Co-Production of Public Services and Performance of Counties in Kenya: Does Literacy Matter?

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ABSTRACT: The benefits of an educated citizenry have been acknowledged widely as their contribution to governance is apparent including their participation in the production of services. As a result, citizens are increasingly involved in critical decisions of the state through public participation. It is on this basis that the study sought to examine the role of literacy levels on the relationship between coproduction and performance. Data was obtained from round 9 of the Afrobarometer survey. A sample of 2400 respondents was identified using a stratified random sampling technique. The sample was spread across the 47 counties of Kenya. A total of 8 Enumeration Areas (EAs) of 300 samples were selected.   Probability Proportionate to Population Size (PPPS) was used to randomly choose population Sampling Units (PSUs). Data was collected using a structured questionnaire and administered by research assistants. The study established that the performance of county governments was below the citizens expectation. Nevertheless, there was a significant relationship between co production and performance for the respondents with basic and tertiary education clusters as opposed to those with informal education. The finding builds the existing literature on co production, literacy and performance and helps stakeholders to create polices to support the co production framework and establish an environment for promoting literacy of citizens.

KEYWORDS: Co-production, literacy, performance, services.

1.   BACKGROUND

Citizen participation in nation-building has been constrained in developing economies, especially in sub-Saharan Africa. Thus, elected representatives and regular service providers often suppress the client's contribution to the service process in this setup. However, many reforms are underway to recognize the roles played by citizens under the co-production structure. This can be achieved through reforms in service processes and governance structures. In Kenya, for example, the constitution review process allowed citizens to participate in the decision-making process in what is commonly referred to as public participation. In the public sector, public participation is a good example of the co-production of services. The constitution ushered in an era of co-production with citizen involvement in service processes. Co-production denotes abandoning the consumer dimension of citizenship and understanding people as contributors of resources to generate shared value in collaboration with regular producers (Rosentraub & Harlow, 1983).

In this arrangement, citizens are organized to participate in programs and projects. Here, individual citizens and interest groups offer their expertise, influence, and experience in designing and implementing projects. Coproduction allows citizens to become coworkers with the government in fulfilling its mandate. This way, complex tasks can be easily realized, including combating disease outbreaks and malnutrition, formulating policies and laws, project planning, and budgeting. Citizens and civil societies can also check the government and improve its accountability, transparency, and effectiveness. Using coproduction, citizens can detect non-conformities, support the service providers, and recommend adjustments. Co-production has been credited with improved citizen well-being, inclusivity, peace, and improved service delivery have been reported in many countries, including economic empowerment of vulnerable women in Bangladesh (Babu, Alwi & Kamal,2020); improvement of access to housing in the informal settlements in Zimbabwe (Chavunduka & Chaonwa-Gaza, 2021), and Climate Smart Agriculture Multi-Stakeholder Platform in Kenya (CSA-MSP)as reported by Kirina & Groot, 2022).

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Much information on coproduction was built in the 1970s and the 1980s. During this time, scholars sought to link coproduction with outcomes including performance, citizen well-being, and efficiency, among others. The majority of the studies establish a relationship between coproduction and performance. Most of the investigations were in public administration (Miller & Wyborn, 2020), with other disciplines (i.e., health sciences, technology, Sustainability, and business) domesticating the concept in the twenty-first century. In these studies, the use of inclusion, gender, and age as intervening variables is predominant. However, a dearth of knowledge exists on how intervening variables such as the literacy of citizens influence the relationship between coproduction and performance of services.

The study's contribution will be threefold: empirical, theoretical, and practical. In practice, the study will attempt to show citizens' contributions to county government services and how their role can be enhanced. In theory, the study will seek to draw on the postulations of collaboration theory where individuals or organizations work together irrespective of the structures in their context. The theory proffers that collaborations can also exist at intraorganizational, or inter-organizational levels where civil society organizations can support the work of government. Empirically, the study shall seek to establish the moderating role of literacy on the relationship between coproduction and performance.

