needed. To meet growing needs, third-sector organizations have delivered services previously provided mainly by government or public institutions.

There has been much discussion of the need for “collaboration”, “co-production”, “partnership” and “co-operation” in the era of New Public Management (Osborne and Gaebler, 1992). Many researchers have argued that organizations do not work in isolation but need to work in partnership with each other as a form of collective activity (Alter and Hage, 1993; Farrington and Bebbington, 1993). As Bovaird (2007) explained, co-production helps to identify problems and needs, design and structure services, and involve stakeholders in organizations’ governance to ensure that they are accountable and representative (Durkin and Gunn, 2010).

Cooperation between civil society organizations and local authorities to provide public services and meet social needs has been well documented and researched in urban China in areas such as elder care, unemployment, and child and youth services. Yet little empirical research was found that highlights the effectiveness of co-production in rural China where social welfare services are underdeveloped. The government-centric model of public service provision is still dominant in rural

China. This paper therefore explores whether the co-production model is more effective than the government-centric model in the provision of rural child welfare services. What are the processes and patterns of co-production in service provision? The paper begins by introducing the transition in the logic of service provision in the public sector from New Public Management to New Governance Theory. Then it elucidates the state of rural public service provision in China, especially child-related services. It then introduces a case that employs a co-production model in delivering child welfare services in rural China. By comparing the different intervention effects of the co-production versus the government-centric model, the paper argues that the co-production model is a dynamic way to deliver public services.

2. Co-production of public services

From New Public Management to New Governance Theory

In recent years, research on public management has devoted increasing attention to the delivery and management of public services, and particularly to the relationship between government and citizens. The traditional government-centric model of public services assumes that public servants should emphasize the legitimacy and equity of these services, although they and professional providers play the absolutely dominant role in designing, managing and delivering the services (Bovaird, 2007). Bureaucratic institutions, regulations and decision-making procedures are central to a government-centric model of public service delivery (Meijer, 2011). Citizens are positioned in a “passive role” (Ostrom, 1978:102) with little engagement and participation in the delivery of the services.

By the 1980s, this model of public service provision was challenged by the New Public Management approach (Osborne and Gaebler, 1993), which emphasizes the managerialism aspect in public service provision. New Public Management holds that service providers should be more responsive to the voices and needs of users. Alford and Hughes (2008) suggest that the market logic and competitive

rules of the private sector should be transferred to the public sector of service provision to increase satisfaction on the part of citizens. Service planners and providers are not necessarily the same (Savas, 2000). This approach advocates a large number of public initiatives to emphasize the role of customer services or of competition among providers (Barzelay, 2001; Gunn, 1988). It then breaks with the preserved role of public institutions in public service provision by introducing more choices among service providers, and distinguishing between planners and providers of public services.

However, both the traditional government-centric and New Public Management approaches are provider-centric models that neglect the potential role of citizens in services. The argument here is that neither provider-centric model has changed the relationship between citizens and government. Citizens are generally regarded as consumers or users that can be “plugged into” the process of planning and producing services. The new line of New Governance theory argues that there is another face of new governance – one that involves both citizens and the processes by which they participate in the work of government (Bingham, Nabatchi, and O’Leary, 2005). The concept of co-production generated great interest among public administration scholars in the USA in the 1970s and 1980s (Park et al, 1999). The role of citizens should extend beyond engagement and participation (Bovaird, 2007). Rather than separating the consumption from the production of public services, co-production approaches argued that citizens are involved in both activities (Whitaker, 1980; Parks et al., 1981; Brudney and England, 1983; Brudney, 1984; Moore, 1995; Ostrom, 1996; Brandsen and Pestoff, 2006). Co-production is seen as a way of providing better quality services at lower public costs, and hence of enhancing the quality and legitimacy of public service in general (Meijer, 2011; Pestoff, 2006).

