



# Impact of Telecommuting and Service Delivery on Worker Productivity during the Covid-19 Pandemic among Grade Level 0-13 in the Rivers State Civil Service

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**ABSTRACT:** This study was aimed at assessing the impact of Telecommuting and Service Delivery on Worker's Productivity during the Covid-19 Pandemic. Using a 5-point Likert scale structured questionnaire, this cross-sectional research used cluster and random sampling methods to collect data from 363 civil servants from grade level 0-13 drawn from twenty-six (26) Ministries and departments in the Rivers State civil service. The results from 330 returned questionnaires were analysed using the Statistical Package for Social Science (SPSS version 26.0) and the results were presented as frequencies, percentages and means, while linear and multiple regression was used to test the research hypotheses. The result of the study revealed a grand mean of 2.06 on service delivery of workers during the Covid-19 pandemic. The majority of respondent disagreed about their work delivery during the period of stay at home. A grand mean of 2.26 was also calculated for the efficiency of telecommuting during the pandemic hence a higher percentage of respondents strongly disagreed about the efficiency of telecommunication during these periods. Regression analysis revealed level of significance difference of 0.000 at a 95% confidence level in both worker's productivity and telecommunication. The study has successfully revealed a poor level of service delivery and telecommunication by grade level 0-13 workers during the Covid-19 pandemic, this development underscores the poor level of preparedness by the state civil service to adopt a flexible work structure while maintaining high work productivity. The study therefore recommends the development of conscious strategies to enhance remote work regime in the civil service which be utilized in the face of challenging economic hardship. The civil service must develop and invest in information communication technology to facilitate telecommuting among workers. Finally, well-defined policies and adequate support must be given

to the civil service to enhance the productivity of workers in a remote work setting.

**KEYWORDS:** Telecommuting, Service Delivery, Worker's Productivity, Covid-19 Pandemic, Remote work.

## I. INTRODUCTION

The COVID-19 pandemic took the world by storm and changed the landscape of work across all sectors including government and the private sector (Ng et al., 2021). The key challenge for organisations is how their operations stabilise service delivery and promote workers' productivity in the face of this changing work landscape (Kapoor et al., 2024). Many organisations have now adopted new strategies and technologies to facilitate efficient work and job delivery, including telecommuting (Mhlophe & Chinjova, 2022).

Telecommuting, sometimes referred to as teleworking, is a practice where people work remotely from outside their traditional office environment through the use of telecommunications technology that offers flexibility and convenience (Vartiainen, 2021). Teleworking has come with several perceived advantages such as flexibility and independence to employees, the opportunity to spend some time with family and reduced impact on the environment (Nguyen, 2021).

Sánchez et al. (2007) reported the influence of teleworking on the performance of organisations. Research data also reported major impacts of the COVID-19 pandemic on employee motivation, job performance, and their intention to leave their organisation (Mihalca et al., 2021; Palumbo et al., 2021).

During the COVID-19 pandemic, service delivery and the productivity of civil servants in Rivers State and beyond have become a major source of concern. Significant changes targeted maintaining job delivery and worker productivity. However, despite



the lifting of the severely strict measures aimed at curtailing the spread of COVID-19, it has become crucial to assess the impact of such strategies on workers' productivity and service delivery.

Key areas of concern include the effectiveness of telecommuting in maintaining productivity levels such as the traditional office settings, the challenges Civil Servants face in adapting to remote work, and the adequacy of technological infrastructure to support such a transition. Additionally, there is a need to understand how telecommuting affects communication and collaboration among employees, the potential for increased job stress or burnout, and the overall quality of service delivery to the public. For any strategy on remote work to be effective, the long-term effects on the civil service should be evaluated. There seems to be limited research data on the efficiency of remote work on the productivity of civil servants in developing regions like Rivers State. This study will evaluate the level of service delivery and telecommuting by workers of the Rivers State civil service and their impacts on workers' productivity.