2. EMPIRICAL LITERATURE

2.1 Co-production and Performance

The concept of services emerged out of the seminal work of Baumol in 1967 when labour was critically required in agricultural farms in most parts of the world. Initially, services were "provider-centric," with the producers perceived as predominant players in the process. In 1970, Brudney and England wrote an article on the coproduction concept that elicited a discussion on clients' role in the service process. To Brudney and his colleague, clients were not mere bystanders in the service journey but essential actors. They believed that there was an overlap between the roles of the participants—regular producers (e.g., service agents, public administrators) and consumers (e.g., citizens, neighborhood associations). In the twenty-first century, coproduction emerged as a concept for understanding the interactions between service providers and clients. It is during this period that other disciplines adopted the concept (i.e., public administration; Science and Technology; Sustainability Science, Health Sciences) in service processes as observed by Miller and Wyborn (2020).

The multidisciplinary nature of the concept is reflected in the works of Lember et al., 2019; Yuan et al., (2021) who, for example, studied co-production in science and technology; while Hyde & Davies (2004,2012 Marsilio (2021) studied health sciences; Casidy, Leckie, Johnson et.al., (2022); Chathoth et al., (2013); Yalley (2022) in business studies; Allen et al., (2020); Bovaird (2007); Gazley et al., (2020); Liu et al., (2022); Ma & Wu (2020); Masiya and Davids, (2019); Mnguni (2018) in public administration. Miller and Wyborn (2020) focused their investigation on sustainability studies. Research has attempted to establish the nexus between coproduction and performance in diverse fields. In the field of marketing, for example, collaborative efforts in designing and producing services with consumers have been utilized to engage the public and market demands, either as a force for good or as a means to maintain a desired public image. In an inquiry made by Mnguni (2018) co-production was found to improve the performance of new products and services among Small and Medium Enterprises (SMEs) in China. In the public sector, Allen and Tamindael (2020) found that co-production with Korean citizens increased the performance of projects. In Nigeria, (Landi & Russo, 2022) observed that the inclusion of non-state actors in waste management co-production brought about increased public awareness and performance in garbage collection. Therefore, the literature points to the nexus between co-production and performance.

2.2 Literacy and Performance

Performance is a crucial parameter in the public sector. It allows organizations to demonstrate their responsibility towards internal, and external users and is a catalyst for continual improvement. It is becoming a common debate in public management theory and practice. Performance denotes output, outcome, efficiency, and effectiveness. It is noteworthy that studies have focused on the link between the various forms of literacies on performance including financial (Istan, 2023), computer (Khan & Ullah,2023), and health (Price, 2021). As a result, there has been interest in establishing the link between literacy and performance. The studies established a significant relationship between literacy level and performance.

Although public participation was perceived as a window of inclusion of the citizenry into public services, it is now emerging that the citizens are becoming co-producers of services with the state, most of whom possess low literacy levels (Ferguson & Roofe, 2020). Cases of involvement of citizens in co-production are replete in literature and range from participation in budgeting (Affandi & Marijan 2023), provision of utilities (Landi & Russo, 2022)including garbage collection, performance management (Akanbang & Abdallah, 2021), as well as making laws and regulations (Mouter & Itten 2021). This development is posing a challenge to the

quality of government-citizen involvement. Inquiries into the contribution of literacy to the relationship between co-production and performance remain unclear.

3. METHODS

3.1 Population and Sampling

The current study obtained data from the round 9 Afrobarometer study conducted in Kenya in 2022. The Afrobarometer study obtained its sampling frame from the 2019 Kenya National Census survey. The Investigators also collaborated with the Kenya Bureau of Statistics to provide data on urban centers. A total of 21,610,995 citizens were used as the universe for the study. This universe was identified from the population that were of voting age from the 47 counties although those from areas that were deemed inaccessible such as parks and places experiencing unrest were excluded. A total of 2400 was used as the sample for the study.

