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Covid-19 Health Crisis and Cross-border Trade in West Africa

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Abstract

The Economic Community of West African States (ECOWAS) adopted strict restrictions following the appearance of the new coronavirus disease in 2019 (Covid-19). This article assesses the economic consequences of these measures on the activities of cross-border trade actors. To this end, data was collected from 144 traders, 8 customs services, 9 immigration services and 84 transporters using the quota method, distributed among 6 trade corridors (Ouagadougou-Tema, Dakar-Bamako, Ouagadougou-Abidjan, Lome-Ouagadougou, Cotonou-Niamey and Lagos-Kano-Niamey). Empirical findings show that on all corridors, but to different degrees, the health crisis led to significant declines in trade transactions and in net gains for traders and transporters. Our findings suggest the importance of reopening of land borders while respecting the barrier measures and the implementation of a real support plan for cross-border trade actors.

Keywords: Cross-border trade, Covid-19, Trader, Corridor, ECOWAS

1. Introduction

Unexpected shocks have always affected economies with differential consequences. Similarly to other diseases, coronavirus diseases, have important social and economic consequences. According to Baldwin and Mauro (2020), the world has experienced several types of coronavirus diseases that have led to global health crisis and economic damages. The well-known are the Severe Acute Respiratory Syndrome (SARS) and Middle Eastern Respiratory Syndrome Coronavirus (MERS-CoV). SARS was a viral disease discovered in China in late 2002.

From 2002 to 2003, 8098 SARS cases were identified, including 774 deaths. MERS was also a viral respiratory disease caused by a coronavirus that was found in camels throughout several countries. The first case was identified in Saudi Arabia in 2012 and spread to 27 other countries. Thus, 2494 people have been infected with MERS-CoV, out of which 858 have died since 2012.

In early 2019, a new coronavirus disease (Covid-19), which appeared for the first time in Wuhan (mainland China), quickly became a pandemic and affects many countries around the world. The Covid-19 pandemic led to more than 1,201,833 deaths worldwide and infected more than 46 million people by the end of October 2020. Among the affected countries, the United States occupies the first place. In addition to human sufferings and deaths, the pandemic has led to a general economic recession. Global economic powers (G7 and China) are among the most affected by the pandemic (Baldwin & Mauro, 2020). Several scientific research have focused on the analysis of the economic impacts of this disease.

Facing such shock, the analysis of the socioeconomic impact of the virus is paramount and even more with respect to trade. In fact, in the declared willingness to deal with the spread of the virus, several States have invested in taking short and long-run measures to significantly limit the

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consequences of the virus. In West African countries, measures taken such as confinement, quarantine and travel restrictions are not without effect on sub-regional trade which was already at a low level (15%) before the health crisis. Even though the transportation of goods is allowed in order to provide the population with basic needs, a decline in trade is expected. In such a context, the main objective of this paper is to analyze the consequences of the Covid-19 on cross-borders trade within the ECOWAS.

Theoretically, the explanation of this phenomenon lies on the Keynesian theory of supply shocks. The Keynesian theory of supply shock allows to see that Covid-19 leads to a fall in employment and output due to the cessation and/or slowdown in economic activities. This negative supply shock could as consequence lead to a decline in trade dynamics and thus in the regional economy. It can also be explained by the rationality of investors, who, limited by the unavailability of information associated with the evolution of the virus (Simon, 1997), limit their production decisions in a situation of uncertainty. This generalized pessimism from investors, described as animal-spirit pessimism, is also emphasized by Fornaro and Wolf (2020). In general, economic supply shocks cause changes in aggregate demand in the context of Covid-19 through several manifestations including work stoppages, layoffs and exit firms (Guerrieri et al., 2020). This situation is due to the incompleteness of the markets and the liquidity limits of consumers mainly in developing countries. The multiple consequences of this unexpected crisis leads economic thinkers to review the economic model. In this sense, Fornaro and Wolf (2020) vision an economy representative of the New Keynesian economy. Indeed, they argue that Covid-19 is a negative shock on the productivity growth rate. Facing these socio-economic imbalances, endogenous technological changes must be made to thwart the traps of stagnation but above all to increase the resilience of economies. Gourinchas (2020) argues that when facing significant output losses, macroeconomic reforms must be undertaken to “flatten the recession curve”. For the new classical economy, the Covid-19 is perceived as a cyclical trigger. Indeed, economic cycles (or fluctuations) are explained by shocks that affect the economy. Although these cycles can be two fold (monetary and real), it is important to emphasize that the Covid-19 pandemic created more real than monetary disturbances with regard to its origins which are mainly technological. Based on the findings of Kydland and Prescott (1982) on the one hand and Long and Plosser (1983) on the other,

Abbreviations

CFAF	African Financial Community Francs
EAC	East African Community
ECOWAS	Economic Community of West African States
EU	European Union
ILO	International Labor Organization
IOM	International Organization for Migration
MERS-CoV	Middle Eastern Respiratory Syndrome Coronavirus
MMC	Mixed Migration Centre in West Africa
SARS	Severe Acute Respiratory Syndrome
WAEMU	
-RCC	West African Economic and Monetary Union-Regional Collaboration Centre
WFP	World Food Program
WTO	World Trade Organization

models of the real cycle seek to establish that the optimal responses of economic agents to shocks of a real nature can produce cyclical characteristics close to those observed.

According to World Trade Organization (WTO) projections, global trade is expected to decline by 13–32%. For the European Commission (2020), this decline will be about 9.7% in 2020. The EU projected an economic contraction of 9.2% in non-EU exports of goods and services and 8.8% in extra-EU imports in 2020 as a consequence of Covid-19. In Canada, Aston et al. (2020) show that new measures to slow the spread of Covid-19 had a significant impact on the way consumers made retail purchases. They found that total retail sales declined by 17.9%, with e-commerce retail sales doubling (+99.3%).

