Can coproduction change the perceived outcome of rural public services? Evidence from the “New Socialist Countryside” initiative in China

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Abstract
The recent research on citizen participation in the provision of public services represented by coproduction has become a hot topic in public management. Coproduction studies propose that citizens can directly or indirectly participate in the process of public services to help improve the quality and legitimacy of public services. Very little, however, has been written in the existing coproduction literature on the outcome of public services provision. Based on the “One-Hundred Villages” Survey in 2020, this article analyzes and evaluates the impact of coproduction on the perceived outcome of public service in rural China. A series of statistical analysis results show that both co-planning and co-delivery have significant and positive impacts on how one views the outcome of rural public service provision. This research provides new evidence in rural China that citizen participation plays a crucial role in the state-led “New Socialist Countryside” campaign.

Keywords
China, civic participation, Coproduction, “New Socialist Countryside”, the Public Services Provision

Received 27 March 2022; revised manuscript accepted 13 July 2022

Introduction
Since the early 2000s, building a “New Socialist Countryside” has consistently appeared at the top of the Chinese government’s list of the nation’s most critical issues. Despite the growing salience of the Chinese countryside both in terms of its sustainable growth and political stability, studies of Chinese politics and policies do not pay enough attention to the question of why rural residents in the Chinese countryside are willing to participate in activities related to various public services and programs, and what are the effects of their civic engagement on outcomes of public services. Most studies on the public good or service provisions in Chinese rural areas have focused primarily on elections and informal institutions interacting with village leaders (Tsai, 2007; Wong et al., 2019; Zhong & Chen, 2002). We know less about how coproduction or civic participation from the policy process perspective affects the actual and perceived outcomes of these public services.

Coproduction refers to the policy process in which citizens contribute to the initiation and provision of public goods and services by collaborating with professional or public service agents (Nabatchi et al., 2017; Ostrom, 1996; Pestoff et al., 2006). The existing coproduction literature sheds new light on what factors motivate some citizens to engage in public goods and service production more than others. These works find that several institutional characteristics and individual factors encourage citizens to get involved in public service coproduction (Ricciucci et al., 2015; Voorberg et al., 2014; Zhang et al., 2020). However, we want to know more about coproduction’s impacts on public service, especially beyond the context of advanced industrialized countries with established democracies. It deserves more attention to look at how coproduction and civic participation affects ones’ views on the outcomes of

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public services in non-Western countries without the electoral democracies. This question is important because the primary motivation of the coproduction theory lies in the expectation that coproduction has a positive influence on public goods or services provision (Loeffler & Bovaird, 2016; Ostrom, 2010). Moreover, the empirical examination of different stages of the coproduction, such as “Co-planning” and “Co-delivery,” affect the evaluations of public services is rare despite proliferating theoretical discussions (Bovaird & Loeffler, 2012; Brandsen & Honingh, 2015). Also, existing empirical studies focuses on civic participation and coproduction at the local level of developed countries (Brix et al., 2019). We do not know whether this theoretical model applies to a sub-national level beyond the OECD countries. Previous research mainly examines traditional policy issues such as water infrastructure, community security, public education, and waste management. Few studies have examined how civic engagement shapes individuals’ views on one historical rural campaign in China that aims to improve rural areas’ public goods and services.

This article explores how citizens’ coproducing behaviors shape their evaluations of public service in rural China. It theoretically contends that coproducing behaviors are associated with one’s favorable views about the outcomes of public services. Individuals evaluate how coproduction impacts the outcome of public service by looking at three mechanisms. Coproducing behaviors and experiences increase the efficiency of public service and the democratic values of citizen participation while resolving the collective action dilemma in support of these public programs financially and physically. These three potential and actual benefits above brought by individuals’ coproducing behaviors, therefore, shape how they perceive the outcome of public services.

Based on the theoretical propositions, this article employs a unique national representative “One-Hundred Village” survey (N = 3,400) conducted in the winter of 2020 to empirically investigate how individuals’ coproducing behaviors affect the evaluations of public services among Chinese rural residents. Utilizing six survey questions that measure the concepts of “Co-planning” and “Co-delivery,” it finds solid evidence to support the theory that both “Co-planning” and “Co-delivery” are positively associated with one’s favorite view on the outcome of public service. Specifically, individuals who have been invited for deliberations or attended the meetings at the village level are more likely to realize positive outcomes of public services. Interestingly, individuals who have been willing to sign a contract or agreement with village cadres to aid public services show a substantially stronger effect on one’s view of public services than the other three types of “co-delivery” behaviors, including making contributions, participating in the programs, and willingness to pay the fees if necessary. The primary results remain solid after adding county-level GDP as a proxy of government expenditure on public programs and using county-level fixed effects and propensity score matching (PSM) as viable causal inference techniques.