Sampling was done in multiple stages. In the first stage, the sample was stratified into urban and rural Enumeration Areas. In the second stage, households were sampled using a randomly selected pattern through a map provided by the KNBS. In the third stage, men and women respondents were selected randomly. The software was used to randomly select between a man and a woman in the household. In case a man is selected, a woman is selected in the subsequent interview. This way, all social demographics were given a chance of included in the study. A total of 8 clustered 8 Enumeration Areas (EAs) of 300 samples were selected. Probability Proportionate to population size was used to randomly choose population Sampling Units (PSUs).

3.2 Tools

The round 9 Afro barometer questionnaire (https://www.afrobarometer.org/survey-resource/kenya-round-9-questionnaire-2021) was used in data collection. The tool covered demographics which included age, gender, educational level, etc. of the respondents. There were questions on constructs such as public participation and the performance of county governments in Kenya. Co-production (public participation) had 5 Likert scale items beginning with "Very Easy" to "Don't Know" whereas the performance of county government had 6 Likert scale items starting with "Improved a lot" to "Don't know. Performance was measured by education, health, nutrition, housing, labor force, transparency and accountability, rule of law, and effectiveness.

3.3 Data Collection

Data was collected electronically using the SurveyToGo which was installed in data collection gadgets. The study had 4 categories of data collection officials—fieldworkers, field supervisors, and fieldwork managers who were in charge of 4 fieldworkers, and National investigators. The NI recruited and trained field supervisors and fieldworkers in a 5-day workshop. The fieldwork personnel then traveled to the enumeration areas.

The supervisors kept a daily written log of sampling and interview conditions as well as contextual notes. University of Nairobi Data Management Team offered technical support to the field officials during data collection. The data collected was submitted in real-time to the server at the University of Cape Town. The fieldwork supervisors held daily debriefings with the field workers. The interviews were conducted in a language of the respondent's choice using electronic tablets and took about an hour with their responses strictly treated confidentially.

3.4 Data Management

Data was uploaded to the server as soon as it was collected. After electronically capturing the data, the network data managers (NDM) produced a clean data set that met the prescribed criteria clearly labeled (i.e., -1) missing data, and was internally consistent. The Electronic data capture software substantially reduced the data cleaning process although data cleaning started with the field work and culminated with the network data managers. Data coding into SPSS began with assigning key identifiers for Kenyan respondents. The surveyToGo was used to assign KEN (code that represents Kenya) which was followed by the number of the respondent's data.

The final step in the data cleaning process was data verification. It involved devising external checks that compare the data set to the original sample i.e., urban vs rural, gender distribution weighted distribution with regards to ethnicity, education, etc. was done through the cleaning process. Afro barometer common template was used in the development of the final SPSS data set. For purposes of the current study, the data was separated into subpopulations according the respondents' literacy levels. Three subpopulations were identified: inform, basic and tertiary levels of education. All the datasets were then analyzed using descriptive statistics (i.e., Mean and SD), and inferential statistics (simple linear regression). Analyzed outputs were presented in tables, and figures and written in continuous prose.

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4. Findings

4.1 Demographic Profiles of Respondents

Key study described how the population was structured in terms of age, gender, educational level, and employment status of the 2400 sampled respondents was analyzed, and findings are presented in Table 1.

Table 1: Demographic Distribution of Respondent

		Frequency	Percent
Gender	Male	1200	50.0
	Female	1200	50.0
	Total	**2400**	**100.0**
Residence	Urban	840	35.0
	Rural	1560	65.0
	Total	**2400**	**100.0**
Age (in Years)	18-25	698	29.1
	26-35	641	26.7
	36-45	394	16.4
	46-55	312	13.0
	56-65	214	8.9
	Over 65	139	5.8
	Total	**2400**	**100**
Education Level	Informal	391	16.3
	Basic education	1477	61.5
	Tertiary	532	22.2
	Refused	4	0.2
	Total	**2400**	**100.0**
Employment Status	Unemployed	1430	59.6
	Part-Time	398	16.6
	Full-Time	572	23.8
	Total	**2400**	**100**

Source: Afro Barometer Survey (2022)