Co-production was originally developed by Ostrom (1996) in a study of police services in certain metropolitan areas where a larger centralized department was

unable to provide better services. By contrast, involving communities in the provision of police services would yield more effective and efficient services. The term “co-production” was therefore developed to describe the potential relationship between citizens and government (Ostrom, 1996). Ostrom defines co-production as “the process through which inputs used to provide a good or service are contributed by individuals who are not in the same organization” (Ostrom, 1996: 1073). Over the years, co-production has been conceptualized in different ways. Joshi and Moore (2004: 1) define it in a more specific way, one that “institutionalized coproduction” as the “provision of public services through regular, long-term relationships between state agencies and organized groups of citizens where both make substantial resource contributions”. Bovaird (2007) expanded the role of professionals within the focus by Joshi and Moore. He emphasizes the role of users, volunteers and communities in planning and providing services. He defines user and community co-production as “the provision of services through regular, long-term relationships between professionalized service providers (in any sector) and service users or other members of the community, where all parties make substantial resource contributions.”

From the perspective of public service processes, Bovaird (2007) also argues that the concept of co-production is not only relevant to the service management process, but can also extend across the full process of service planning, design, commissioning, management, delivery, monitoring and evaluation. Osborne et al (2016) add that co-production should be the voluntary or involuntary involvement of users in any of the public service processes, which is also consistent with what Bovaird focuses on.

Despite the differences in emphasis, what all these studies share is the idea of involving citizens, the promotion of a spirit of engagement, and the integration of multiple resources from the public, private and third sectors along with the citizens themselves into the mission of providing quality public services (Jiang, 1995). Involvement by citizens transforms the traditional logic of public service provision,

but the citizens themselves are also thereby transformed (Brandesen and Pestoff, 2006).

3. Rural public service provision in China

3.1 The government-centric model and rural public service provision

A traditional government-centric model is still the dominant type of public service provision in rural areas (Liu and Liu, 2018; Lin, 2007). Government as the main or even sole service provider has been deeply influenced by the bureaucratic management paradigm, which lacks sufficient competition and incentive mechanisms. This exclusive way of providing services views rural residents and communities simply as passive “recipients”, which seriously impairs the expression of their actual demands (Lin, 2007; Jia and Sun, 2006). Unchallenged design and delivery has ultimately lowered the effectiveness and satisfaction of rural public services. Despite a few instances of collaborative governance in the provision of rural public services, the bureaucratic management approach is sometimes criticized for low effectiveness (Wang, 2017; Liu and Liu, 2018). Liu and Liu (2018) argue that unclear clarification of responsibility among multiple service providers is the key reason for its low effectiveness. Once the number of providers increases, this easily leads to the phenomenon of “free-riders” in rural public service provision. Lin (2007) argues that the current tax system does not clearly delineate financial responsibility among the central and local governments, which also leads to deficiencies in providing the services.

High levels of internal migration in China have significantly altered the population structure in urban and rural areas. Rural residents have migrated to urban areas in huge numbers in search of better opportunities, leaving their children behind in the rural areas without proper guardianship. The term “left-behind children” (LBC), or *liu-shou-er-tong*, refers to those “rural hukou children or young people (under 16 years old) who are left behind at home either by both parents or by one parent

who migrated for work reasons while the other does not have guardianship capacity”¹ (State Council, 2016). In 2016 there were 9.02 million left-behind children living in rural China, of which 8.05 million were looked after by grandparents and 0.36 million were living with no guardianship at all (Ministry of Civil Affairs, 2016).