## II. METHODOLOGY

This study adopted a cross-sectional research design using a well-structured questionnaire to gather information from civil servants from grade level 0-13 drawn from twenty-six (26) Ministries in the Rivers State civil service. Cluster and random sampling were used to collect data from 363 sample population size calculated using the Cochran formula. Out of this number, only 330 respondents completed and returned their questionnaire. The research created a 5-item variable that was evaluated on a 5-point Likert-type scale ranging from strongly disagree to strongly agree, allowing for statistical measures of the issues at hand. The data from the questionnaire were extracted and analysed using frequency, percentages, and means while the test of research hypotheses was carried out using regression analysis to ascertain the degree, strengths and extent of the relationship between the dependent variable and the independent variables with the aid of Statistical Package for Social Science (SPSS version 26.0). The instrument's content validity was verified by the opinions of human resources experts.

The specific models that guided the study are stated below:

$$WP = \beta_0 + \beta_1 SD + \epsilon_i \dots \dots \dots (1)$$

$$WP = \beta_0 + \beta_1 TCM + \epsilon_i \dots \dots \dots (2)$$

$$WP = \beta_0 + \beta_1 SD + \beta_2 TCM \dots \dots \dots (3)$$

Where:

WP = Workers Productivity

SD = Service Delivery

TCM = Telecommuting

$\epsilon_i$  = Error Term

## III. RESULT AND DISCUSSION

### Service Delivery of Workers of the Rivers State Civil Service during the Covid-19 pandemic

It is also important to understand the difference in perception of service delivery by workers and how it impacts workers' productivity during crises (Rapaccini et al., 2020). Therefore, the state civil service must recognise the challenges workers face during crises such as ill health, pandemic etc. and develop strategies to improve the capacity of workers to work remotely during such events.

The data presented in Table 1 shows that (76.9%) of respondents either disagreed or strongly disagreed with the claim that COVID-19 did not affect their tasks and duties as civil servants. Interestingly, 81% of respondents in the current study also disagree or strongly disagree that the Rivers State civil service has a well-defined telecommuting strategy and policy which shows workers clear goals. It is also of great concern that 87.5% of respondents reported that their ministry did not function effectively during the Covid-19 pandemic and it affected the level of service delivery in Rivers State. The table also revealed that most respondents (86.7%) disagreed with the claim that the state civil service had a flexible working option before and after the COVID-19 peak period. According to the respondents, (56.1%) of them claimed they did not receive any guidance from their supervisor to create a dedicated workspace at home during their stay-at-home period (Table 1). Table 1 also revealed significantly poor service delivery by the Rivers State civil service during the COVID-19 pandemic.

The result from this study not only revealed abysmal preparedness for emergency events to maintain good service delivery, but it also revealed poor response and adaptability when such events occur. The relative importance index (RII) ranking in Table 2 shows that workers did not receive instructional guidelines from their supervisors to create a dedicated workspace during their stay-at-



home period. The mean value of 2.37 calculated for this question represented the highest mean value for the questions under service delivery even though this mean value was below the Likert mean of 3 as calculated for the 5-point Likert scale in this study.

This result is in agreement with the report of Subagja and Hakim (2023) who reported the negative impact of the work-from-home policies on the quality of public services. According to them, there is sufficient evidence that even in cases where allowances are given on the bases of performance, such did not in any way impact on the quality of public services. This result is also in agreement with the findings of Basuki et al. (2022) who reported the negative and problematic impact of the work from home policy due to poor digital orientation with a resultant significant impact on the individual's productivity. Basuki et al. (2022) recommended that the government should utilise the digital orientation as a selection criterion for government employees who will be transferred to the new state capital.

The study results show that the world is shifting to a work-smart system. Organisations around the world seem to be adopting flexible ways of working smart. This new normal appears to have been birthed by the COVID-19 pandemic; therefore, the Rivers State civil service and by extension, all organisations may develop new policy reforms that may support smart work, flexibility and remote work.

