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Research Article

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Posted Date: January 25th, 2023

DOI: https://doi.org/10.21203/rs.3.rs-2506389/v1

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Additional Declarations: No competing interests reported.
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Abstract

Background: Ever since the COVID-19 pandemic struck Uganda, much emphasis by the policy makers and researchers were on the health effects of the pandemic at the expense of the economic effects hence creating a research gap. The cardinal aim of this study was therefore to examine the economic effects of the pandemic on the wellbeing of the market vendors in Kampala city, which was the epicenter of the COVID-19 pandemic. The specific objectives of this study were: examining how the COVID-19 pandemic economically affected the market vendors in Kampala city, and determining if the pandemic was a demand or supply side shock.

Methods: the study employed the Blinder-Oaxaca (B-O) decomposition technique, which was originally used in labor economics to decompose earnings gaps and to estimate the level of discrimination. This decomposition method analyses changes in a given variable over time. Descriptive statistics such as means, frequencies, and percentages were generated to gain insights into the data. Consumption and Sales were used as proxies for demand whereas the proxy for supply was production.

Results: The decomposition results from the Oaxaca estimates show that consumption, sales, and production reduced after the introduction of the COVID-19 restriction. The pandemic affected the market vendors economically through reduced consumption, sales, and disruption of the supply chain. It is recommended that the government provide appropriate support in form of income support, access to low credit and building the digital capacity of market vendors.

Research contribution: This study contributes to the understanding of the economic effects of the pandemic on one of the most vulnerable groups—the market vendors.

Keywords: COVID-19 pandemic, Market Vendors, Blinder-Oaxaca, Demand shock, Supply shock
JEL Codes: 1,118,131

1. Introduction

The COVID-19 Pandemic first hit Asia, and in particular China with the first case being declared in the city of Wuhan in 2019 (28). Thereafter, the virus started spreading like bush fire to the rest of the world. In Uganda, the first case was registered on 21st March, 2020 and within a space of 9 days, the cases had risen to 33. As of 25 June, 2021, the total cases registered worldwide were 180,847,411 with 3,917,924 deaths and 165,486,420 recoveries (41). In Uganda,
the total cases as of 25th June, 2021 were 75,537 with 781 deaths and 50,350 recoveries (12). This means that the COVID-19 Pandemic was on the rise in Uganda ever since the first case was registered.

Cognizant of the negative effects of this Pandemic on people’s economic wellbeing, the government of Uganda tried coming up with intervention measures including but not limited to lockdowns (11). The first lockdown in Uganda was put in place on 18th March, 2020 with the suspension of mass gatherings for 32 days and mandatory quarantine of 14 days for the foreigners and Ugandans arriving in the country through Entebbe International Airport. On 20th March, 2020, all institutions of learning were closed for a month. On 25th March, 2020, only private cars were allowed to move moreover with restrictions. On 30th March, 2020, the Head of State declared a 14 day countrywide curfew from 7 PM to 6:30 AM, and many other similar interventions followed (20,26). Following the biting economic hardships after the lockdown, there were government attempts to distribute food to the very poor though not everyone got (17).

This pandemic together with the corresponding government interventions affected especially the non–essential sector. During the pandemic period, a classification was made between essential and non–essential sectors. The essential sectors were deemed very crucial to the wellbeing of the population and economy and were left to operate amidst strict observance of the standard operating procedures. The essential sectors included health, manufacturing, construction, agriculture, groceries and designated markets. The non- essential sectors included the education sector, hospitality sector, accommodation, restaurants, small and medium scale enterprises (SMEs) and the market vendors not directly dealing in foodstuffs. This study attempts to investigate the effects of Covid-19 containment measures on the market vendors in Kampala City. The area was chosen on the assumption that the pandemic affected the market vendors in Kampala city more than the market vendors in other cities. This is because Kampala city has been the epicenter of the COVID-19 pandemic hence the containment measures have been so strict. The pandemic might be affecting the market vendors in Kampala city through mainly increased inflation, negative supply shock, reduced demand, falling incomes and unemployment. The market vendors fall into the category of (SMEs) (8). Whereas several studies have been conducted to examine the effect of Covid-19 on SMEs in Uganda (32,36), we have not come across any study exploring the plight of market vendors. This study specifically contributes to the understanding of Covid-19 economic effects on market vendors in Kampala city.