Studies have documented the detrimental effects of parental absence on children's emotional and psychological well-being. Children with absent parents have a higher incidence of feeling lonely (Asis, 2006; Jia & Tian, 2010; Liu, Sun, Zhang, Wang, & Guo, 2010; Smeekens, Stroebe, & Abakoumkin, 2012; Yeoh, Huang, & Gonzalez III, 1999), of anxiety and depression (Battistella & Conaco, 1996; Bhatia & Bhatia, 2007; Fan, Su, Gill, & Birmaher, 2010; Jia & Tian, 2010; Wu, Lu, & Kang, 2015), of lower self-esteem (Asher & Paquette, 2003; Bauminger, Shulman, & Agam, 2003; Cassidy & Asher, 1992; Luo, Wang, & Gao, 2012; Su, Li, Lin, Xu, & Zhu, 2012; Wen & Lin, 2012), and of lower life satisfaction and happiness (Fan & Zhao, 2010; Liu & Ouyang, 2010; Ye & Murray, 2005). They also exhibit higher rates of physical and behavioral problems, such as delays in physical development (Zhang, Bécares, & Chandola, 2015) and nutritional deficiencies (Chernoff, Combs-Orme, Risley-Curtiss & Heisler, 1994; Luo et al., 2008). Finally, children who experience parental absence will also show higher rates of at-risk behavior (Dubowitz et al., 1992; Fan et al., 2010; Gao et al., 2010; Hu, Lu, & Huang, 2014) and have higher school absence and dropout rates (Lu, 2006). These psychological and behavioral outcomes differ by gender and age. Boys in general have lower levels of depression and anxiety than girls (Wang, 2005), and younger children have lower levels of happiness and self-esteem than older children (Dai & Chu, 2016; Fan et al, 2009; Su et al, 2012; Hu et al, 2014). Dai and Chu (2016) explain that older left-behind children show greater understanding of their situation and more appreciation of their parents' decisions.

¹ Having no guardianship capability refers to parents or guardians who are severely disabled (level 1, level 2), very ill, serving a sentence, missing, or any other situation such that they cannot look after themselves (State Council, 2016).

Local governments face massive pressure and high demand to improve the welfare situation of left-behind children in rural China, especially with respect to safety considerations. However, they have lacked resources and skills, including funding, personnel and professional expertise. This paper introduces a rural child welfare program involving multiple service providers to strengthen the welfare system for left-behind and rural children.

3.2 Co-production in practice – the “Children’s Companion Mothers Program”

To begin building a system of welfare and protective services for rural infants, children and adolescents up to age 18, particularly for LBC and those in other difficult circumstances, government and charitable organizations collaborated to create an innovative, national, community-based intervention program that lasted three years. The program’s name translates directly as “Children’s Companion Mothers Program” (CCMP). A consortium of three key agencies, the government, a national foundation, and a leading research institution implemented CCMP in 213 rural villages in southeast China. The government and local authorities delivered services to rural children while Foundation A provided funds for the program. Research Institute B was responsible for training and supervision throughout the service delivery process. In October 2015, the program started in 100 villages of Sichuan province, which has the largest proportion of LBC in China (11.34%) (All-China Women’s Federation, 2013). In October 2016, CCMP saw an expansion into 113 villages located in Guizhou province.

The guiding motto of CCMP was “One Person, One Home, One Bond”. The program required each village to have the following: 1) “One Home”: a physical space along with the necessary facilities and resources (books, toys, sports equipment and so on) to host and provide after-school activities in what was called a “Children’s Club”; 2) “One Person”: selection of a single, paid, full-time, trained, community-based worker in each village, called the Children’s Companion Mother (CCM), to manage the Children’s Club and to provide child welfare services and

access to any child in need; and 3) “One Bond”: the connection among multiple local authorities, including the departments of ministry affairs, education, sanitation, public security, etc. as well as charitable organizations to integrate resources and collectively solve LBC's most pressing problems as reported by the Children's Companion Mother.

Within this administrative structure, the Children's Companion Mothers, who were selected from local rural communities, played a key role in program operations. They were recruited carefully and had to meet the following criteria: female, aged 19–55, full-time, local residents, high school or equivalent education, no criminal record, and interested or experienced in providing child-related services. They were responsible for: 1) documenting all the rural children aged 0 to 18 and connecting them with social benefits for which they were eligible (low-income, healthcare and other benefits); 2) conducting themed activities regularly and disseminating knowledge including but not limited to child protection, safety, psychological health, parental education, and physical health; and 3) identifying vulnerable and at-risk children during regular home visits and making efforts to meet their needs. In principle, Children's Companion Mothers were required to work full-time. During the school term, Children's Clubs were expected to be open for at least 16 hours a week, and at least 32 hours a week during summer and winter holidays.

In Guizhou province, the local government as the main service provider has also provided similar services to left-behind children across the whole province since 2017. The only difference lies in the people who deliver these services. In the CCMP program, services were provided by full-time Children's Companion Mothers while in government-centric programs they are delivered by civil servants who work as part-time “Directors of Child Welfare”. The position is automatically taken by civil servants working in the civil affairs area. This article seeks to contribute to the theoretical understanding of co-production processes in rural public service provision by answering the following questions:

- (1) Is the co-production model more effective than the government-centric model in the provision of rural child welfare services?
- (2) What are the processes and patterns of co-production in service provision?