In Africa, trade volume is expected to decline by 8% for exports and about 16% for imports by the end of 2020, compared to previous estimates based on historical trends (WTO, 2020a). Furthermore, Banga et al. (2020) find that Covid-19 has contributed to the decline in trade volume. They support that the decline in the trade volume, especially cross-border trade, investment and commodity prices has had a negative impact on Africa's economic growth forecasts. In fact, the health crisis has led to increased production costs (raw materials, energy) and export restrictions. From this finding, a major lesson to learn is that Covid-19 has strengthened the case for development of intra-African regional value chains and the unlocking of the continent's trade potential through continental African free trade. In Burkina Faso for instance, Kinda et al. (2020), from a computable general equilibrium model show that the volume of trade will fall by 4.57% under the optimistic scenario and by 7.41% under the pessimistic scenario. These findings

clearly show the consequences of Covid-19 on trade. This situation will jeopardize the trade dynamics and will intensify the trade deficit which is observed since the 1960s.

If all the predictions are alarming, however, the effects are not the same everywhere. In fact, the East African Community (EAC) carried out a study on the impact of Covid-19 on regional trade and reveals surprising findings against popular beliefs. Indeed, in Kenya, national exports increased significantly during Covid-19. Better still, not all supply chains were disrupted by the crisis, with some Kenyan exports such as tea and fruit surpassing the levels of previous years. Conversely, imports have been the main victims of the crisis, with a drop of about a quarter over the three months since the beginning of the crisis (between March and May 2020). This situation could have long-run implications, including the need to revitalize national and regional industry in order to reduce the level of external dependence (Mold & Mveyange, 2020).

In the light of all the above, the main concern that this article addresses is to determine the real consequences of the health crisis due to the Covid-19 in ECOWAS in order to define optimal responses to boost regional trade and more particularly cross-border trade conducted by women and men with average capacities, who are therefore vulnerable to exogenous shocks.

The remainder of the paper is organized around four (04) sections. The first two sections are respectively devoted to the research methodology (material and method) and the empirical link between Covid-19 and trade. The following section, presents and analyzes the main findings. The last section concludes and provides policy implications.

2. Material and method

This research carried out in ECOWAS Member States includes the following countries: Benin, Burkina Faso, Côte d'Ivoire, Mali, Niger, Nigeria, Senegal and Togo. In total, six corridors were identified according to the importance of trade: Dakar-Bamako, Cotonou-Niamey, Abidjan-Ouagadougou, Tema-Ouagadougou, Lomé-Ouagadougou and Lagos-Kano-Niamey. On each corridor, actors targeted for data collection were mainly traders, border customs officers, immigration services, trucks carriers and public transporters (inter-state buses). Due to the lack of statistics on traders and transporters by corridor, the sampling of these actors was carried out using the quota method. With regard to state structures, the customs and immigration services of the outgoing and incoming countries respectively were

investigated at the level of each corridor. Thus, we end up with a sample of 245 actors (see Table 1). Questionnaires has been addressed to traders and transporters and an interview guide to the other actors. The questionnaires consisted of yes or no questions on the one hand and open questions on the other hand. Questionnaires and interview guides were designed to address three situations: the period before Covid-19, the current situation and recommendations for a better way out of the crisis. Due to the context of the covid-9 pandemic, the data collection was done by combining direct interview and phone interview. Table 1 gives the structure of actors involved in the data collection.

This research resorts to the statistical approach, taking into account the situation before and during the health crisis.

3. Empirical link between COVID-19 and trade

The nexus between Covid 19 pandemic and business transactions around the world has been abundantly documented. On a basis of a comparative analysis (before and during Covid-19), Gruszczynski (2020) investigates the relationship between the Covid-19 pandemic and global trade. Findings revealed that Covid 19 is a threat and a disaster for global trade, affecting both the supply and demand for goods and services. Along the same lines, Maliszewska et al. (2020) examining the potential impact of Covid-19 on GDP and international trade, showed that world Gross Domestic Product fell 2% from baseline (situation before Covid-19) due to the Covid-19 pandemic. This has led to a decline in commercial and financial transactions. Furthermore, Barua (2020) has shown a negative relationship between Covid-19 and trade. Indeed, the main finding from his investigation on Covid-19 pandemic and global trade indicates that the pandemic has affected trade relations, resulting in winning and losing economies. Martin and Mayneris (2020), have also shown that the Covid-19 pandemic has negative effects on trade. Considering Canada as example, they show that in March 2020, both Canadian imports and exports fell by about 10% comparing to March 2019. Similarly, in April and May 2020, the situation is worsened as consequence of the implementation of strict containment measures in the country and among many of its trade partners. In May 2020, Canada's total merchandise trade declined by roughly 35% from its level of the previous year. The same stands for developing countries. Indeed, Hayakawa and Mukunoki (2020) concluded that the Covid-19 pandemic has

Table 1. Sample distribution per actors.

Corridors/Actors	Traders (women)	Traders (men)	Customs services	Immigration Services	Public transporters + trucks carriers
Dakar-Bamako	12	12	2	2	14
Cotonou-Niamey	12	12	2	2	14
Abidjan-Ouagadougou	12	12	1	1	14
Tema-Ouagadougou	12	12	1	1	14
Lomé-Ouagadougou	12	12	2	2	14
Lagos-Kano-Niamey	12	12	0	1	14
Total	72	72	8	9	84

Source: authors based on survey.

negatively impacted textile and plastic exports in developing countries.

4. Results

The health crisis has led to a slowdown in the economic activity in general particularly the cross-border trade (WFP, 2020a). Many categories of actors are impacted and suffer from the negative effects of the crisis. This part of the research is organized around four (04) sub-sections. It addresses the consequences of Covid-19 on traders, then on transporters and trucks carriers and finally on customs activities and immigration services. The fourth subsection deals with the test on means difference.