With the implementation of the second total lockdown on 18th June, 2021, the economic plight of the market vendors in Kampala city might have worsened. Much as the market vendors dealing in foodstuffs were allowed to continue operating during the pandemic, this was under very stringent conditions. The market vendors were expected to stay (sleep) at the market places! The markets in Kampala city were never constructed to accommodate resident status. This implies that some market vendors that could not afford sleeping in the market were automatically denied access to their known sources of income. In addition, the consumers expected to buy from the market vendors were ‘locked down’ in their areas of residents due to the restriction on movement. This creates an interesting scenario of the possible demand and supply shocks in the sector worth of study. In China, the lockdown directives due to COVID-19 pandemic caused negative effects on the economy (45,47). Furthermore, the directive by the Chinese Federal Government to restrict the movement of the people and large scale containment measures affected the consumption levels, tourism, transportation, and the confidence of the majority of SMEs was shaken. The shutdown of some sectors in China caused bottleneck effects on the entire economy in the long run (13).

At macroeconomic level, Uganda’s Gross Domestic Product (GDP) has been declining ever since the COVID-19 pandemic struck. In 2020, real GDP reduced by 0.5% after rising by 7.5% in 2019 (1). The available literature seems to suggest that if the COVID-19 containment measures are very stringent, then the wellbeing of the population is adversely affected. The Covid-19 containment measures are linked with several effects on the wellbeing of the population ranging from physical, mental, economic, social and spiritual health of the people. The psychosocial effects associated with Covid-19 include stigmatization, anxiety, sadness, frustration, loneliness, stress, nervousness, social disparities (32), depression, suicide, and panic attacks. The related social effects include housing instability, food insecurity and domestic violence (33). The mental effects are manifest in mental health related problems. The health effects of Covid-19 are manifest in the health inequalities (46). The economic effects are related to increases in unemployment, economic losses, economic distress, loan defaults, economic instability, increased poverty and job insecurity. The economic effects for business operations include but not limited to loss of customers, closed premises, less operating hours, job cuts, reduced sales, and supply chain disruptions (32,37). In this study, we are particularly interested in investigating the economic effects of Covid-19 on market vendors in Kampala city.
On the demand side, the COVID-19 pandemic could potentially reduce personal incomes due to high hospital bills, workplace absenteeism, and reduction in productivity. On the supply side, the pandemic could potentially affect the supply side of the economy especially in the manufacturing sector due to the worldwide supply chain distortions (16). However, this study of Pak only discusses the supply shock and says nothing about the demand shock. A shock is generally a disruption in normal activities or operations that is usually caused by external happenings. The examples of shocks include exogenous shocks that are largely caused by natural disasters (38). The economic shocks include income shocks associated with a loss in income (44), wage shocks associated with wage cuts or lack of access to paid employment (48). The labour shocks constitute of losses in employment opportunities. The Covid-19 pandemic led to the disruptions in the economies, with the immediate shocks being the demand and supply shocks. The current study attempts to understand these shocks in relation to market vendors, a key segment of SMEs that were most affected by the pandemic (44).

According to (21), a decline in the global economy as a result of the COVID-19 pandemic adversely affected Uganda’s economy in many ways. PWC’s study is, however, quite generic and it does not exhaustively discuss the impact of the pandemic on SMEs. Small businesses play an essential role in the country’s development (32). In Uganda, the medium, small and micro enterprises (MSMEs) make up 90% of the private sector and contribute 20% of the country’s GDP (36). The MSMEs in Uganda provide employment to 55% female population and almost 70% of the youths. The loss of jobs in the MSME sector that provide employment opportunities to the most vulnerable threaten to worsen the existing social inequalities (32,33). Some authors argue that the pandemic affects more the females (37) and the young workers especially in self-employment under the SME sector (36). The SME sector where most of the youth and female work experienced the highest levels of wage cuts of up to 61%. The job losses in the MSME sector during the pandemic stood estimated at 41. This is supported by (44) analysis of the high layoffs experienced in retail trade during the pandemic.