Table 1 shows a near gender parity among sampled respondents at 50%. Close to a third (35%) of the population was residing in the urban areas compared to two-thirds (65%) in the rural areas. Most participants were youthful with 29.1% being 18-25 years old, 26.7% being 26-35 years, 16.4% being 36-45 years and those over 65 were the fewest at 5.8%. Majority of the respondents had basic education (61.5%) with primary and secondary qualifications, followed by those with tertiary education (22.2%) with college, postgraduate diploma, and postgraduate studies, those who had informal education were 16.3% of the sample population. 59.6% of the respondents had no employment with 23.8% having full-time employment while 16.6 had part time employment.

4.2 Descriptive Statistics

Descriptive statistics were used to describe the perception of the participants towards the selected services. It also presents findings on the perceived levels of performance over a period of 5 years in the 47 counties. Table 2, presents the means and Standard Deviation (SD).

Table 2: Descriptive Statistics

Item	N	Mean	SD
Public Participation			
Ease participation in county budgeting, planning	2400	3.32	1.040
Ease access to county budgets, legislation, and project plans	2400	3.32	1.096

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Ease influencing county decision-making	2400	3.43	1.028
Performance of Counties			
Education	2400	3.56	1.338
Healthcare	2400	3.39	1.277
Nutrition	2400	2.79	1.484
Housing	2400	2.71	1.458
Labour force	2400	1.98	1.296
Transparency and accountability	2400	2.52	1.693
The rule of law	2400	2.89	1.664
Government effectiveness	2400	2.95	1.800

Source: Afro Barometer Survey (2022)

Table 2, shows that it was difficult for members of the public to participate in county budgeting and planning (Mean=3.32, SD=1.040). This was also the case for access to budgets, legislation, and project plans (Mean=3.32, SD=1.096). Similarly, findings show that it was difficult for members of the public to influence county decision-making (M=3.43, SD=1.028). On the other hand, Table 2 shows that service delivery in education had somewhat improved over 5 years (Mean=3.56, SD=1.338). However, there was no meaningful change in the delivery of services in the Healthcare (Mean=3.39, SD=1.277), Nutrition (Mean=2.79, SD=1.484), and Housing (Mean=2.71, SD=1.458) sectors across the country over five years. Parameters of performance including transparency and accountability (Mean=2.52, SD=1.693), rule of law (Mean=2.89, SD=1.664), and government effectiveness (Mean=2.95, SD=1.8) had also remained the same over the past 5 years except for services in the labour force (Mean=1.98, SD=1.296) which had worsened.

4.3 Hypothesis Testing Results

Simple linear regression was used to determine the influence of literacy levels on the relationship between coproduction, and performance. The regression establishes how much of each predictor variable has to do with the regression (Tabachnick & Fidel,2013). Using this regression analysis, the contribution of literacy levels, coproduction, and performance were measured in the model summary table (Table 3) whereas, the predictive power of the constructs is presented in Table 4. The significance levels of the relationship were measured using the coefficients which are presented in Table 5.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Informal	.060[a]	.004	.001	1.23985
Basic Education	.071[a]	.005	.004	.88259
Tertiary	.180[a]	.033	.031	.85570

Source: Afro Barometer Survey (2022)

Table 3 presents the model summary results. For the informal education cluster, it was observed that co production had the least (R square=0.004) contribution to performance. There was a slight improvement with basic education where the contribution of coproduction was 0.05%. In the tertiary education cluster, the study observed that co-production contributed 0.3% to the performance. When the contribution of the three clusters was summed up, it was observed that literacy contributed a total of 0.38% to the performance which can be considered negligible.

ANOVA presented in Table 4 shows coefficients indicating the predictive strength of coproduction in performance as represented by F coefficients and significant levels.