4.1. Consequences on the activities of traders

Traders are affected by the decline in supply and demand as a consequence of cessation or a slowdown in operations due to compliance with barrier measures (McKibbin & Fernando, 2020). Thus, the disruption in business activities, lower household

income and purchasing power have a negative impact on traders.

✓ Evolution of trade indicators during Covid-19

All economic activities around the world have been affected by the pandemic, and trade is one of the most affected due to the borders closure. In West Africa, most cross-border traders have seen their activities slow down or even come to a complete stop. The survey data indicate that 27% of traders have not carried out any cross-border transactions since the beginning of the crisis. On the other hand, 73% of them are continuing their transactions. Overall, the number of travelling made by these actors has been reduced (see Chart 1).

Chart 1 shows a decline in the average number of travelling per month since the arrival of the Covid-19 pandemic. In all corridors, the average number of travelling decreased from four (04) before Covid-19 to one (01) during the health crisis, a 75% reduction. This situation is explained in particular by the borders closure due to the pandemic. This finding is in line with the conclusion of Martin et Mayneris (2020) in the Canadian context. In fact, the authors

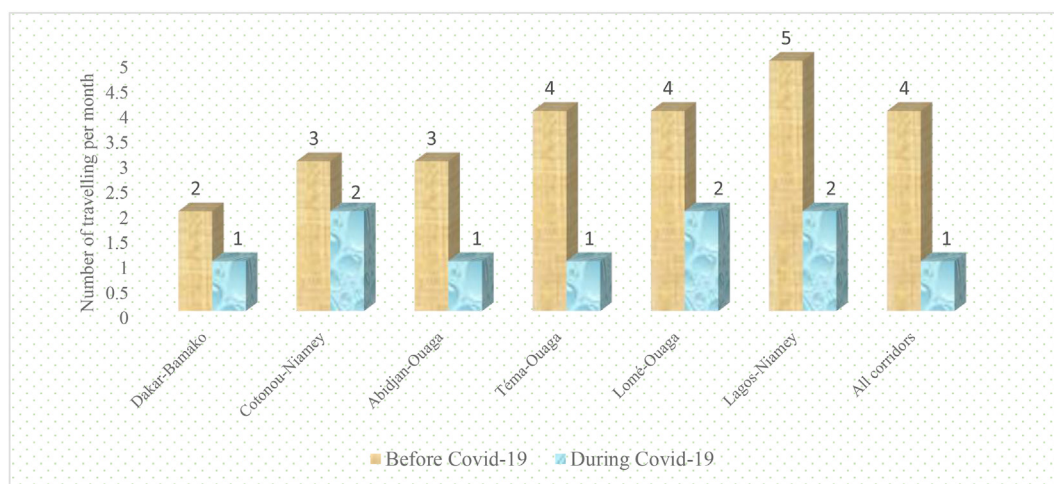


Chart 1. Average number of travelling per month, per trader and per corridor. Source: authors based on survey.

revealed a slowdown in commercial transactions due to the pandemic. In addition, our findings indicates that before the crisis, the Tema-Ouagadougou, Lome-Ouagadougou and Lagos-Kano-Niamey corridors were the most used with at least four (04) travelling per month and per trader. On the other hand, the Bamako-Dakar corridor is the least used with two (02) travelling per month before Covid-19 and one (01) during the crisis. When accounting for gender, the trend in the number of travelling by women is in line with the average for the corridors (4 before the crisis versus 1 during the crisis, a reduction of 75%).

The reduction in the number of travelling would impact the value of purchases and sales during the crisis. Indeed, the barrier measures (social distancing, temporary closure of some markets) taken to deal with the spread of the disease affected the value of purchases (Chart 2) and sales (Chart 3) of traders in the ECOWAS.

From Chart 2 it appears that average purchases per travelling on all West African corridors fell from 5.5 million CFAF before the health crisis to 2.6 million CFAF during the crisis, a drop of 52%. Moreover, the largest transactions were made on the Lome-Ouagadougou corridors (11.8 million CFAF before Covid-19 and 6.1 million CFAF during Covid-19) and Cotonou-Niamey (8.1 million CFAF before Covid-19 and 4.6 million CFAF during Covid-19). In contrast, the Lagos-Kano-Niamey Corridor recorded the lowest transaction value in terms of purchases. Traders in the Dakar-Bamako Corridor are the most affected in terms of decline in the value of purchases since the advent of Covid-19 in the West African sub region. In fact, the value of purchases fell from 3.7 million before the health crisis to 0.6 million CFAF, representing an 84% decline in purchases. When accounting for the gender dimension, the average value of women's purchases fell from 3 million CFAF to 1.4 million CFAF, a 53% decline, roughly equal to the sub-

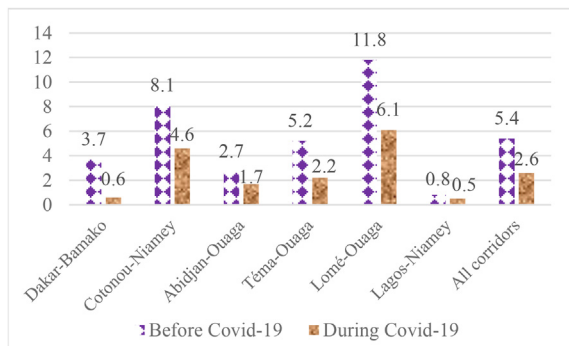


Chart 2. Average value of purchases in million CFAF per travelling and per corridor.

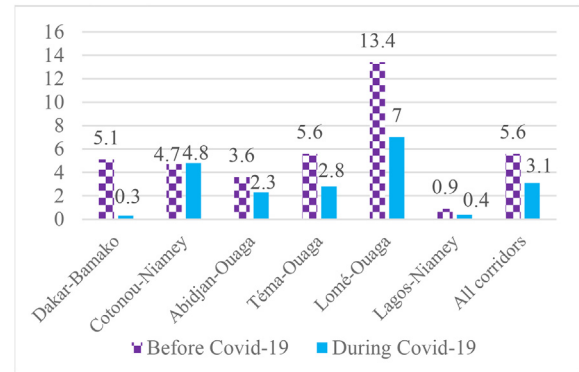


Chart 3. Average value of sales in million CFAF per travelling and per corridor. Source: authors based on survey.

regional proportion (52%). This decline in the purchases value has not been without impact on trader's sales.