From the time, the World Health Organization (WHO) announced that COVID-19 was a worldwide pandemic on 11th March, 2020, the economic wellbeing of the market vendors in Kampala city has been on a negative trajectory (28). In Uganda, the market vendors have been grappling to cope up with the negative effects of COVID-19 (24). A close analysis of the macroeconomic indicators revealed the rise in inflation from 2.87% in 2019 to 3.7% in 2020. As of 26th June, 2021, inflation was at 5.1% and it is expected to rise further. The level of unemployment rose from 1.84% in 2019 to 1.92% in 2020. The level of unemployment reached 2.94% by the end of 2021 (23,25). According to (25), 10.2% of the households slipped back into poverty in 2020, which affected their consumption levels. A fall in consumption represents a negative demand shock. A fall in demand usually triggers a similar fall in supply thereby causing a negative supply shock. As some authors have rightly put it, often times the demand and supply shocks simultaneously occur (36,40). The magnitude of the shock may however differ depending on the sectors involved. This could partly explain as to why retail businesses like Game stores and its peer Shoprite Holdings among others closed business in Uganda in 2021.

COVID-19 is a new pandemic and researchers are continuously gathering information about the possible ways through which this disease could be affecting the economic wellbeing of the population especially the SMEs. Currently, most of the attention is being paid on the health impacts of the COVID-19 pandemic and the economic effects are being ignored. Therefore, this study intends to bridge this research gap by generating more knowledge about the effects of this pandemic on SMEs, specifically market vendors, from the economic perspective. The cardinal objective of the study was to examine the economic effects of COVID-19 pandemic on the market vendors in Kampala city. The study specific objectives were to: 1) examine how the COVID1-19 pandemic was economically affecting the market vendors in Kampala City 2) determine if the COVID-19 pandemic was a demand side shock 3) determine if the COVID-19 was a supply side shock.

2. Literature Review

2.1 The concept of shocks

A shock is generally a disruption in normal activities or operations that is usually caused by external happenings. The examples of shocks include exogenous shocks that are largely caused by natural disasters (38). The shocks normally affect the entire livelihood of the population. That is socially, economically, mentally, spiritually, health wise and so on. The shocks may be caused by different sources, such as natural disasters (exogenous shocks) and now the most
common shock caused by the Covid-19 pandemic. The shock may have both immediate, short term and long-term impacts on the economy. In this study, we mainly concentrate on the immediate and short term effects of the shock. The research also specifically deals with the economic shocks, which we operationalize under the demand and supply shocks.

A demand shock is an unexpected event that may increase (positive demand shock) or reduce (negative demand shock) the demand of the product, in most cases, temporarily. During the pandemic period, there were cases of both the positive and negative demand shocks. For example, in an effort to protect against the spread of the virus, the population were encouraged to use hand sanitizers and face masks. This increased the demand for these items representing a positive demand shock. The covid-19 pandemic affected aggregate demand through the labour layoffs that led to a reduction in the general purchasing power. Business enterprises recorded reductions in profitability levels, sales revenue, business turnover and prices (EPRC, 2022). This negative demand shock resulted in the contraction of the economy. The fall in aggregate demand in a way led to a decline in aggregate supply.