Accordingly, data from this study revealed deficient service delivery by the Rivers State civil service workers during the pandemic. Only 7.9% of workers agreed that the pandemic did not disrupt their work, and 14.5% claimed the state civil service had a telecommuting strategy to enable workers to deliver their goals. This result aligns with the findings of Errichiello and Pianese (2021) who emphasised the role of organisational support and structure in facilitating successful telecommuting arrangements. These include establishing transparent guidelines, setting clear objectives, and providing employees with the necessary resources to thrive in remote work environments and maintain high-level productivity.

In the present study, 7% of respondents claim their ministry functioned effectively during the pandemic, and 9.7% agreed that the civil service had a flexible working option before the Covid. 10.9% of respondents claim that the state civil servants received guidelines about creating a special workspace at home. However, 33% of these respondents were indifferent about receiving instruction to create a workspace at home during their time of staying at home during the pandemic.

This result also underscores the need for the civil service to develop effective communication strategies between workers and supervisors to drive productivity during remote work. Table 2 shows the highest relative important index (RII) and mean (0.47, 2.37) among all questions. This data emphasises the need for the civil service to develop effective communication strategies as also recommended by the findings of Errichiello and Pianese (2021) who identified communication quality as a critical predictor of telecommuting success. Regular and meaningful interactions foster collaboration, enhance team cohesion, and promote a sense of belonging among remote workers, ultimately contributing to improved productivity and job satisfaction. Similarly, the grand mean for the service delivery of workers in the Rivers State civil service during COVID-19 is calculated as 2.06. This figure is significantly below the calculated Likert mean of 3. This implies that the service delivery of workers during the COVID-19 pandemic was significantly low with a resultant impact on workers' productivity.

**Table 1: Respondents' opinion on the relationship between Service Delivery during Covid-19 pandemic and Workers' Productivity in Rivers State Civil Service**

S/No	Question	SD	D	N	A	SA
		Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)
1	Covid-19 pandemic did not disrupt my tasks and duties as a civil servant in Rivers State civil service.	78(23.6)	176(53.3)	50(15.2)	18(5.5)	8(2.4)
2	The Rivers State civil service has a well-defined telecommuting strategy and policy showing workers clear goals.	117(35.5)	150(45.5)	15(4.5)	34(10.3)	14(4.2)
3	My ministry functioned effectively during the stay-at-home directive in Rivers State civil service.	109(33)	180(54.5)	18(5.5)	17(5.2)	6(1.8)
4	Rivers State civil service has a flexible working option before and after Covid-19 peak period.	98(29.7)	188(57)	12(3.6)	31(9.4)	1(0.3)
5	I was guided and supported by my supervisor to create a dedicated work space at home during my stay at home.	69(20.9)	116(35.2)	109(33)	26(7.9)	10(3)



**Table 2. Likert weighted response and relative importance index of Service Delivery and workers' Productivity during the Covid-19**

	SD (1)	D (2)	N (3)	A (4)	SA (5)	Total	N	A*N	RII	Mean	Rank	$x-\bar{x}$	$(x-\bar{x})^2$
Qn1	78	352	150	72	40	692	330	1650	0.42	2.10	2.00	-0.04	0.00
Qn2	117	300	45	136	70	668	330	1650	0.40	2.02	3.00	0.04	0.00
Qn3	109	360	54	68	30	621	330	1650	0.38	1.88	5.00	0.18	0.03
Qn4	98	376	36	124	5	639	330	1650	0.39	1.94	4.00	0.20	0.04
Qn5	69	232	327	104	50	782	330	1650	0.47	2.37	1.00	-0.31	0.09
<b>Total</b>										<b>10.31</b>			
Grand										<b>2.06</b>			