Analyzing Chart 3 shows that the average value of sales by traders in the West African corridors fell from 5.6 million CFAF to 3.1 million CFAF, representing a 45% decline in average sales. In addition, the highest sales are made on the Lome-Ouagadougou corridor. Sales on this corridor fell from 13.4 million CFAF before the health crisis to 7 million CFAF. The Lagos-Kano-Niamey corridor occupies the last place in terms of sales value for traders, with an average of less than one million per travelling. With respect to purchases, traders in the Bamako-Dakar corridor are the most affected in terms of reduced sales. In fact, the average sale by traders per travelling fell from 5.1 million CFAF before the health crisis to 0.3 million during the crisis, a drop in sales of about 94%. However, traders in the Cotonou-Niamey corridor are the only ones to achieve the increase in their sales. In fact, sales in this corridor increased by 0.1 million CFAF.

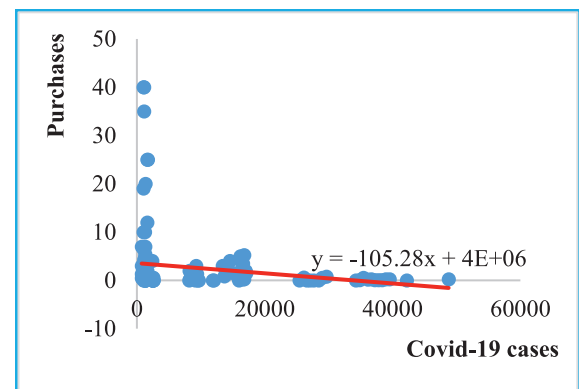


Chart 4. Correlation between purchases value and the number of confirmed covid 19 cases. Source: authors based on survey.

Gender analysis shows that the average value of women's sales fell from 3.4 million before Covid-19 to 1.6 million CFAF during the health crisis, a decline of 53%. Men's sales fell from 7.4 million CFAF to 4.5 million CFAF, a decrease in sales by 39%. This shows the severity of the crisis consequences on women's activities compared to men.

Charts 4 and 5 show the nature of the relationship between the purchases and sales value and the number of Covid-19 confirmed cases.

Purchases and sales value are negatively related to the number of Covid-19 confirmed cases. State otherwise, it decreases with the number of coronavirus confirmed cases. This result confirms the negative impact of the pandemic on cross-border commercial transactions in West Africa.

In terms of net gain realized, Chart 6 indicates that on average and for all the West African corridors, traders earned about 559,000 CFAF per travelling before the Covid-19 against 194,000 CFAF during the Covid-19, i.e. a drop in net gain of 65% due to the crisis. This finding is similar to that of the WAEMU-RCC study (2020) on the private sector which emphasis a decline in the traders' turnover because of the restrictive measures taken by various states. Our survey also indicates that before the crisis, good deals were made by traders in the Ouagadougou-Lome (866,000 CFAF per travelling) and Abidjan-Ouagadougou (898,000 CFAF per travelling) corridors. On the other hand, traders in the Lagos-Kano-Niamey corridor obtained the lowest net gains. Furthermore, our result show that traders operating on the Dakar-Bamako corridor are the most affected by the adverse effects of this crisis. In fact, their average net gain per travelling declined by roughly 682,000 to about 7000 CFAF, a 99% drop. When taking gender into account, the net gain realized by women before Covid-19 was 467,000 against 123,000 CFAF during the crisis, a decrease of

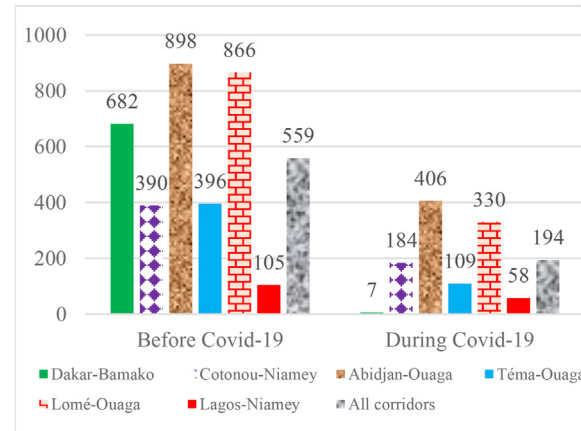


Chart 6. Net gain per travelling in thousand CFAF and per corridor. Source: authors based on survey.

74%. This finding corroborates those obtained by Trade Mark (2020) concerning traders (women) in Uganda and Kenya. Indeed, traders (women) surveyed in Uganda experienced a sharp decline in their income, by 93.8% compared to a 76.2% drop among Kenyan traders (women).

The average loss incurred by the cross-border trader (Chart 7) is 2.2 million CFAF since the advent of Covid-19. Cross-border traders operating on the Dakar-Bamako (2.7 million CFAF), Abidjan-Ouagadougou (3.8 million CFAF) and Lome-Ouagadougou (3 million CFAF) corridors are the most affected by the current crisis. On the other hand, traders using the Cotonou-Niamey (0.9 million CFAF) and Lagos-Kano-Niamey (0.4 million CFAF) corridors are the least affected by the pandemic.

When it comes to the payment methods, they essentially consist in cash payment, bank transfer and transfer via cell phone. Chart 8 shows the proportions of use for each method of payment.