A supply shock is an unexpected event that disrupts the supply chain of a product, which leads to a sudden change in price (34). The Covid-19 pandemic containment measures included lockdowns and restrictions on movement, which disrupted the supply chain in the affected sectors. In most cases, the production process was adversely affected leading to a rise in the prices of products. A supply shock is positive when it leads to increases in employment, production and a fall in the prices of a product. A supply shock is negative when it leads decreased production, increased unemployment and usually increases in the prices of products. The supply shocks were mainly a result of government closure of non-essential businesses (48). Ever since the outbreak of the COVID-19 pandemic, Uganda has been experiencing shortage of drugs, industrial chemicals, medical equipment, and consumer goods like smart devices (10). This may indicate the shortage in supply of these products, which represents a negative supply shock.

The countrywide lockdowns associated with Covid-19 are likely to culminate into the contraction of economies. This will increase the levels of unemployment and worsen the conditions of the poor (44). The economic impacts of Covid-19 may be direct or indirect. The impacts may include a fall in household consumption due to lack of income. The economic impacts may also include the poor becoming poorer and the widening social inequalities. The pandemic situation affects different genders differently (33) with the women and youths being the most adversely affected (36,37).

The shocks, which make up the pandemic, cause a sharp drop in consumption and investment (45). Unlike other known recessions, the Covid-19 disruptions in output is simultaneously affected by demand and supply factors (40). An initial supply shock such as the inability to access the work place eventually results in the deficiency in demand due to lack of income. Supply shocks tend to dominate economies with a large manufacturing sector with greater backward linkages. On the contrary, demand shocks are linked with economies with more forward linkages that mainly export final goods to the rest of the world (40). Uganda, which is the study setting, is neither known to be a manufacturing economy nor an exporting country. It would therefore be interesting to investigate how the demand and supply shocks are playing out in such an economy.

Government support is essential for the survival of SMEs during a crisis period. As already discussed above, SMEs provide employment to most of the vulnerable groups in developing countries. In Uganda, the SMEs provide employment to 55% female and 70% youths (36). The market vendors in Uganda make up most of the significant percentage of the SMEs making it a sector worth of a study. The lack of social protection measures to the low-income earners worsens their vulnerability during a pandemic (44). (44) recommend policies to support the poor such as income support and related benefits to be more appropriate. In the same line, (48) recommends the use of fiscal policies aimed at increasing the spending of the poor through tax reductions. The formulation of appropriate policy response is largely dependent on the clear understanding of the problem and its cause (45). Tax cuts are associated with stimulating demand, which is an example of a positive demand shock.

Globally, governments came in to provide support especially to the MSMEs using policies such as monetary, fiscal, health (45) and digital support (32,36). In the UK, the self-employed were supported under the self-employment income support scheme. In German, tax support was provided to businesses and start-ups affected by Covid-19. The US government provided support to the small businesses through the Paycheck protection Program (PPP). In China, in addition to deferred tax payments, SMEs were supported to digitalize their activities (32). The different responses adopted by the different countries is testifies to the need to specify a policy in line with the cause. The policy
response to manage the shock as (35) puts it, is largely dependent on the clear understanding of the type and nature of the shock. Increasing government spending or lowering the interest rate (45,37) can manage deficiencies in demand. (40) suggests the use of social safety nets and other related social protection (36) measures to manage the supply related shocks. The adoption of digital technologies where SMEs used online platforms to contact, maintain and expand their clientele during the pandemic is an innovation worth of government support. The main preoccupation by the government should be in the area of digital safety (32,37).

2.2 The economic effects of Covid-19

The Covid-19 containment measures especially the lock down and social distancing rules caused business disruptions and the associated economic shocks (44). Economic shocks are un expected macroeconomic shocks that may positively or negatively impact on the economy. When Covid-19 set in, countries experienced falls in the projected levels of economic growth. For example, China reported a drop in GDP of 6.8 in the first quarter of 2020 (45,40,47). The US registered a decline in GDP (44). The GDP growth rate for Uganda was lower than the averaged 5.2% over the previous five years (37). The literature thus indicates among the immediate impact of Covid-19 to include the contraction of economies. This did not discriminate between the developed and the developing economies.