This article firstly presents a concise literature review of the relationship between the coproduction theory and the outcomes of public services. Then, it briefly introduces China’s “New Socialist Countryside” Initiative. After a systemic theoretical discussion, I derive the testable hypothesis that coproducing behaviors and experiences lead to one’s favorable views about the outcome of public services. Third, I proceed to discuss the data, variables, and methods. Fourth, I present and discuss several empirical results that support my hypothesis. This research concludes by highlighting its contributions to existing studies and implications for future research.

Coproduction and the perceived outcome of public service: A literature review

The existing studies on coproduction have contributed to our understanding of what is coproduction, what motivates the co-producing behaviors, and what they can contribute as co-producers. Coproduction refers to citizen participation in the execution or implementation of public policies (Nabatchi et al., 2017; Ostrom et al., 1978; Parks et al., 1981). Distinguished from the traditional civic or political participation, coproduction emphasizes that public officials and citizens jointly contribute to the provision of public goods or service (Brudney, 1983; Ostrom, 1996; Pestoff et al., 2006). Relevant studies show that several factors at individual and organizational levels play an important role in influencing citizens’ coproduction activities (Ricucci et al., 2015; Voorberg et al., 2014; Zhang et al., 2019). From a rational perspective, citizens’ civic engagement in public affairs is costly (Ostrom, 2010). Individuals need to spend extra resources, time, and skills on public goods and services. Therefore, many studies focus on exploring what factors motivate citizens’ coproducing efforts. Specifically, individuals’ socioeconomic status, political efficacy, satisfaction with government performance, issue-specific knowledge, and social capital are found to influence individuals’ coproducing behaviors (Bovaird et al., 2015; Loeffler & Bovaird, 2016; Zhang et al., 2020).

Extant research proposes that citizens’ coproducing behaviors contribute to the public goods or services provision by bringing in context-specific knowledge, necessary resources, creativity, and legitimacy (Loeffler & Bovaird, 2016). Several works regarding the actual and potential impact of coproduction almost focus on public health issues (Bovaird & Tholstrup, 2010; Eckenrode et al., 2010; Miao et al., 2021). However, these works face not only theoretical and empirical difficulties in measuring the actual and perceived outcomes of public services (Durose et al., 2017), but also produce contradictory results regarding whether coproduction leads to positive outcomes or not (Leone &
Walker, 2012; Voorberg et al., 2014). These studies mentioned above on coproduction has proposed several desired outcomes of coproduction, including instrumental and substantive outcomes. They are effectiveness, efficiency, cost-saving, satisfaction, and the promotion of democratic values and social cohesion (Jo & Nabatchi, 2016). These seminal studies have greatly expanded our knowledge about coproduction activities and processes. However, only a few evaluations of coproduction projects empirically examine the actual and potential impacts of coproduction on the perceived outcome of public services, especially by using quantitative methods (Loeffler & Bovaird, 2016; Meijer, 2012; Parrado et al., 2013).

There is a growing scholarship in exploring how citizens’ involvement in public services affects the actual and perceived outcomes of public services provision beyond developed countries or established democracies (Cheng et al., 2020; Joshi & Moore, 2004; Miao et al., 2021; Shen et al., 2022). Other relevant studies notice that citizens living in the urban area were slightly more active to coproduce than their suburban counterparts (Loeffler & Bovaird, 2016; Ostrom, 1996; Percy, 1984). It is debated whether educated and better-off citizens are more likely to contribute to public goods or services than rural residents (Ostrom et al., 1993). Along with other disadvantaged groups, rural residents are often overlooked despite engaging in public services. So, we need more current knowledge about whether rural coproducers affect or perceive the outcome of public services differently beyond developed countries or established democracies (Homsy & Warner, 2013; Popovici et al., 2020). At last, coproduction includes different types or phases that are interdependent and have distinct effects on public service outcomes, but few studies systematically analyze how co-planning and co-delivery affect the outcome of public services in extant coproduction studies by using quantitative methods (Bovaird & Loeffler, 2012; Kleinhans, 2017; Zambrano-Gutierrez et al., 2017).¹