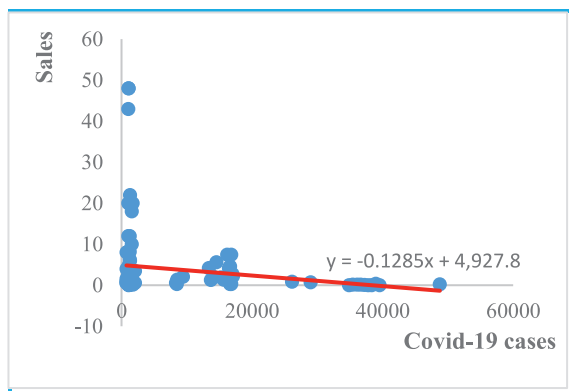


Chart 5. Correlation between sales value and the number of confirmed covid 19 cases.

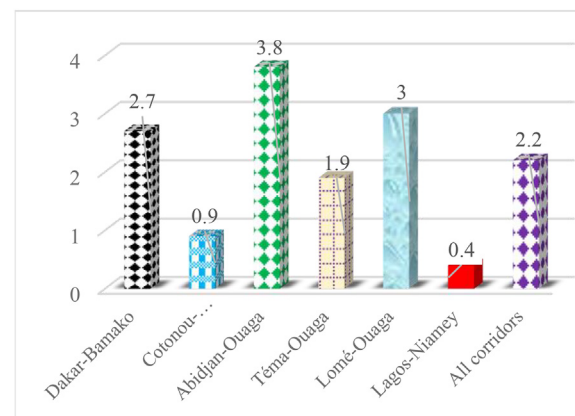


Chart 7. Average losses per trader in million CFAF and per corridor.

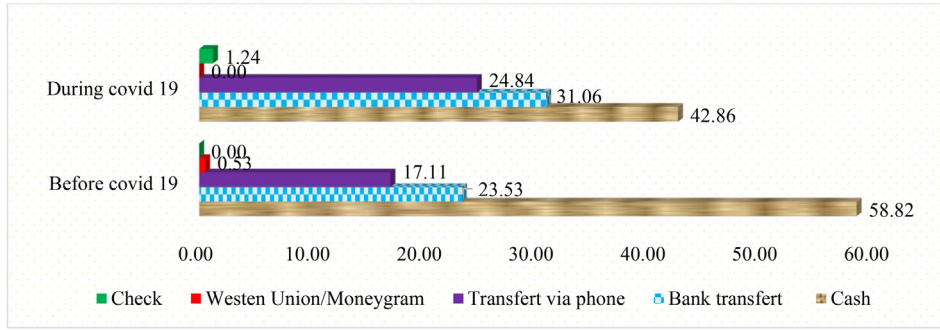


Chart 8. Method of payment used by traders (as %). Source: authors based on survey.

The most common method used for cross-border transactions is the cash payment. However, the proportion of traders using this mode decreases from 59% before the crisis to 43% during covid-19. This decline might be due to the borders closure, which has led to a reduced movement of people and little physical circulation of cash. As a result, traders resort to other methods of payment such as bank transfers (whose proportion increased from 23% to 31% with the crisis) and transfers via cell phones (whose proportion increased from 17% to 25% with Covid-19). The high use of bank transfer and mobile phone payment is partly justified by the fact that cash payment is a vector for community transmission of the virus. This result is consistent with the empirical investigations of de Girancourt et al. (2020), who show that social distancing due to the covid-19 have led to a potential migration of cash payment methods to digital systems in commercial transactions in Africa.

✓ Economic challenges faced by traders

Traders, especially those operating in cross-border transactions are facing enormous economic difficulties in this period of crisis. Indeed, 48% of

them are experiencing a decline in the level of their activity, 42% mention a drop in income and a risk of bankruptcy for 10% of them. One of the major difficulties currently experienced by traders is the problem of supply and the availability of goods. Studies conducted by the World Trade Organization and the World Food Program (2020a, 2020b) have revealed that the health crisis has led to a decline in the global production of goods, accompanied by delays in delivery, thus creating bottlenecks in the flow of these goods between countries. In the light of these difficulties, the WTO (2020b) predicted a contraction of trade ranging from 13 to 32%.

4.2. Transporters

Transporters play an important role in the movement of goods. This section presents, among other things, the number of travelling carried out, the volume of goods loaded, and the net gain realized. Since the advent of the health crisis, the number of travel made by trucks carriers and public transporters has varied. Chart 9 shows the number of travelling made by these actors before and during Covid-19.

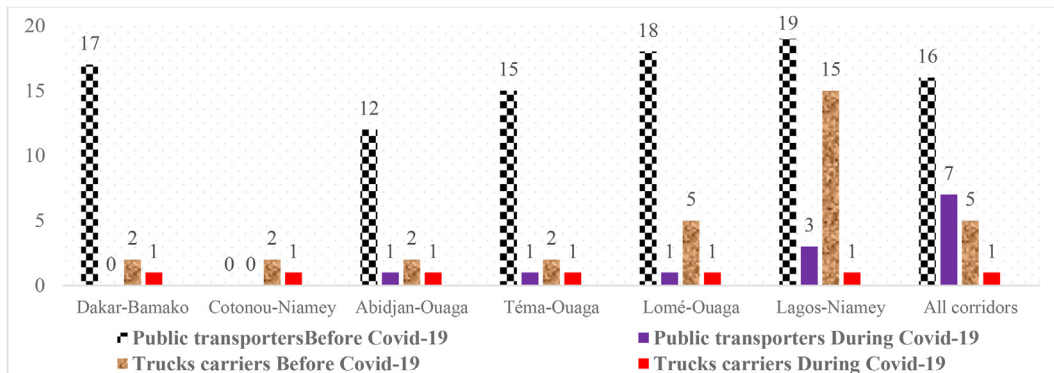


Chart 9. Average number of travel per transporters and trucks carriers per month. Source: authors based on survey.