(47) studied the economic impact of Covid-19 at the individual level using data from Mainland China for the period March-April, 2020. The study was particularly interested in examining the income changes as a result of the pandemic. The findings revealed that populations more prone to Covid-19 cases were more vulnerable to income losses. The populations more vulnerable to the pandemic are identified to include the poor, the informal sector, private sector and less educated. The study revealed that almost half of the surveyed population suffered income losses due to Covid-19 outbreak mainly because of job losses. The study recommended the strengthening of public policies oriented towards the vulnerable and marginalized groups.

(32) examined the economic effects of the Covid-19 pandemic on entrepreneurship and small businesses. The findings revealed that Covid-19 adversely affected the small businesses more than other sectors, such as, the manufacturing sector. The major reason advanced is that small businesses tend to offer services that require a lot of physical contact. The social distancing rules make this quite hard. With restricted movement, there will be a drop in employment and loss of wage opportunities (48). In this way, the manufacturing sector is affected on both the supply side of employment and demand side of wage loss on side of labour.

(45) investiagted the potential global direct and indirect economic costs of Covid-19. Some of the Covid-19 economic costs include the costs associated with the illness that prevents one from work or time lost caring for the sick. The Covid-19 illness is linked with both changes in supply and aggregate demand. An example of a supply shock is the labour shocks manifest in form of increased absenteeism from work. The disruption in the supply chain is associated with increases in the costs of production. In addition, there also costs associated with reduction in consumption, which discourages investment and further employment. This scenario explains the Covid-19 pandemic as a simultaneous demand and supply shock.

(38) investigated the effects of the pandemics related uncertainties on household consumption using a panel data set of 138 countries for the period from 1996 to 2017. The study findings revealed the existence of a negative relationship between pandemic related uncertainties and household consumption in both China and the US. The reduction in a household consumption associates the pandemics with negative demand shocks. (38) recommended the use of expansionary fiscal policies to sustain economic performance.

2.3 Covid-19 as a Demand side shock

When people lose employment, they lose a source of income. Without income, people’s demand for goods and services reduce, which is a form of a demand shock. People also avoided places thought to be highly contagious like restaurants for fear of contracting the virus. This demand shock affected this service sector. During a pandemic period, the supply shocks tend to exceed the demand shocks. The literature indicates the most affected sectors during Covid-19 as the leisure, transport, retail trade and hospitality industry (35,44, 34,37), the MSMEs as well as the education sector (36,32).
Positive demand shocks were experienced in sectors like telecommunication, groceries and other sectors classified as essential services (34). In Mexico, the social distancing measures and declining incomes for businesses and households contributed to a decrease in domestic demand (35). The demand shocks dominated the Mexican economy, with the exception of the manufacturing sector where the supply factors dominated. In Uganda, the manufacturing sector created over 4000 jobs during the pandemic (36). The job creation in the manufacturing sector represented a positive supply shock enable by the government policy that classified manufacturing as an essential sector.

2.4 Covid-19 as a supply side shock

A supply shock is an unexpected event that disrupts the supply chain of a product, which leads to a sudden change in price (34). The Covid-19 pandemic containment measures included lockdowns and restrictions on movement, which disrupted the supply chain in the affected sectors. In most cases, the production process was adversely affected leading to a rise in the prices of products. A supply shock is positive when it leads to increases in employment, increase in production and a fall in the prices of a product. A supply shock is negative when it leads to decreased production, increased unemployment and usually increases in the prices of products.

The supply shocks in the service sector were mainly caused by restrictions on movement of non-essential labour, which unfortunately may not be in position to work from home. The literature identifies supply shocks to dominate the manufacturing sector if labour is restricted at home, which makes labour unable to engage in productive activities leading to a reduction in supply. The reduction is supply culminates in a fall in the country’s GDP. The services such as restaurants, transport, entertainment and accommodation are dominated by demand shocks (48) as the population try to avoid infections.