Table 4. ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
Formal	Regression	2.137	1	2.137	1.390	.239[b]
	Residual	597.984	389	1.537		

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	Total	600.121	390			
Basic Education	Regression	5.846	1	5.846	7.504	.006[b]
	Residual	1148.984	1475	.779		
	Total	1154.830	1476			
Tertiary	Regression	13.016	1	13.016	17.776	.000[b]
	Residual	387.349	529	.732		
	Total	400.365	530			

Source: Afro Barometer Survey (2022)

Coproduction was found to possess sufficient predictive power on the degree of performance for basic education (F=7.5046; df =1, sig.=.006<0.05); tertiary education (F=17.776 df= 1, sig.=.000<0.05). However, coproduction was not found to possess sufficient predictive power on the performance of counties for those with informal education (F=1.39.660; df= 1, sig.=.239>0.05).
Table 5 illustrates indices (t coefficients and sig. levels) that were utilized to test the hypothesis (the study accepted or rejected the hypothesis when the p-value was p<0.05 and vice versa).

Table 5. Coefficients on Coproduction and Performance

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
Informal	(Constant)	2.745	.175		15.715	.000
	Co-production	.054	.046	.060	1.179	.239
Basic Education	(Constant)	3.092	.097		31.795	.000
	Co-production	-.078	.029	-.071	-2.739	.006
Tertiary	(Constant)	3.578	.183		19.546	.000
	Co-production	-.226	.054	-.180	-4.216	.000

Source: Afro Barometer Survey (2022)

On basic education, findings (β = -.078, t =-2.739, p=0.006<0.05) indicated that there was a significant relationship between co-production and the performance of county government services. Similarly, the findings (β = -.226, t =-4.216, p=0.000<0.05) show that there was a significant relationship between co-production and the performance of county government services for those participants who had tertiary education., the null hypothesis was also rejected. The findings obtained at the basic and tertiary education levels are consistent with those of Xie (2020) and Allen et al., (2020) who observed a relationship between co-production and performance. However, findings (β = 0.54, t =1.179, p=0.239>0.05) show that there was no significant relationship between co-production and the performance of county government services for those participants who had informal education. As a result, the study failed to reject the null hypothesis on informal education cluster.

5. RESEARCH IMPLICATIONS

5.1 Implication to Theory
The study contributes to the collaboration theory as partnerships in the public sector are becoming inevitable. As the state continues to collaborate with other players including the private sector, the citizen's participation is becoming more prevalent. The collaborative theory holds that each player injects value and participates from a standpoint of information to make services meaningful. This study confirms this assertion as the contribution of citizens in coproduction is directly proportional to their literacy levels. The study also contributes to the theory of performance, literacy, and co-production, where the nexus between the variables was established. The role of literacy in the relationship between co-production and performance was also established and a comparison between informal, basic, and tertiary education made.

5.2 Implication to Practice
The benefits of an educated citizenry have been acknowledged widely. The current study confirms that the contribution of literacy is apparent in governance. The findings of the current study are useful to many stakeholders including policymakers in the national and county governments, academia, and nonstate actors. Firstly, the study establishes the nexus between co-production and performance and encourages policymakers to promote this governance practice. Secondly, a clear distinction is made between

the literacy levels where those who are informally educated do not make any meaningful contribution to the quality of the coproduction of services and even performance. The findings call on the policymakers to promote access to education among the citizens.

6.0 CONCLUSION

Although public participation is envisaged in Article 10 (2) of the Constitution of Kenya 2010, the study establishes that citizens had difficulty participating in the budgeting process, legislation, project planning, and decision-making. This notwithstanding, counties were able to improve access to basic education between 2017-2022, although Healthcare, Nutrition, and Housing had not improved in the same period. Nevertheless, there was a significant relationship between co production and performance for the respondents with basic and tertiary education clusters as opposed to the informal education cluster.

7.0 LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

7. 1 Recommendations for Practice

Based on the findings the study makes the following recommendations:

1. Increased efforts to enhance access to education including civic education for the citizens to improve their contribution to governance
2. County government to recognize the contribution of public participation in service delivery

7. 2 Limitations and Recommendations for Future Research

The study encountered several limitations. For example, the investigators did not recognize lifelong learning as a form of education that is prevalent among the citizens. Instead, the study was focused on the acquisition of formal education. This limitation hinders the application of the study. As a result, the study recommends further investigation where lifelong learning is taken into consideration.