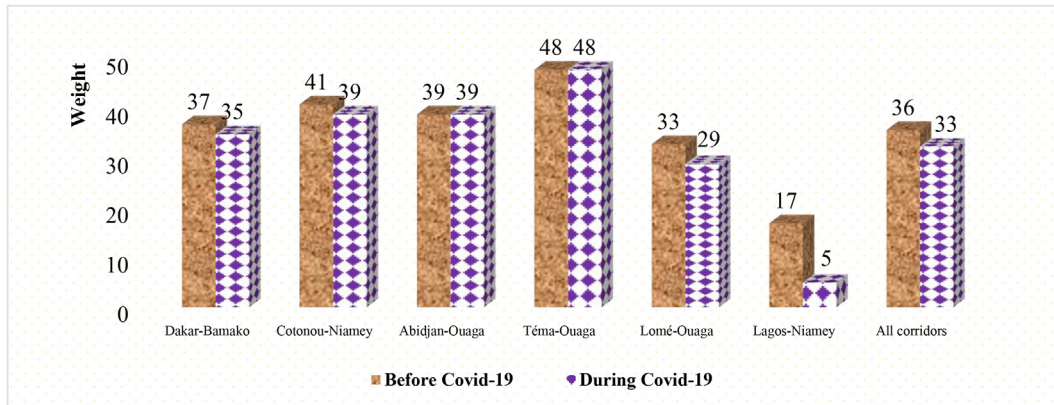


Chart 10. Volume of merchandises loaded per travelling (in ton) per trucks carriers. Source: authors based on survey.

The number of travelling per month made by public transporters increased from an average of 16 prior to Covid-19 to 7 during Covid-19. Despite the crisis, some public transportation companies continue their passengers’ transportation activities. Others, however, have moved into freight transportation. The Lome-Ouagadougou corridor is the most used (11 travelling on average) despite the context of the Covid-19. Despite the borders closure for public passenger transport, this type of transport has flourished on some corridors. Indeed, some carriers are able to cross the borders by offering bribes to the defense and security forces in return. On the Dakar-Bamako corridor, public transport came to a complete stop with the advent of the crisis.

On the trucks carriers' side, the average number of travelling on all corridors declined from 5 before the crisis to 1 during the health crisis. The Lagos-kano-Niamey corridor is experiencing the highest drop in the number of travelling per month. Indeed, the

number of travelling on this corridor has dropped from 15 before the Covid-19 to 1 during the Covid-19.

With respect to the volume of goods loaded, Chart 10 shows that on average, a truck carrier loaded 36 tons before the crisis against 33 during the crisis, a slight decrease of 8%. The largest loads per travelling are recorded on the Cotonou-Niamey, Abidjan-Ouagadougou and Tema-Ouagadougou corridors. On the other hand, the lowest loads are observed on the Lagos-Kano-Niamey corridor (17 tons before the crisis versus 5 tons during the health crisis). These results are in line with the World Trade Organization’s projections that global trade volumes could decline by up to 32% in 2020 (Deloitte, 2020). This decline in the weight of goods with the advent of Covid-19 would worsen the gain of the actors in the transportation sector.

The reduction in the number of travelling per month and the decrease in the trucks carriers’ load have led to a decrease in the overall earnings of

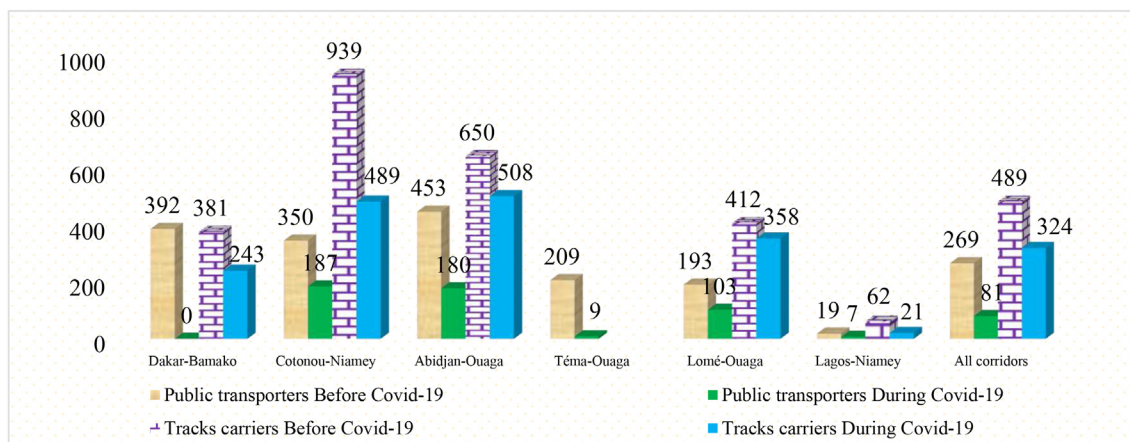


Chart 11. Net gain realized by transporter (in thousand CFAF). Source: authors based on survey.

transportation actors. **Chart 11** shows the net gain realized by these actors.

The average net gain realized by the public transporters per travelling went from 269,000 to 81,000 CFAF, a decline of about 70%. Transporters in the Dakar-Bamako and Tema-Ouagadougou corridors were the most affected, with a zero net gain and a 96% drop, respectively (from 209,000 CFAF to 9000 CFAF). On the other hand, those of the Cotonou-Niamey and Abidjan-Ouagadougou corridors are making the largest net gains during this period of crisis, with 187,000 CFAF and 180,000 CFAF respectively for the first and second corridors.

For trucks carriers, the negative impact of the crisis on the net gain is less compared to the public transporters. Our results show that the average net gain realized by trucks carriers went from 489,000 before the crisis to 324,000 CFAF during the crisis, a reduction of 34%. The trucks carriers most affected are those using the Cotonou-Niamey corridor (the average net gain fell from 939,000 CFAF to 489,000 CFAF, a 48% reduction) and the least affected are those using the Abidjan-Ouagadougou and Lome-Ouagadougou corridors.