**Telecommuting during COVID-19 in Rivers State Civil Service and workers productivity.**

The data from the study by Davies (2021) highlighted the critical role of technology infrastructure in supporting remote work arrangements. Insufficient tools and connectivity issues can impede workflow efficiency, hinder collaboration, and ultimately impact worker productivity. The result of Morrison-Smith and Ruiz (2020) identified communication breakdowns and technological limitations as barriers to effective telecommuting. Effective leadership and organisational support play a pivotal role in promoting productivity and engagement among remote workers. Kim (2023) emphasised the importance of managerial support, feedback mechanisms, and goal setting in enhancing telecommuting outcomes. By fostering a culture of trust, providing regular feedback, and setting clear performance expectations, leaders can empower employees to excel in remote work environments and drive organisational success. Effective communication is a critical factor influencing worker productivity in a remote work setting. It is also important to establish frequent interactions with teammates and supervisors during such times. Morrison-Smith and Ruiz (2020) emphasised the role of communication quality in fostering collaboration, maintaining team cohesion, and ultimately enhancing productivity in virtual work environments. By prioritising clear and consistent communication channels, organisations can mitigate the challenges associated with remote work and create a conducive environment for sustained productivity.

The data presented in Table 3 shows the level of Telecommuting by workers during Covid-19 pandemic. A combined 55.7% of respondents either disagreed or strongly disagreed that they worked during the period when directive was given for them to stay at home due to the Covid-19 pandemic. It is rather interesting that 43% of the respondents were neutral in their response as to whether they worked remotely during the pandemic or not. It is of concern that a large percentage of the study population stayed neutral. It could be because, they may

not understand the question, are unsure of what to answer or are trying to stay on the fence completely. This is however giving a negative report on the state of civil service delivery by the Rivers State civil service during the covid-19 pandemic. If a whopping 55.7% of workers did not work remotely during the pandemic, this development will most certainly affect the productivity of the service.

A major factor in job delivery during remote work is the ability of the workers to have a clear expectation of their goals as objectives daily. This was also another major research focus in the current study. 59.4% of respondents reported either strongly disagreed or just disagreed that they had a clear understanding of their daily task and expectations. Again, 37.3% of respondents remained neutral as to whether they had clear



understanding and expectation of their daily task. The poor data recorded on the clarity. Understanding and expectation of daily tasks by workers during the pandemic is a sign that telecommuting by the workers was rather very poor. Hence, it is difficult to deliver a task when such a task is not understood or the expectation as well.

For telecommuting to be successful, there must be a provision of internet connectivity and other remote work tools by such organisations. In the case of the present study, 63.7% of respondents disagreed or disagreed strongly that they were given network connectivity and other telecommuting tools during the pandemic by the Rivers State civil service. It seems the Rivers State civil service either lacked the willpower to implement telecommuting or did not commit finances to provide internet connectivity and remote working tools that would have facilitated telecommuting during the pandemic to ensure continued worker productivity. The satisfaction of workers to provide network connectivity and remote working tools. A combined 54.9% claimed dissatisfaction in the quality of network connectivity and remote tools provided by the Rivers State civil service. Also, 42.1% of these respondents were neutral to the quality of network connectivity (Table 3). A combined (64.6%) respondents either disagreed or strongly disagreed that they were provided with effective and frequent work communication with their co-workers and supervisors while at home. This also underscores the inefficiency of the state civil to provide a frequent communication with teammates and supervisors while they were still at home. Interestingly, 29.4% of the respondents were indecisive on whether they received an effective framework for communication with team members and supervisors whilst at home.

Data from this study underscores the poor state of a clear-cut communication strategy and framework that will be needed for frequent and effective communication. The study also reflects the need for intentional actions by the state civil service to develop conscious but effective technological tools to make provision for telecommuting in the civil service. From Table 3, only an insignificantly combined percentage of 0.6 either agreed or strongly agreed that they worked remotely during the covid-19 pandemic. Also, only 3.3% of respondents either agreed or strongly agreed that they had clear expectations of their goals and daily targets. This result may not be unconnected with the poor provision of internet connectivity and remote working as reported by 7.2% of respondents (Table 3). These respondents either agreed or strongly agreed that they were provided with internet