Coproduction and the perceived outcome of public services in rural China

Context: “New Socialist Countryside” initiatives in China

This article is situated in the context of China’s “New Socialist Countryside” (NSC) campaign in recent years, where individual villagers have been shown to collaborate with village cadres actively when local governments renovate and modernize villages. The dramatic development of Chinese urban areas has attracted young people from the rural areas, leaving villages behind significantly. “Building a new socialist countryside” policy was therefore introduced in 2005 and promoted by the former Chinese president Jintao Hu to improve the quality of important public goods and services, including rural infrastructure, sanitation, and housing, for economic and social reasons (Looney, 2015). According to the Chinese central government’s official slogan outlined in its 11th Five-Year Plan (2006–2010), NSC includes five broad goals: “develop production, enrich livelihood, civilize rural habits, tidy up the villages, and democratize management.” It is worth noting that the NSC initiatives have survived and been consistently implemented in Xi’s era despite promoting new policy campaigns such as “Targeted Poverty Alleviation.” These campaigns coexist and complement each other since they have different policy aims and priorities. The meanings and contents of village planning, and renovation vary across time and places. The early NSC emphasized land transfer and urbanization to increase local revenues and consumption capacity since the fiscal decentralization reform in 1994. More recent NSC instead aims to protect arable land and village environment due to agricultural food security and the international economic situation. In practice, the policy is mixed and varies across different places.

According to the official document published by the Chinese central government, the NSC mainly concentrates on three aspects of public goods or services in rural China. NSC strives to provide villagers with essential public goods, including roads, gas, running water, electricity, internet, and renewable energy. NSC will modernize the living environment of Chinese villagers by building sanitized restrooms, managing waste, and renovating rural housing conditions. Also, it continues to provide and improve essential public services in China’s countryside, such as education, health services, and taking care of older people.² This paper mainly focuses on improving the living environment. The existing studies should pay more attention to this important issue as it plays a crucial role in villagers’ daily life and long-term effect on economic development and regime support highlighted in relevant works (Dickson et al., 2016). The Chinese media notices some problems regarding the programs of living environment modernization in the Chinese countryside. For example, local governments or agencies only distribute the appliances to villagers’ houses. Furthermore, they do not consider whether these appliances fit with villagers’ needs or not. Media reports that local bureaucrats misappropriated NSC-specific investments for other purposes. They reported that it is less likely to find citizens’ dissatisfaction when the public officials listen to the public’s opinions. Unrest occurs most likely due to miscommunications and the lack of local knowledge.³

Theoretical discussions and empirical hypotheses

Previous studies on Chinese NSC focus on the sole role of the state in initiating and implementing this policy, characterizing the feature of policy mobilization and campaign in
Chinese politics (Ahlers & Schubert, 2013; Perry, 2011). Other works on the provision of public goods and services in Chinese rural areas underscore the importance of informal institutions and rural organizations such as lineage, elderly associations, peasant councils, and cooperatives (Ahlers & Schubert, 2013; Looney, 2015; Tsai, 2007). For example, the “Ganzhou model” promoted by one former Chinese city’s party secretary in 2005 emphasized that local governments encouraged peasant council or called peasant administration councils to participate in this policy implementation. Very little has been devoted to exploring how villagers collaborate or partner with local cadres to renovate the villages and its impacts on the outcome of public services.

The measure of coproduction impacts on the outcomes of public services includes two methods: objective and subjective outcomes. The objective outcome refers to how much the coproducing behaviors contribute to the material changes of public services and goods, usually defined as the miles of roads, the number of schools, and others. The subjective outcomes look at the change in citizens’ perceptions. This subjective outcome not only perceives the quality of public services but also looks at how citizens evaluate and rate the performances of public officials and public services. This article explores the potential theoretical connections between coproducing behaviors and the perceived outcome of public service provision to fill the gap in existing coproduction studies. It derives testable hypotheses regarding how two stages of coproduction affect the perceived outcomes of public services in rural China. Extant studies have implicitly suggested that different stages of coproduction could lead to the provision of public goods and services based on several theoretical mechanisms (Brix et al., 2019; Voorberg et al., 2014). This article logically expects that citizens’ participation in different levels of coproduction would make essential impacts on how one views the outcomes of public services/goods provision.

Scholars and practitioners have long debated the policy process in coproduction studies (Brandsen & Honingh, 2015). As Ostrom et al. (1978) emphasized, the evaluation of public services must firstly identify a “production flow,” through which public agents make inputs into outputs and outcomes within specific organizational arrangements. As two major interdependent stages of coproduction, co-planning (co-creation) and co-delivery (co-implementation) stand out from different typologies and contribute to conceptual clarity regarding how coproduction works in practice. Co-planning refers to citizen involvement in deciding and selecting the content and procedure of public service delivery. Citizens can also directly assist and contribute to delivering public services or goods by providing necessary materials or help, termed co-delivery (Nabatchi et al., 2017; Voorberg et al., 2014). The Chinese central government officially promotes the policy nationally after a few local experiments in the NSC initiative. Due to the economic disparity across regions and practical reasons, the Chinese central government calls for rural residents to support and collaborate with public officials. Rural residents, especially the members of village councils, are asked to discuss how to mobilize most villagers and implement the NSC. Once the detailed plan is set up, the village cadres and local government will jointly ask all rural residents to aid and contribute to these programs.