In terms of losses, the results reveal that cross-border public transporters are the most affected by the pandemic compared to trucks carriers (**Chart 12**). Since the advent of the health crisis, public transporters have lost 11.4 million CFAF on average on all corridors compared to about 3 million for trucks carriers. In addition, public transporters in the Dakar-Bamako corridor have been the most affected, with an average loss of about 48.7 million CFAF. On the other hand, the public transporters least affected by the crisis are those using the Lagos-Kano-Niamey (0.3 million CFAF), Tema-Ouagadougou (1.5 million CFAF), and Abidjan-Ouagadougou (1.8 million CFAF) corridors.

With respect to trucks carriers, the most affected ones by the loss are those operating in the Bamako-

Dakar (5.4 million CFAF) and Lome-Ouagadougou (5.8 million CFAF) corridors. The trucks carrier least affected by the crisis are those in the Lagos-Kano-Niamey (0.3 million CFAF) and Cotonou-Niamey (0.3 million CFAF) corridors.

The difficulties encountered are essentially of three types. The first is the decline in the level of activity, the second is the decline in the income of operators and the third is the risk of bankruptcy for some transportation companies. In such context, ILO (2020) argues that haulage sector is facing serious financial difficulties and operational pressures as a consequence of the Covid-19 pandemic.

4.3. Implications of COVID-19 for customs and immigration activities

Customs service is a fiscal institution in charge of collecting duties and taxes from the entry of goods into a territory. Its activity is regulated by national law, but also by international agreements (WTO, free trade treaties, etc.). On the West African corridors, agrifood have been pointed out by customs as being the most cleared. **Table 2** summarizes the changes induced by the pandemic.

Table 2 shows that, on the corridors, customs offices in general have recorded a significant drop in the number of customs clearances with the advent of the health crisis. Consequently, the volume and value of goods cleared have declined. Customs in Benin (on the Cotonou-Niamey corridor) and Burkina Faso (on the Lome-Ouagadougou corridor) are the most affected by this decline. Indeed, the volume and value of goods cleared through customs fell from 180 to 60 tons, a drop of 67%, and from 23.8 to 7.7 million CFAF, a drop of 68% for Burkina Faso customs. With respect to the Beninese customs, the volume dropped from 150 to 80 tons, a decline of 47% and the value from 5 to 1.5 million CFAF, a decrease of 70%.

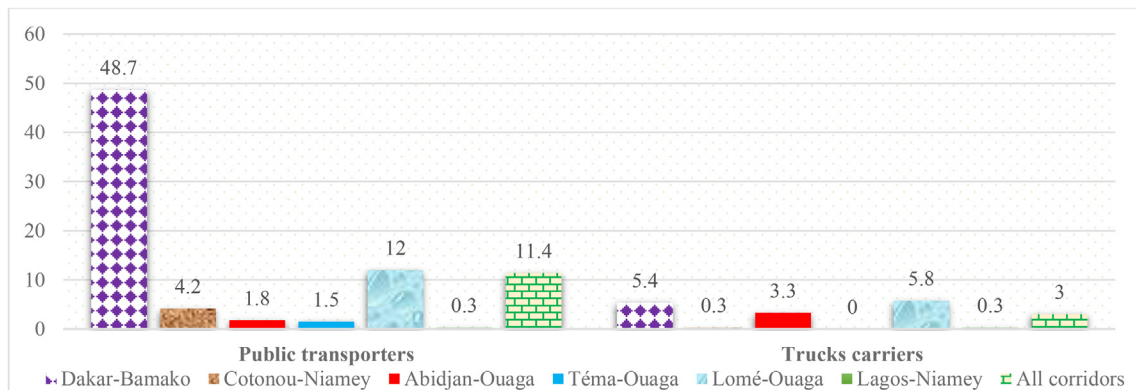


Chart 12. Losses per public transporter and trucks carrier (in million CFA F). Source: authors based on survey.

Table 2. Number, volume and value of daily customs clearings.

Countries	Corridors	Number of customs clearings per day		Volume of customs clearings per day (in tons)		Value of customs clearings in millions CFAF	
		Before Covid-19	During Covid-19	Before Covid-19	During Covid-19	Before Covid-19	During Covid-19
Bénin	Cotonou-Niamey	3	4	150	80	5	1.5
Niger	Cotonou-Niamey	225	75	8500	4500	4250	2250
Burkina Faso	Lomé-Ouagadougou	6	2	180	60	23,8	7,7
Togo	Lomé-Ouagadougou	10	6	272	210	780.3	476.5
Burkina Faso	Téma-Ouagadougou	9	6	1000	NA	4.5	4
Burkina Faso	Abidjan-Ouagadougou	NA ^a	NA	2250	1100	15	8

Source: authors based on survey.

^a NA stands for not available

Table 3. Number of vehicles and people crossing borders per day.

Countries	Corridors	Number of vehicles crossing borders per day			Number of people crossing borders per day		
		Before Covid-19	During Covid-19	Difference	Before Covid-19	During Covid-19	Difference
Niger	Lagos-Kano-Niamey	100	10	−90	100	10	−90
Burkina Faso	Lomé-Ouagadougou	400	100	−300	6000	100	−5900
Togo	Lomé-Ouagadougou	300	100	−200	5000	20	−4980
Niger	Cotonou-Niamey	250	200	−50	1000	500	−500
Bénin	Cotonou-Niamey	200	200	0	1000	400	−600
Mali	Dakar-Bamako	200	10	−190	300	0	−300
Sénégal	Dakar-Bamako	200	12	−188	295	0	−295
Burkina Faso	Abidjan-Ouagadougou	470	165	−305	3400	320	−3080
Burkina Faso	Téma-Ouagadougou	300	200	−100	1000	450	−550

Source: authors based on survey.

The immigration services, like the customs administrations, have experienced a disruption in their activities. Their daily mission is essentially to check the identity of passengers and vaccination records. [Table 3](#) shows the impact of the health crisis on the number of vehicles and passengers crossing the border per day.