4. Methodology

4.1 Research design

To explore the outcomes of this innovative intervention, this study uses a quasi-experimental design by comparing LBC who have participated in services provided by a co-production model to those who were living in similar rural communities but who participated in services provided by a government-centric model. The study gathered attitudes and information from children in Guizhou who had received government-centric public services and children who had received services provided by a co-production model involving multiple players (see Table 1). Ordinary Least Square Regression (OLS) and the Ordered Logit Model were used to explore the roles of different public service provision approaches in contributing to child welfare outcomes.

Table 1 Comparable groups and sample size

	Sample	Sample size
Government-centric public service	Guizhou control group children	185
Co-production of public service	Guizhou experimental children	229

4.2 Sampling and data collection

CCMP selected 10 towns (113 villages) in Guizhou province as sites for delivering child protection and child well-being services. Any rural children up to 18 years of age were eligible to participate in the program if their villages were included. We stratified the samples by region, school and class. First, towns in Guizhou (two from each) were randomly selected based on the number of villages involved in

CCMP. As there are no primary schools or middle schools in small villages, many children go to schools in central towns for education. The next criterion was for the town to have two central primary schools and one middle school. From these schools, we selected final participants for both the experimental and the control groups. Finally, children aged 7 to 18 were chosen randomly from their grades as final participants. The control and experimental groups received questionnaires at the same time to compare their everyday experiences and explore their perceptions of the program. The two questionnaires were similar, except for an extra section on the experimental group's version exploring respondents' perceptions of CCMP services.

The ethics committee of Tsinghua University approved this study. Schools and parents/guardians approved the informed consent forms, and all participants understood the purpose and content of the research. Consistent with guidelines on data protection, we anonymized and securely stored all data.

4.3 Measures

We identified five dimensions of child well-being as key outcomes of this intervention: resilience, physical health, education, safety and guardianship. Except for education, the other four variables are standardized to a score ranging from 0 to 1, as an interval variable.

Resilience, defined as the ability to cope with adversity and hardship and to adapt to adverse conditions positively, is central to mental health theory and child development research (Brooks, 2006; Garnezy, Masten, & Tellegen, 1984; Masten, 2001). As we have discussed extensively, LBC are vulnerable in many respects. The more resilience LBC have, the better they can cope with negative life events, such as parental separation and depression, along with the other mental health problems they are projected to develop (Ai & Hu, 2016; Pietrzak & Cook, 2013; Wu et al., 2017). To measure resilience, we used the 14-Item Resilience Scale

(RS-14) (Wagnild & Guinn, 2011), a reduced version of RS-25, which was developed by Wagnild and Young (1993). The RS-14 provides clinicians and researchers with a shorter instrument to reduce the burden on participants (Wagnild, 2009a, 2009b). The internal consistency of RS-14 has been reported to be excellent ($\alpha=0.93$) and it correlates strongly ($r=0.97$) with the original RS-25. In this study, the Cronbach's alpha coefficient was 0.88, which demonstrates high reliability (Pritzker & Minter, 2014).

Physical health was measured by five items: "Do you drink unboiled water?"; "How often do you brush your teeth?"; "How often do you change your underwear?"; "Do you have your own towel and toothbrush?"; and "What do your caregivers do when you are sick?" The sum of these five items made up the physical health score that we used for further analysis. Ranging from 5 to 24, a higher score represents poorer physical health.

Education was measured by five self-reported levels of academic achievement: "distinction", "very good", "good", "poor", and "very poor". The responses were coded from 1 to 5, and higher scores represent poorer academic performance.

Safety was measured by self-awareness of four levels of personal safety: "very conscious"; "have learned safety guidelines"; "fair"; and "do not have any safety knowledge". The responses were coded from 1 to 4, with higher scores representing lower levels of safety awareness. Elder guardians of LBC can hardly be attentive to all of children's everyday activities. Safety concerns can include but are not limited to transportation risks, food insecurity, sexual abuse and abduction (Hu & Wang, 2012; Wang, 2013). Long-term parental absence and limited safety education have increased LBC's risks of injury and harmful incidents.