How does coproduction affect individuals’ perception of public service in rural China? Based on normative reasoning, the existing theory on coproduction concordantly supports a positive relationship between coproduction and public service. However, coproducers are not necessarily or always satisfied with public services if we think beyond the normative reasoning and several case studies. Individual coproducers contribute their skills, time, and limited resources to these programs. When the public services turn out to be less effective and too costly, they are in the first place to deliver opposed opinions toward these programs. This article proposes that individuals take account of three major components in shaping their attitudes toward public services. First, individuals assess the coproduction’s impacts on public services by looking at the actual change in public services in their local areas or villages. Boavida and Loeffler (2012) presented seven cases to show that co-planning and co-delivery have led to cost savings and increased efficiency for public organizations (Brix et al., 2019). When coproducing behaviors lead to the highly efficient provision of public goods/services, we expect a positive association between individuals’ coproducing activities and their favorable views on the outcome of public services. Second, citizens’ involvement strongly correlates with their satisfaction with public services since their coproducing behaviors stimulate and increase democratic values and internal efficacy (Cicatelli et al., 2021; Marschall, 2004). The third mechanism emphasizes the role of co-production in mitigating the collective action for resource mobilization in places where the fiscal capacity is weak. The coproducing behaviors or experiences could significantly encourage others to help these programs financially and physically. The influence could be more significant when the collaborators closely connect with local lineage and other solidarity groups (Tsai, 2007; Xu & Yao, 2015). As more financial and human resources fund these programs, individuals become more satisfied with the outcome of public services.

To sum up, this article expects that the efficiency and values provided by the co-planning and co-delivery will motivate individuals to be more satisfied with the outcome of public services.

H1: Individual villagers who are co-planners will be more likely to recognize the positive outcomes of public services than their counterparts who do not participate in these programs.

H2: Individual villagers who are co-delivers will be more likely to recognize the positive outcomes of public services.
services than their counterparts who do not participate in these programs.

Data and method

Dependent variables: Living environment evaluation in rural China

This paper adopts three survey questions from the “One-Hundred Village” Survey conducted in the winter of 2020 to measure Chinese peasants’ evaluations of the living environment governance in rural China. The “One-Hundred Village” survey is conducted by The Institute of China Rural Studies at Central China Normal University. It produces yearly information about Chinese rural residents’ opinions and attitudes on major political, economic, and social issues. The 2020 “One-Hundred Village” survey includes a particular module on the “New Socialist Countryside” Initiative that provides rich information and variables for this article. The 2020 survey utilizes a large pool of graduate students and consulting firms to conduct the surveys across 23 provinces and 2 direct-administrated municipalities (Tianjin and Chongqing). The intended sample has 23,432 Chinese rural residents.4

The first dependent variable is to ask the respondents, “are you satisfied with the programs carried out in the village to clean up the living environment?” Responses vary from 1 to 5, with “5” referring to an intense satisfaction toward the living environment governance and “1” referring to the opinion that people do not appreciate the outcome of the living environment program. The second dependent variable also has a 1-to-5 ordinal scale, measuring how the village’s appearance has improved in recent years. Higher values mean significant improvements in a village’s living conditions, while the lowest denotes no or little changes.

The last dependent variable records whether the respondents perceive the village’s environment and hygiene practices have been improved. The measurement of this variable is coded as the same as the first two variables. The higher value this variable has, the more positive attitude toward the survey question concerning the improvement of the environment and hygiene practices in these Chinese villages.

Independent variables: Co-planning and co-delivery

This paper attributes individuals’ attitudes toward villages’ living environment improvements to their participation and contribution. Hence, there are two batteries of explanatory variables included in empirical models. First, individual respondents’ civic participation in the decision-making process concerning the living environment governance in rural China is crucial in influencing how they evaluate the outcome of villages’ living environment governance or endeavors. Specifically, I include two survey questions to measure to what extent villagers affect the decision-making process of this policy. The first one asks whether the local government or agency has invited villagers to participate in the discussions about important issues. The second one asks respondents whether they have attended relevant meetings. I code these two variables to measure whether individuals affect the policy-making process as dichotomous, with “1” referring to whether they were invited to discuss these policies or have attended relevant meetings.