8. ACKNOWLEDGMENTS

REFERENCES

1) Affandi, M. A., Marijan, K., & Windyastuti, D. (2023). Participatory Budgeting in Indonesia: from the Policy Innovation to the Democracy Innovation. The Journal of Society and Media, 6(2), 527–565. https://doi.org/10.26740/jsm.v6n2.p527-565
2) Akanbang, B. A. A., & Abdallah, A. I. (2021). Participatory monitoring and evaluation in local government: a case study of Lambussie District, Ghana. Commonwealth Journal of Local Governance, 40–55. https://doi.org/10.5130/cjlg.vi25.8037
3) Allen, B., Tamindael, L. E., Bickerton, S. H., & Cho, W. (2020). Does citizen coproduction lead to better urban services in smart cities projects? An empirical study on e-participation in a mobile big data platform. Government Information Quarterly, 37(1). https://doi.org/10.1016/j.giq.2019.101412
4) Ferguson, T., & Roofe, C. G. (2020). SDG 4 in higher education: challenges and opportunities. International Journal of Sustainability in Higher Education, 21(5), 959–975. https://doi.org/10.1108/IJSHE-12-2019-0353
5) Istan, M. (2023). The Role of Government, Financial Literacy and Inclusion on MSME Finacial Performance. Owner, 7(2), 1514–1525. https://doi.org/10.33395/owner.v7i2.1383
6) Khan, R. U., Khan, A., & Anwar, M. (2023). COMPUTER LITERACY AND ACADEMIC PERFORMANCE IN UNIVERSITIES OF SOUTHERN KHYBER PAKHTUNKHWA PAKISTAN. Gomal University Journal of Research, 39(02), 147–155. https://doi.org/10.51380/gujr-39-02-03
7) Kirina, T., Groot, A., Shilomboleni, H., Ludwig, F., & Demissie, T. (2022). Scaling Climate Smart Agriculture in East Africa: Experiences and Lessons. Agronomy, 12(4). https://doi.org/10.3390/agronomy12040820
8) Landi, S., & Russo, S. (2022). Co-production 'thinking' and performance implications in the case of separate waste collection. Public Management Review, 24(2), 301–325. https://doi.org/10.1080/14719037.2020.1823726
9) Lember, V., Brandsen, T., & Tõnurist, P. (2019). The potential impacts of digital technologies on co-production and co-creation. Public Management Review, 21(11), 1665–1686. https://doi.org/10.1080/14719037.2019.1619807
10) Miller, C. A., & Wyborn, C. (2020). Co-Production in Global Sustainability: Histories and Theories. Environmental Science and Policy, 113, 88–95. https://doi.org/10.1016/j.envsci.2018.01.016
11) Mnguni, S. S. (2018). DEPARTMENT OF PUBLIC ADMINISTRATION The Role of Public Participation in Facilitating Integrated Development Planning for Improvement of Services In uMhlathuze Local Municipality.

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12) Mouter, N., Hernandez, J. I., & Itten, A. V. (2021). Public participation in crisis policymaking. How 30, 000 Dutch citizens advised their government on relaxing COVID-19 lockdown measures. PLoS ONE, 16(5 May). https://doi.org/10.1371/journal.pone.0250614

13) Price, A., Damaraju, A., Kushalnagar, P., Brunoe, S., Srivastava, U., Debidda, M., & Chu, L. (2021). Coproduction, coeducation, and patient involvement: Everyone included framework for medical education across age groups and cultures. In JMIR Medical Education (Vol. 7, Issue 4). JMIR Publications Inc. https://doi.org/10.2196/31846

14) Yuan, L., Zhu, Q., Zhang, T., Duan, R., & Zhu, H. (2021). Performance evaluation of a co-production system of solar thermal power generation and seawater desalination. Renewable Energy, 169, 1121–1133. https://doi.org/10.1016/j.renene.2021.01.096