connectivity and telecommuting tools. On the other hand, 3.0% of respondents either agreed or strongly agreed they were satisfied with the internet and telecommuting tools provided by the state civil service. This development may mean that an insignificant population of the service may have been given this provision during the pandemic most likely due to the sensitivity of their work during the pandemic. However, this population may not even have carried out remote working during the Covid-19 period of staying at home because only 0.6% of the respondents agreed to have worked remotely. If this assertion is correct, then the service will have to put in place a robust monitoring and evaluation strategy to ensure that tools provided to workers to facilitate remote work are not diverted for any other use. Also, 7% of respondents either agreed or strongly agreed that they had effective and frequent work communication with their teammates and supervisors. This again represents a rather poor communication by the service during the stay-at-home period (Table 3).

The result of this study also highlights the poor telecommuting by workers under the Rivers State Civil Service during the Covid-19 pandemic. Using the calculated grand mean of 2.29 (Table 4) which is significantly lower than the Likert mean score of 3 using the 5.0 Likert scale. It indicates that the state civil service should develop new strategies or implement already developed strategies which can facilitate telecommuting to provide flexibility in the service for workers. The result also revealed the need for the civil service to improve the communication between team members and their supervisors. Results available in Table 4 show a higher relative importance index (RII) of 0.48 which may be an indication that the question is the most important question under this section and thus must be taken seriously.

The result of the present study has identified a clear relationship between telecommuting and worker productivity. This finding aligns with the result of Wahyuadianto et al. (2020) who reported the implementation of forced flexible working arrangements (FWA) in the public sector of Indonesia in March 2020 due to Covid-19. In a related study, Shareena and Shahid (2020) found out that telecommuting has been made easier following developments in information and communication techniques, thereby making it easier to complete tasks outside the workplace due to user-friendly computers, laptops, android phones and internet connectivity. Similarly, Miller (2021) opined that Covid-19 ensured worksites were closed; thus, organisations and government



institutions found what managers of organisations thought was impracticable: maintaining productivity through remote work. A significant number of organisations globally maintained productivity through telecommuting. Although the relationship between Covid-19 and telecommuting in Rivers State civil service was statistically significant, the magnitude of the relationship was low.

Studies by Saragih et al. (2021) and Zalut and Bolbol, (2022) have highlighted the benefits and

challenges of telecommuting on worker productivity, emphasising the need for organisations to address communication gaps, provide adequate resources, and offer managerial support to optimise remote work arrangements. By drawing insights from these studies and integrating them with the findings from the Rivers State civil service research, organisations can develop tailored strategies to enhance telecommuting practices, improve service delivery, and boost overall worker productivity in the post-pandemic era.

**Table 3: Respondents' opinion on the relationship between Telecommuting during Covid-19 pandemic and workers Productivity in Rivers State Civil Service**

S/No	Question	SD Freq. (%)	D Freq. (%)	N Freq. (%)	A Freq. (%)	SA Freq. (%)
6	I worked remotely during the directive to stay at home.	104(31.5)	80(24.2)	144(43.6)	1(0.3)	1(0.3)
7	I had clear expectations on my goals and objectives as I knew what was expected of me every day.	56(17)	140(42.4)	123(37.3)	5(1.5)	6(1.8)
8	I was provided with internet connectivity and remote work tools by the Rivers State civil service.	56(17)	154(46.7)	96(29.1)	16(4.8)	8(2.4)
9	I was satisfied with the internet connectivity and remote work tools provided by the Rivers State civil service.	51(15.5)	130(39.4)	139(42.1)	6(1.8)	4(1.2)
10	I had effective and frequent work communication with my teammates and supervisors while at home.	19(5.8)	194(58.8)	97(29.4)	14(4.2)	6(1.8)

**Table 4: Likert weighted response and relative importance index of Telecommuting and workers Productivity during the Covid-19**