The second group of independent variables captures whether individuals have participated in or willing to cooperate and contribute to these NSC programs, aiming to improve Chinese villagers’ living environment based on the co-delivery conceptualization. The “One-Hundred Village” Survey provides four different variables to measure individual respondents’ subjective preferences and experiences of co-delivery. The first one asks respondents whether they would like to contribute to these projects financially or physically. This variable is coded as dichotomous. “1” means they are willing to contribute, while “0” shows they do not like to make contributions. The second variable records whether they have worked on these projects in person (participating in the clean-up programs). It is a dichotomous variable, with one referring to rural residents physically presented in these projects. The third asks individual respondents did they sign a contract or an agreement with the village authority. It is dichotomous, documenting whether a contract or agreement is signed between individual villagers and the local cadres. The last one asks a specific question about whether they would like to pay if the sanitation cleaning in villages charges villagers. One means they would like to pay. The variable has a value of zero if they deny paying.

Control variables

I include several individual-level control variables, including respondents’ ethnicity, marital status, whether they are local bureaucrats (“Ganbu”), their political identities (Chinese Communist Party membership), gender, religious affiliation, age, education, income level, and family size. This article also controls county (city)-level GDP to account for the varying social spending across counties or cities in the Supplemental Statistical Appendix. As the city-level economic condition is closely associated with or affects social expenditure, GDP as a proxy is appropriate when the data on social spending at the city level (including county) is not available. Table 1 provides a more detailed description of the measurement and coding of all included variables.

Model specification

Because the dependent variables in this analysis are ordinal, I estimate the empirical models using generalized maximum likelihood estimation. Specifically, I adopt ordinal regressions with robust standard errors for primary models.
In addition, I employ propensity score matching (PSM) to mitigate the causality concern (omitted variable bias) by assuming we have taken account of necessary control variables that affect the causal relationship between individuals’ co-producing behaviors and the perceived outcomes of public services. In the Supplemental Statistical Appendix, I also add city or county-level GDP to deal with the possible bias across the cities as they largely influence the efficiency of these public programs. Models with county-level fixed effects are presented in the Supplemental Statistical Appendix to deal with slow-moving heterogeneity across units in the empirical models.

### Empirical findings

**The impact of co-planning (civic participation) on the attitudes of living environment governance**

Tables 2 and 3 present empirical findings from six ordinal regressions with robust standard errors. Model 1 is for the dependent variable that measures villagers’ satisfaction regarding the NSC programs in general. Model 2 is for the dependent variable measuring to what extent the villages’ appearance has been innovated. Model 3 precisely measures the attitudes regarding the outcome of the village’s living environment, especially the hygiene practice. In all three ordinal regression models, we observe that the variable “Deliberation Invitation” is significantly associated with individual respondents’ positive attitudes toward the outcome of NSC programs. Models 4 to 6 in Table 3 show that individuals present in village-level relevant meetings are more likely to perceive these living environment programs’ impacts positively. These six models in Tables 2 and 3 show consistent evidence supporting Hypothesis 1 that individuals as “co-planners,” defined by participating in important meetings, are more likely to hold positive attitudes toward the outcome of these NSC programs than their counterparts. The left-hand panel in Figure 1 shows the estimated odds ratios of the variable “Deliberation Invitation,” which are 3.167, 2.467, and 2.650, in Model 1, Model 2, and Model 3, respectively. For example, the first odds ratios suggest that being invited for deliberation will lead to three times higher than those not being invited in the probability of favoring the outcomes of these NSC programs. The right-hand panel in Figure 1 presents the positive estimated odds ratios of the variable “Meeting,” which are 1.578, 2.547, and 2.171 from Model 4 to Model 6. The result in Model 5 indicates that the odds of favoring attitude toward the outcome of NSC programs among the meeting-attenders are 2.5 times higher than those who do not join the meetings. To sum up, Tables 2 and 3, Model 1 to Model 6 provide strong evidence to support Hypothesis 1 that co-planning behaviors, including being invited for deliberation and attending village-level meetings, lead to greater satisfaction among individual rural residents regarding the outcome of NSC programs in China.