The supply shocks were mainly a result of government closure of non-essential businesses (48). The secondary effect of this decision resulted in labour lay-offs that left a segment of the population without income. Without income, the levels of aggregate demand fell leading to a negative demand shock. Without adequate demand, investments are discouraged and a downward spiral in output, employment, income and demand may ensue. (48) argue that restrictions on movement do affect the poor more than the rich. The restrictions deny the poor access to the source of income and employment, which adversely affect their demand for goods and services. Without government support, the poor become more vulnerable to miserable situations during lockdowns (46). The literature suggests the need for governments to offer support to the poor during pandemic periods, such as, fiscal support. The fiscal support in form of tax cuts is likely to increase the demand for goods and services. The fiscal support however needs to be accompanied with increases in the production of goods and services, or else it may turn out to be inflationary.

Supply shocks during pandemic periods are mainly in form of labour supply shocks because of restricting labour at home, sickness or death. The most affected sector is the non-essential services like restaurants, tourism, saloon services and accommodation. In the same vein, the fear to contract the virus was associated with the decrease in the demand for non-essential services. What all this imply is the difficulty to isolate the supply from the demand shock. The supply and demand shocks during the pandemic period tend to move together (35,34), and what varies is their intensity. In the short run, the supply shocks tends to surpass the demand shock (48). Labour in the essential worker category, such as, health is less prone to supply shocks.

3.0 Methodology

3.1 Research Design

The study adopts the Blinder-Oaxaca decomposition technique which was originally used in labor economics to decompose earnings gaps and to estimate the level of discrimination. This decomposition method analyses changes in a given variable over time. The method was popularized in the economics literature by (4) and (15). It was used earlier in sociology (22,6) and before that in demography (9). The approach was first used in the economics literature to analyze the determinants of male/female earnings differentials (2). Today, the method is extensively used to analyze ethnic earnings differentials, public/private sector earnings differentials, earnings differentials by socioeconomic background, to test the screening hypothesis, and to test the effectiveness of a job-training program, among other uses.
This study adopted the same technique to decompose the differences of the market vendor consumption, sales, and production before and after Covid-19 restrictions.

3.2. Study Area

The study was conducted in the five divisions of Kampala City. These Divisions are Kampala Central, Lubaga, Makindye, Nakawa, and Kawempe divisions as shown in figure 1.

Figure 1: Map of the Study area

3.3. Sample Size and Selection

The study sample was the market vendors in Kampala City in the divisions of Kampala Central, Lubaga, Makindye, Nakawa, and Kawempe. The total estimate of the market vendors operating in the above divisions is over 145,000 (8). The study sample was arrived at using simple random sampling techniques. At least 25 participants were selected from each division market to cater for proportional representation. Proportional sampling was to ensure fair representation of the market vendors in the study from each division (5). The assumption behind the proportional sampling was that each division fairly has a similar number of market vendors. The activities done in one market are also similar to the other markets and that all markets faced the same Covid-19 restrictions. In all, 134 market vendors participated in the study.

3.4 Data Collection methods and instruments

The main study instrument was the questionnaires, which was used to capture the views of the market participants using a digitized system in Open Data Kit (ODK). Stakeholder workshops were conducted to help the project team understand the context for the project and receive support from the key players, as this is crucial for the success of the project. The stakeholders also helped in the validation of the study instruments and the results.
3.5 Model specification

The theoretical model is specified as follows:

\[ Y_{iC,SP} = T_{C,SP}(HH_{size_i}, Gender_i, Education_i, Businesstype_i, \text{Decisionmaker}_i, \text{Fiscalpolicy}_i, \text{Monetarypolicy}_i) + \epsilon_i \quad (i) \]

where \( Y_{iC,SP} \) is the observed consumption, sales and production of the market vendor \( i \) which are a function of a vector of household size, gender, education level, business type, decision making, fiscal policy and monetary policy and \( \epsilon_i \) is an additive error, which includes all the omitted variables. The subscripts on formula are defined as: \( C = Consumption, S = Sales, \) and \( P = Production. \) The model’s linear specification was as follows:

\[ Y_{iC,SP} = \beta_0 + \beta_1 HH_{size_i} + \beta_2 Gender_i + \beta_3 Education_i + \beta_4 Businesstype_i + \beta_5 \text{Decisionmaker}_i + \beta_6 \text{Fiscalpolicy}_i + \beta_7 \text{Monetarypolicy}_i + \epsilon_i \quad (ii) \]