Guardianship was measured by three items: "How often do your parents (if they have migrated for work) contact you?"; "What do you think about your relationship with your guardians?"; and "What do you think of the relationships between your family members?" The higher scores represented poorer guardianship.

The key independent and control variables are gender, age, economic status and educational achievement (except in the analysis of education as a dependent variable). Descriptive statistics for socio-demographic and family characteristics were presented including counts, frequencies, mean, and standard deviations. OLS regression analyses were conducted to determine differences of effect between the two models after controlling for the factors. Statistical significance was set at $p < 0.05$, two-tailed. All statistical analyses were performed using a SPSS 25.0 statistical analysis software package.

5. Results

5.1 Children's characteristics

Table 2 Child characteristics and living circumstances (frequency (percentage))

Variables	CCMP group (n=229)	Government-centric group (n=185)
<i>Gender</i>		
Boys	99(44.2)	95(51.6)
Girls	125(55.8)	89(48.4)
Age (Mean \pm SD)	11.10 \pm 0.68	11.66 \pm 1.21
<i>Household income</i>		
Good	19(8.6)	18(10.0)
Fair	167(75.6)	128(71.1)
Poor	35(15.8)	34(18.9)
<i>Family type</i>		
Married	181(82.3)	160(88.4)
Divorced or separated	15(6.8)	3(1.7)
Remarried	11(5.0)	13(7.2)
Single parents	5(2.3)	2(1.1)
Orphan	1(0.5)	0(0.0)

Others	7(3.2)	3(1.7)
<i>Left-behind status</i>		
Left by both parents	60(32.1)	37(24.5)
Left by one parent	59(31.6)	48(31.8)
Non-left behind	68(36.4)	66(43.7)

As shown in table 2, participants were suitable for comparing the results of the intervention after controlling for these demographic variables. Propensity Score Matching methods were not used in this research when selecting comparable participants because children have no rights to freely choose whether they have access to CCMP in their village. The program villages were chosen by the foundation. For the CCMP group, mean age and range were $11.10 \pm 0.68(7-18)$, over half (55.8%) of the CCMP children were girls, 75.6% of the children perceived their household income as fair, while 15.8% considered that they came from poor families. The majority of participants (82.3%) came from normal family constellations with both parents. However, 17.7% children were living in diverse and risky family conditions such as with a single parent, with step-parents, or without parents. About 32.1% of the children were left behind by both parents, while 31.6% were left behind by one parent. About 36.4% of participants indicated that neither of their parents had migrated for work. For the other two control groups, social demographic variables were highly similar to those for the co-production group.

5.2 Social outcome variances among different service provision approaches

Differences between the CCMP and government-centric groups were examined with respect to the five dimensions of child well-being described above: resilience, physical health, education, safety, and guardianship. OLS regression analysis was conducted to examine the effect of interventions on a variety of dimensions of child well-being by controlling for certain demographic factors.

Table 3 Intervention impact of the two models on multiple indicators of well-being for rural children

Indep Var	Resilience	Physical health	Education	Safety	Guardian-ship
	Coef. (SE)	Coef. (SE)	Coef. (SE)	Coef. (SE)	Coef. (SE)
Gender (girl)	-0.0172	-0.0436**	0.346*	-0.0112	0.00746
	-0.0137	-0.017	-0.194	-0.0262	-0.0291
Age	-0.000562	0.0245** *	-0.183*	0.0186	-0.012
	-0.00536	-0.00878	-0.098	-0.0135	-0.0146
Edu (distinction)	-	-	-	-	-
Very good	0.0866** *	0.0106		-0.107**	-0.0553
	-0.0281	-0.0313		-0.0483	-0.0585
Good	-0.112***	-0.0497		-0.124**	-0.0688
	-0.0271	-0.0318		-0.0491	-0.0604
Poor	-0.184***	-0.141***		-0.254***	-0.0142
	-0.0321	-0.0388		-0.0598	-0.0703
Very poor	-0.183***	-0.168***		-0.189**	-0.0654
	-0.045	-0.0541		-0.0836	-0.0909
Economic status (richest)	-	-	-	-	-
Richer	0.0960*	0.0394	0.284	-0.0299	-
	-0.0531	-0.0715	-0.886	-0.111	