### Table 1. Summary statistics of variables.

| Variables                     | Observed | M    | S.D  | Minimum | Maximum |
|-------------------------------|----------|------|------|---------|---------|
| Perceived public service outcome |          |      |      |         |         |
| Satisfaction                  | 2,335    | 3.731| 0.724| 1       | 5       |
| Evaluation                    | 2,341    | 3.770| 0.780| 1       | 5       |
| Improvement                   | 2,339    | 3.704| 0.801| 1       | 5       |
| Co-planning                   |          |      |      |         |         |
| Deliberation                  | 2,338    | 0.292| 0.455| 0       | 1       |
| Meeting                       | 676      | 0.595| 0.491| 0       | 1       |
| Co-delivery                   |          |      |      |         |         |
| Contributing                  | 1,615    | 0.858| 0.349| 0       | 1       |
| Cleaning                      | 2,336    | 0.284| 0.451| 0       | 1       |
| Agreement                     | 2,320    | 0.276| 0.447| 0       | 1       |
| Fees                          | 2,316    | 0.738| 0.440| 0       | 1       |
| Control variables             |          |      |      |         |         |
| Ethnic affiliation            | 2,343    | 0.942| 0.234| 0       | 1       |
| Marriage status               | 2,333    | 0.844| 0.363| 0       | 1       |
| Ganbu (public officials)      | 2,330    | 0.058| 0.233| 0       | 1       |
| Political affiliation         | 2,332    | 0.089| 0.285| 0       | 1       |
| Religious affiliation         | 2,329    | 0.963| 0.190| 0       | 1       |
| Age                           | 2,322    | 55.500| 14.040| 17  | 98    |
| Female                        | 2,343    | 0.348| 0.477| 0       | 1       |
| Education                     | 2,338    | 7.105| 3.642| 0       | 19      |
| Ln(Income) (Chinese RMB)      | 2,311    | 10.646| 1.051| 6.908  | 14.511  |
| Family size                   | 2,343    | 3.611| 1.662| 0       | 13      |
| City-level GDP (trillion RMB) | 2,343    | 4,043.896| 5,206.392| 56.85  | 25,019.11|
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The impact of co-delivery on the attitudes of living environment governance

Tables 4 to 7 show empirical findings from nine ordinal regressions with robust standard errors. The three dependent variables remain the same. The variable “Contributing Preference” is significantly associated with individual respondents’ positive perceptions about the impacts of NSC programs. Models 7 to 9 in Table 4 show that individuals who are willing to invest in village-level renovation programs are more likely to realize the benefits of these programs. Along with Model 10 to Model 18 in Tables 5 to 7, these 12 models present consistent evidence supporting Hypothesis 2 that individuals, as “codelivery,” are more likely to hold positive attitudes toward the outcome of these NSC programs than those who do not participate in the codelivery process of coproduction. Figure 2 visualizes the results of these ordinal regressions based on the odds ratios.

The upper left-hand panel in Figure 2 shows the estimated odds ratios of a variable “Contributing Preference,”

### Table 2. Co-planning (civic participation) and attitudes on rural living environment governance: full models I.

| Dependent variables | Satisfaction | Evaluation | Improvement |
|---------------------|--------------|------------|-------------|
|                     | 1            | 2          | 3           |
| Deliberation invitation | 1.153*** (0.099) | 0.975*** (0.099) | 0.973*** (0.092) |
| Ethnicity           | −0.114 (0.159) | 0.264* (0.155) | 0.380*** (0.147) |
| Marriage status     | 0.288*** (0.112) | 0.139 (0.114) | 0.273*** (0.117) |
| Ganbu               | −0.107 (0.197) | −0.015 (0.178) | 0.001 (0.165) |
| CCP membership      | 0.279* (0.165) | 0.263* (0.145) | 0.107 (0.144) |
| Religion            | 0.131 (0.263) | −0.628*** (0.255) | −0.261 (0.210) |
| Age                 | 0.001 (0.004) | 0.004 (0.003) | −0.004 (0.003) |
| Female              | 0.158* (0.090) | 0.063 (0.090) | 0.041 (0.089) |
| Education           | −0.005 (0.014) | −0.008 (0.014) | 0.030** (0.014) |
| Ln(Income)          | 0.096** (0.044) | 0.075 (0.047) | 0.012 (0.044) |
| Family size         | −0.054* (0.029) | 0.026 (0.028) | 0.032 (0.026) |
| N                   | 2,253        | 2,259       | 2,257       |
| Log-likelihood      | −2,353.051   | −2,524.284  | −2,569.840  |

Note. Robust standard error are included in parentheses. Significance levels: *p < .10, **p < .05, ***p < .01.