Qn	SD (1)	D (2)	N (3)	A (4)	SA (5)	Total	N	A*N	RII	Mean	Rank	$x-\bar{x}$	$(x-\bar{x})^2$
Qn6	104	160	432	4	5	705	330	1650	0.43	2.14	2.00	0.15	0.02
Qn7	56	280	369	20	30	755	330	1650	0.46	2.29	3.00	0.00	0.00
Qn8	56	308	288	64	40	756	330	1650	0.46	2.29	5.00	0.00	0.00
Qn9	51	260	417	24	20	772	330	1650	0.47	2.34	4.00	0.16	0.03
Qn10	19	388	291	56	30	784	330	1650	0.48	2.38	1.00	-0.09	0.01
Total										11.43			
Grand Mean										2.29			



### Hypotheses test

The linear and multiple regression was used to test the hypotheses of this study which states that, service delivery and telecommuting during the Covid-19 pandemic did not affect workers' productivity.

The study The F value in Table 5a is 576.25, while the P-value is 0.000 in Table 5a. The P-value of 0.000 is less than the alpha level when testing at an alpha level of 0.05. due to  $P < 0.05$ , the null hypothesis that there is no significant association

between service delivery during Covid-19 and worker productivity in Rivers State Civil Service is rejected, indicating that there is a substantial association. The results, presented in Table 5b, further show the support of the impact of service delivery during Covid-19 pandemic and the workers productivity. The adjusted R-square value of 0.636 ( $R^2=0.636$ ) is an indication that 63.6 % workers' productivity during Covid-19 is explained by the service delivered by these workers even during the Covid-19 pandemic.

**Table 5a; ANOVA on service delivery and workers productivity**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	77.912	1	77.912	576.25	0.000b
	Residual	44.347	328	0.135		
	Total	122.259	329			

Dependent Variable: SD

b Predictors: (Constant), WP

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.798 <sup>a</sup>	0.637	0.636	0.3677	0.637	576.25	1	328	0.00

$\alpha = .05$ ,  $F = 576.25$ ,  $P = .000$ ,  $P < .05$

**Table 5b Regression on service delivery and workers productivity**

a Predictors: (Constant), WP

$R = 0.789$ , Adjusted R Square = 0.637

### Telecommuting and workers productivity during Covid-19 Pandemic

The F value of 240.29, and the P-value of 0.000 which is less than the alpha level of  $< 0.001$  when testing at 99% and 95% confidence level meaning that the null hypothesis which states that there is no relationship between telecommuting and workers productivity during Covid-19 is rejected (Table 6.a). This result confirms the correlation between telecommuting and workers productivity.

The results, presented in Table 6b, further show support that Telecommuting during Covid-19 affected the productivity of workers in Rivers State Civil Service during the covid-19. The adjusted R-square value of 0.421 ( $R^2=0.421$ ) is an indication that 42.1% of workers productivity in the Rivers State Civil Service is explained by the provision of telecommuting tools and facilities during Covid-19 pandemic.

**Table 6a ANOVA: Telecommuting and workers productivity**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32.489	1	32.49	240.293	0.00 <sup>b</sup>
	Residual	44.347	328	0.135		
	Total	76.836	329			



a Dependent Variable: TCM  
b Predictors: (Constant), WP  
 $\alpha = .05$ ,  $F = 240.293$ ,  $P = .000$ ,  $P < .05$

**Table 6b: Telecommuting and workers productivity**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.650 <sup>a</sup>	0.423	0.421	0.368	0.42	240.29	1	328	0.00

a Predictors: (Constant), WP  
R = 0.650, Adjusted R Square = 0.42

#### IV. CONCLUSION

The study revealed poor service delivery by workers in grade level 0-13 of the state civil service who were asked to stay at home during the COVID-19 pandemic. Also, the level of telecommuting by these set of workers during the pandemic was significantly poor. This development ultimately led to a significantly low workers productivity. The result of the present study highlighted the need for a clear communication, well-defined policies, and adequate support as

critical factors influencing productivity in a remote work setting. It is important to address communication challenges, providing technical resources, and fostering managerial support for optimising productivity in remote work environments. Organisations can leverage these insights to enhance telecommuting practices, improve service delivery, and boost worker productivity in the face of evolving work dynamics.

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