General	0.0525	-0.0208	1.664**	-0.0589	-0.0467
	-0.0507	-0.0665	-0.824	-0.103	-0.0769
Poorer	0.0389	-0.036	2.125**	-0.0263	-0.158*
	-0.0526	-0.0695	-0.855	-0.107	-0.0824
Poorest	-0.027	-0.0697	1.498	0.0697	-0.112
	-0.0705	-0.0968	-1.095	-0.15	-0.12
CCMP	-0.0203	0.0472** *	-0.689***	0.142***	0.00697
(Gov PS)	-0.0158	-0.0181	-0.205	-0.0278	-0.0323
_cons	0.692***	0.561***	-3.150**	0.653***	0.901***
	-0.0819	-0.117	-1.322	-0.181	-0.195
N	474	360	378	364	211
R²	0.117	0.185		0.139	0.061

As shown in Table 3, there were no significant differences between the children in the CCMP and government-centric groups ($p > 0.05$) in terms of *resilience*, after controlling for factors including gender, age, educational performance and economic status. This finding suggests that CCMP children did not have stronger coping skills for responding to negative circumstances and achieving positive outcomes than the children who received services from the government-centric model. Based on the regression result, educational level and economic status contributed more to explaining the variance between children in CCMP and in the government-centric model.

For *physical health*, although gender, age and educational level also helped explain the variances, the results show that children in the government-centric model still had significantly poorer physical health habits than CCMP children ($p < 0.001$). Children who had been in a CCMP group were more conscious of their personal

hygiene. The coefficient is small because the maximum value of this dependent variable is only 1.0.

Furthermore, children from the CCMP groups had significantly better *academic performance* than children from the government-centric model ($p < 0.001$). Gender, age and economic status also help explain the variances. The coefficient is negative because the comparison group consists of children with distinctive performance. Although the original objectives of CCMP did not include improving education and academic performance, most Children's Companion Mothers monitored and supervised children's homework at the Children's Clubs. The Children's Clubs naturally provided friendly and safe spaces for children to do their reading and other homework after school. Furthermore, because Companion Mothers were required to have a certain level of educational attainment, they were able to provide appropriate academic support to the children. As for the government-centric model, its service providers were part-time workers who were not available to keep an eye on every single child's education.

Similar results indicated that children in the CCMP program had significantly higher *safety awareness* than those in the government-centric model ($p < 0.001$). Children's Companion Mothers conducted safety education workshops, such as drowning prevention, transportation safety, sexual abuse prevention, and bullying prevention. Some workshops were also open to parents. These workshop topics included fire and electrical safety, infectious disease prevention, food security, and so on. It is difficult to accurately estimate the number of safety incidents and child injuries that occurred post-intervention because they are recorded by different departments of local authorities. Nonetheless, safety education provided by the Children's Companion Mothers reduced the risks of safety-related incidents and increased the well-being of the whole family.

For *guardianship*, no significant difference was found in conditions here between children in CCMP and those in the government-centric model ($p > 0.05$). The Children's Companion Mothers regularly conducted parenting workshops with the aim

of helping mothers and fathers improve their relationships with their children. They also assisted children in connecting with their migrant parents via video calls to help strengthen family dynamics and general levels of LBC well-being. However, the results showed that these services did not have a significant influence on improving the guardianship dimension. Results also showed that guardianship was not related to children's gender, age, education or economic status.

In conclusion, the co-production model of public service provision showed a significant improvement in results for children's physical health, education and safety awareness over the results for the government-centric model. Children's physical health and safety awareness are the most urgent needs for their parents to meet. The co-production model of service provision trained children well to look after themselves in everyday situations. As for resilience, this may need long-term intervention to see improvement as it is difficult to perceive.