### Table 3. Co-planning (civic participation) and attitudes on rural living environment governance: full models II.

| Dependent variables | Satisfaction | Evaluation | Improvement |
|---------------------|--------------|------------|-------------|
|                     | 4            | 5          | 6           |
| Meeting             | 0.456*** (0.166) | 0.935*** (0.169) | 0.775*** (0.168) |
| Ethnicity           | −0.093 (0.236) | 0.366** (0.181) | 0.225 (0.196) |
| Marriage status     | 0.092 (0.246) | 0.174 (0.233) | 0.580** (0.267) |
| Ganbu               | −0.070 (0.286) | −0.052 (0.261) | −0.026 (0.270) |
| CCP membership      | 0.392 (0.278) | 0.000 (0.220) | 0.072 (0.250) |
| Religion            | 0.015 (0.526) | −1.061*** (0.338) | −0.248 (0.325) |
| Age                 | 0.007 (0.007) | 0.010 (0.007) | −0.000 (0.007) |
| Female              | 0.002 (0.184) | 0.026 (0.185) | −0.132 (0.185) |
| Education           | −0.050* (0.030) | −0.045 (0.028) | 0.013 (0.030) |
| Ln(Income)          | 0.279*** (0.085) | 0.283*** (0.091) | 0.178* (0.094) |
| Family size         | 0.022 (0.056) | 0.037 (0.055) | −0.045 (0.060) |
| N                   | 651          | 651        | 650         |
| Log-likelihood      | −626.721     | −659.860   | −639.722    |

Note. Robust standard error are included in parentheses. Significance levels: *p < .10, **p < .05, ***p < .01.
1.706, 1.674, and 1.862, in Model 7, Model 8, and Model 9, respectively. For example, the odds ratios in Model 7 suggest that contributing to public services is 1.706 times higher than non-contributors in the probability of favoring the outcomes of these NSC programs. The upper right-hand panel in Figure 2 presents the positive estimated odds ratios of the variable “Cleaning Experience,” which are 2.115, 2.306, and 2.473 from Model 10 to Model 12. The result in Model 12 indicates that the odds of favoring attitudes toward the improvements of NSC programs on village appearance among the participants of clean-up activities are almost 2.5 times higher than those who do not take part in these activities.

The lower left-hand panel in Figure 2 shows the estimated odds ratios of the variable “Signed the Contract,” 2.837, 2.306, and 2.951, in Model 13, Model 14, and Model 15, respectively. The lower right-hand panel in Figure 2 presents the positive estimated odds ratios of a variable
Table 5. Co-delivery and attitudes on rural living environment governance: Full models II.

| Dependent variables: | Satisfaction | Evaluation | Improvement |
|----------------------|--------------|------------|-------------|
|                      | (10)         | (11)       | (12)        |
| Cleaning             | 0.749*** (0.095) | 0.835*** (0.098) | 0.905*** (0.097) |
| Ethnicity            | −0.243 (0.160) | 0.181 (0.159)  | 0.299** (0.154)  |
| Marriage status      | 0.277*** (0.113) | 0.117 (0.113) | 0.260** (0.117) |
| Ganbu                | −0.043 (0.205)  | −0.032 (0.181) | 0.008 (0.173) |
| CCP membership       | 0.404*** (0.167) | 0.347*** (0.145) | 0.158 (0.149) |
| Religion             | 0.240 (0.265)  | −0.515* (0.273) | −0.116 (0.227) |
| Age                  | 0.003 (0.004)  | 0.007* (0.004) | −0.001 (0.003) |
| Female               | 0.106 (0.089)  | 0.026 (0.090)  | 0.010 (0.089) |
| Education            | −0.007 (0.014) | −0.011 (0.014) | 0.029** (0.014) |
| Income               | 0.124*** (0.044) | 0.105** (0.046) | 0.044 (0.44) |
| Family size          | −0.035 (0.029) | 0.040* (0.029) | 0.045* (0.026) |
| N                    | 2.250         | 2.256       | 2.254       |
| Log-likelihood       | −2.389.235    | −2,521.998  | −2,567.623  |

Note. Robust standard error are included in parentheses. Significance levels: *p < .10. **p < .05. ***p < .01.

Figure 2. Odds ratio coefficients and 95% confidence intervals for codelivery, based on full models from Tables 4 to 7.
“Paying Preference,” 1.604, 1.564, and 2.005 from Model 16 to Model 18. The result in Model 17 indicates that the odds of the financial support, such as paying the fees, make their evaluations on the outcome of these NSC programs 1.5 times higher than those who do not provide this kind of financial support. Specifically, the odds ratios in Model 13 suggest that making a contract with local cadres makes individual villagers 2.8 times higher than non-contractors in the probability of being satisfied with the NSC programs.

In a word, this article presents strong evidence from Tables 4 to 7, confirming Hypothesis 2. Individual respondents as the “co-delivers,” including supporting the codelivery of public services physically and financially, show a noticeably higher level of satisfaction with how the NSC programs in rural China have improved their living environments.