The number of vehicles crossing borders per day has decreased with the advent of the coronavirus pandemic. The most significant declines is recorded on the Dakar-Bamako and Lagos-Kano-Niamey corridors. In fact, the number of vehicles at the level of the Malian police offices fell from 200 before the crisis to 10 during Covid-19, a drop of 95%. With regards to the Lagos-Kano-Niamey corridor, the number of vehicles dropped from 100 before the health crisis to 10 during the crisis, i.e. a drop of 90%.

Considering the number of passengers per day, the decline is also significant on all West African corridors. The Dakar-Bamako corridor has recorded no (0) passengers per day since the advent of the pandemic. According to the IOM (2020), the Covid-19 crisis has severely limited the international movement of people due to the movement restriction and confinement taken by various States. At the same time, a research conducted in Burkina Faso, Niger and Mali showed that difficulties related to the free movement of people have worsened (MMC, 2020). Indeed, 70% of respondents in Burkina Faso support that they are unable to leave the national territory. These numbers are 67% and 56% respectively in Niger and Mali.

4.4. Tests of means difference

There are two main methods for estimating the significance of the mean differences for two samples (z test and t-test). The z test is used for a sample whose size is greater than 30 and the student's t-test for samples whose size is less than 30 observations ([Ricco, 2013](#)). In this research, the z test is used to test the significance of the means difference for merchants and carriers. To analyze the significance in mean differences for customs and immigration service level, the student's t-test is used. These two tests are carried out based on the null hypothesis that the difference in means is equal to zero, against the alternative hypothesis that this difference is different from zero. The two subgroups of samples are matched by the fact that they are the same individuals whose behavior is observed before Covid-19 and during Covid-19. The estimation results are shown in the following [Table 4](#).

The table shows that for traders, the mean difference between of the situation before Covid-19 and during Covid-19 is statistically significant at the 1% for all the variables used in the analysis. This result supports the descriptive analysis made above.

With regard to public carriers, the difference between the number of trips before the pandemic and during the health crisis is significant at the 5%. By analyzing the difference between the gain before and during Covid-19, findings indicate a significance at 1%. These results confirm the negative impact of the health crisis on public transporters.

Table 4. Test on means difference before versus during Covid-19.

Variables	Observations	Means difference	Values of z ^(a) or t	Probabilities
Traders				
Difference (Average number of trips per month)	141	2.28	11.7689	0.0000
Difference (Average value of purchases per trip)	142	2801972	3.4735	0.0005
Difference (Average value of sales per trip)	133	2488464	1.4e+07	0.0000
Difference (Net gain per trip)	134	366492.6	6.4787	0.0000
Public transporters				
Difference (Average number of trips per month)	36	19.69	2.2026	0.0276
Difference (Average gain per trip)	36	203611.1	2.5905	0.0096
Truckers				
Difference (Average number of trips per month)	46	3.84	5.4394	0.0000
Difference (volume of goods transported)	44	3.38	1.3761	0.1688
Difference (Average gain per trip)	40	163175	2.8268	0.0047
Customs				
Difference (Number of Customs Clearances per day)	5	32	1.0842	0.3392
Difference (Customs clearance per day)	5	2.30e+07	1.0000	0.3739
Difference (Customs clearance value per day)	5	5.52e+07	1.1077	0.3184
Immigration service				
Difference (Number of vehicles crossing the border per day)	8	165.375	4.2132	0.0040
Difference (Number of people crossing the border per day)	8	1968.125	2.3613	0.0502

Source: Authors based on survey data.

Note: (a) The statistic z or t is calculated as follows: $\frac{m}{\frac{s}{\sqrt{n}}}$; with m the estimated means difference, s the estimated standard deviation over

the sample of the n differences and n the size of the sample of the n differences.

Considering truckers, the table shows that the difference between the average number of transport before and during Covid-19 and the difference between the average gain per trip before and during Covid-19 are significant at the 1%. With regard to the Immigration Service, estimates show that the difference between the average number of vehicles crossing the border before the crisis and the number during Covid-19 is significant at 1%. If we consider the number of people crossing the border per day, the difference between the two situations is significant at 5%.

5. Conclusion and policy implications

Since 2019, the world has been facing a serious health crisis characterized by the rapid spread of the Covid-19 pandemic. This pandemic affects the global economy in general and that of ECOWAS countries in particular with consequences on intra-community trade. In fact, since the first confirmed cases in the community and the barrier measures, particularly borders closure taken by the Member States governments, economic activity has been sharply slowed down creating huge losses for the actors involved in cross-border trade. Indeed, cross-border traders have experienced a decline in the value of purchases, sales and net profit. The findings of this research also indicate that women are economically more affected than men. Trade support actors such as transporters, customs, and police were also affected due to the decline in the level of their activities. Despite the economic stimulus measures taken by the various countries in an emergency, cross-border trade actors are often forgotten and witness the deterioration of their activities.

Given these findings, the following recommendations are addressed to ECOWAS States members in order to revive cross-border trade in the region:

- ✓ Consider reopening land borders with emphasis on the respect of barrier measures along the corridors;
- ✓ support cross-border trade actors in reviving their activities. These measures may consist of a subsidy granted to women according to the size of their businesses, a reduction in domestic taxes and fuel prices, and granting financial aid;
- ✓ fighting against illicit perceptions on the corridors. To this end, it is imperative to reduce checkpoints on the corridors. Actions could be taken to set up juxtaposed and computerized customs posts;
- ✓ promote and develop industrial processing to further develop cross-border trade through value chains;

- ✓ develop e-commerce and strengthen electronic methods of payment.

Women are strongly affected by Covid-19 and they deserve to be taken into account in the economic recovery plan of each country. A broader study could be envisaged (taking into account all 15 ECOWAS countries) to evaluate the impacts of Covid-19 on women's commercial activities.

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Authors' contribution

TDZ, OC and DD contributed to conceptualizing and writing the manuscript. Comments on the original and revised drafts were addressed by the three TDZ, OC and DD.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Declaration of competing interest

None.

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