6. Concluding discussion

Co-production of public services means that these services are delivered not only by the professional and managerial staff of public agencies but also by citizens and communities (Brandsen and Honingh, 2015). This paper discusses a program that was designed by professionals but delivered by "identified" residents and communities. The evidence above shows that co-production could deliver "better quality" (Pestoff, 2006) public services than traditional government-centric models, even in rural areas that have limited internal and external resources. In the context of strong government in China, and especially in rural China, co-production still was able to be embedded in public service provision, and more effectively than services provided by local government in terms of children's physical health, education and safety awareness.

This co-production program was designed as a polycentric model with NGOs playing the leading role in designing, planning and delivering services. Public institutions co-worked with NGOs and community groups to provide quality rural child

welfare services. Local governments are highly motivated to assign the “leading role” to a “co-worked role”. They face great pressure and high incentives to improve the welfare conditions of rural children, especially regarding the safety of LBC children, but they lack resources including funding, personnel and professional expertise. Local governments are therefore willing to transfer part of the managerial power to NGOs to collectively achieve the social aims.

The greatest advantage of this type of relationship is twofold. First of all, children and parents are willing to talk with Children’s Companion Mothers who are residents of their local villages. The CCMs understand the local context and culture, speak the local language and are trusted by other community members on sensitive issues. In this program-based provision of public services, the emergence of Children’s Companion Mothers and Children’s Clubs increased the social capital of rural communities while also promoting the delivery of this program. The program created alternative public spaces for rural residents and increased their communication and mutual trust.

And second, the use of both professionals and policy makers to design the services ensured the quality of planning. The involvement of rural residents in the design stage of public services has been criticized by scholars who ascribe unprofessional and irrational choices to these residents (Wang, 2017; Xiong, 2002). Rural residents’ choices and preferences are limited as a result of their low-income conditions, traditional views and judgements of public goods. For instance, they care more about rigid demands related directly to agricultural production rather than long-term social welfare objectives such as education or environmental protection. Policy makers and professionals would take great risks in the process of policy design and planning if they deferred fully to rural residents’ preferences and demands.

There is variation in the extent to which citizens are invited to be actively involved in co-production. The types of public services, the role of residents, and the stage of public service provision collectively influence the co-production spaces for rural

residents engaging in public service provision. Bovaird (2007) distinguishes seven types of co-production between users, communities and professionals in terms of designing and delivering services. He argues that once clients and other community groups become engaged in co-designing and co-delivering services alongside professional staff, the network created may have different dynamics from provider-centric models. Hence users, community groups and volunteers recognize that each of these groups has a quite different relationship to professionals and public-sector organizations. Children's Companion Mothers took on different roles throughout different stages. In this case, CCMs acting as the main service providers were not volunteers in the program. They were recruited and paid by the foundation and trained by the research institutions. They were service providers as well as service users. They were involved in the service delivery stage as opposed to its design and planning. The welfare services were still designed by professionals as well as civil servants. It is the *user co-delivery of professionally designed service* in Bovaird's range of professional-user relationships.

The type of public goods is another factor that influences the level and pattern of co-production with citizen involvement. Quasi-public services are not as close as pure public services, because they are less structured and offer more space for public engagement. Wang (2017) identified three types of rural public services based on the characteristics of "competitiveness" and "exclusiveness": "*non-competitive and non-exclusive public services*", "*weakly competitive and weakly exclusive public services*" and "*strongly competitive and strongly exclusive public services*". He argues that rural residents have greater voice and decision-making power in designing services in the *strongly competitive and strongly exclusive public services* model. Non-compulsory education for rural children is a typical quasi-public good among rural public services. Parents or caregivers have more choices and agency in the whole process of service delivery. They regularly negotiated with the CCMs regarding their children and the services received, co-worked with the CCMs in the children's activities (acting as volunteers), and evaluated

the services, all of which showed more scope and possibilities for citizens involved in the service delivery process.

Co-production is different from the traditional top-down design or purely bottom-up approach in public service provision. It is a form of network management that mobilizes all types of resources from different sectors. Service users and professionals must develop mutual relationships in which both parties take risks — the service user has to trust professional advice and support, while the professional has to be prepared not to dictate decisions but rather to trust the decisions and behaviors of service users and the communities in which they live.

7. References

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