Primary findings from Tables 2 to 7 remain solid in three robustness checks. First, a reasonable concern is that the disparity of county-level social expenditure could affect the investments for the NSC programs and, therefore, individuals’ perceptions about its impacts. This article adds county
or city-level GDP in 2020 to control this critical factor. The results turn out to be supportive of my primary findings (Tables A1–A6 in the Supplemental Statistical Appendix). Second, I employ two methods to deal with unobservable biases caused by time-invariant units and omitted variables. The city-level fixed effects find the primary results are solid (Tables A7–A12). The propensity score matching further strengthens the causality between individuals’ coproducing behaviors and the perceived outcome of these NSC programs in rural China. The results largely support key findings in this article (Tables A13–A15).

A quick review of the control variables in all empirical models presents expected findings. As the dominant ethnic group in Chinese society, Han shows mixed findings on whether coproducing behaviors will affect individuals’ attitudes toward the NSC programs in our empirical analysis. Interestingly, individuals with a Han ethnic affiliation are more likely to realize how village appearance has improved than other minorities (Tables 2, 5, and 7). However, they are less content with these programs (Tables 5–7). Married people favor these programs more than singles across all empirical models. “Ganbu” (public officials) does not support these NSC programs, but CCP membership is a strong indicator of favoring these programs with statistical significance. Individuals with a religious affiliation are more likely to criticize these programs. One possible explanation is that village innovation must remove some old religious buildings. Older villagers are less likely to support these programs than young residents. However, female rural residents tend to realize the benefits of these programs, but they are not strong in all models.

Moreover, this article finds strong evidence that income plays a vital role in individuals’ perceptions of these NSC programs. Specifically, wealthier residents in rural China perceive these programs more positively than poorer ones. One possible explanation could be that wealthier citizens are more likely to attend these programs than other residents. At last, family size does not affect how one views the outcome of these programs.

Discussion and implications

Using one of the latest national surveys across hundred villages in China, this research provides new evidence to support one long-debated theory in public management that coproduction leads to positive attitudes toward the outcome of public services among Chinese rural residents. Specifically, we find that individuals who join in the historical “New Socialist Countryside” Initiative in China as “co-planners” and “co-delivers,” are more likely to realize the benefits of these state-led programs than those who did not get involved. Moreover, the co-planning and co-delivery activities have a sizeable substantive effect on individuals’ perceptions of public services. Based on the odds-ratio interpretation, co-planners are, on average, 2.5 times higher in the probability of positively perceiving the outcome of these programs that aid in innovating and improving the living environment in rural China, as contrasted with their counterparts who do not take part in these programs. Furthermore, the substantive effect of co-delivery is also powerful despite being relatively lower (approximately 1.5 times higher) than the co-planning one. These results suggest that coproduction’s positive impacts on one’s perceived outcome of public services may be enhanced by its role in improving the efficiency of these public services and the democratic values of these coproducers (Brix et al., 2019; Voorberg et al., 2014). Therefore, future research should explore which mechanism drives the relationship between coproducing behaviors and the outcome of public services.

This paper sheds new insights into the relationship between citizen participation, coproduction, and the perceived outcome of public services beyond the context of urban areas in advanced economies. This article finds that citizen participation, primarily through the lens of the policy process, leads to one’s favorable views on the outcome of public service. This paper confirms that rural residents, usually considered unqualified citizens, tend to view the outcome of public services favorably when contributing to them physically and financially. This finding complements one received wisdom that these coproducing behaviors and experiences could help less-educated rural residents realize the benefits of public services. Previous works emphasize the role of informal institutions such as solidarity groups (religious groups and lineage) in the provision of public goods and services in rural China (Tsai, 2007; Wong et al., 2019; Xu & Yao, 2015). This research indicates that civic participation and coproduction shape how rural residents view the provision of public goods and services in countries that lack electoral democracies.

Declaration of conflicting interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author received no financial support for the research, authorship, and/or publication of this article.

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Supplemental material

Supplemental material for this article is available online.

Notes

1. Coproduction includes different forms in the sequence of policy processes. Some scholars propose that coproduction comprises three successive stages: co-planning, co-delivery, and co-monitoring ( Brandsen & Honingh, 2015; Nabatchi et al., 2017). Worth to note, the co-planning is functionally
equal to political participation if the “clients” collaborate with public officials.

2. The Chinese Government Net. 2021. http://www.gov.cn/zhengce/2021-02/21/content_5588098.htm

3. Xinhua.2021. http://www.xinhuanet.com/mrdx/2021-04/23/e_139901424.htm

4. A detailed introduction of the “One-Hundred Village” Survey is provided in the Supplemental Statistical Appendix.

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