To decompose the model, we let \( \ln(Y_{C,SP})_A \) and \( \ln(Y_{C,SP})_B \) be the means of the (natural) logs of monthly market vendor’s consumption and sales for after and before Covid-19 pandemic out break.

Where \( A = \text{After COVID19 restriction, } B = \text{Before COVID19 restriction.} \)

We specified the general decomposition model in the equation (iii) below:

\[ \ln(Y_{C,SP})_A - \ln(Y_{C,SP})_B = \bar{X}_A \beta_A - \bar{X}_B \beta_B \quad (iii) \]

Where \( \bar{X}_A \) and \( \bar{X}_B \) are vectors containing the means of the variables for after covid-19 consumption and before Covid-19 consumption, respectively, and \( \beta_A \) and \( \beta_B \) are the estimated coefficients.

\[ \ln(\text{Consup})_A - \ln(\text{Consup})_B = \bar{X}_A \beta_A - \bar{X}_B \beta_B \quad (iv) \]

\[ \ln(\text{Sales})_A - \ln(\text{Sales})_B = \bar{X}_A \beta_A - \bar{X}_B \beta_B \quad (v) \]

\[ \ln(\text{Production})_A - \ln(\text{Production})_B = \bar{X}_A \beta_A - \bar{X}_B \beta_B \quad (vi) \]

The equations (iv)-(vi) represent the consumption, sales and production Blinder-Oaxaca decomposition model in the after and before covid-19 pandemic outbreak for the welfare of the market vendors in Kampala city.

3.6 Data Analysis and Presentation

The data was first extracted from ODK to excel. Later, this data underwent cleaning and renaming of variables before it was analysed using STATA 14. The descriptive statistics such as means, frequencies, and percentages were generated to gain insights into the data. Then the Blinder-Oaxaca decomposition was run to determine the existence of either the demand or supply shock, or both during the covid-19 pandemic.

4. Results and discussion of findings

The section below summarizes the findings from the descriptive statics in table 1 as well as the parameter estimates from the Blinder-Oaxaca decomposition model in table 2 and table 3.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>%</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
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<tr>
<td>Female</td>
<td>79</td>
<td>58.96</td>
</tr>
<tr>
<td>Male</td>
<td>55</td>
<td>41.04</td>
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<tr>
<td>Never attended (0)</td>
<td>8</td>
<td>5.97</td>
</tr>
</tbody>
</table>
Table 1 above shows the descriptive characteristics of the market vendors before and after COVID-19. Overall, there were not very many changes in these individual characteristics as the frequency and percentage of the age, level of education, business type, and decision maker remained the same. The only observed change was in the marital status where the frequency of the married reduced from 82 before COVID-19 to 38 after the pandemic. The increase in the marriage breakdown was mainly due to financial stress on the family heads, mainly men, which consequently made them unable to fend for their families. These findings seem to support (33) study that reported the increase in domestic violence among the effects of Covid-19. The increase in domestic violence cases are associated with marriage breakdowns. The finding also revealed an increase in the number of the separated from 14 to 44 which further confirms the increase in family instability caused by the pandemic. The number of widows increased from 8 to 11, which may be explained to the loss of life of one’s partner due to Covid-19 related deaths.

The average family size increased from 5.72 to 8.72 after the pandemic. This is because most young people lost jobs and started staying with their parents. In addition, the closure of all the institutions of learning meant that the learners that were previously at school were now staying with their at home with their parents. The increase in the family size where the family head was probably not working due to the Covid-19 restrictions may have contributed to the increase in stress levels cited by various authors among families during the pandemic (32,33). The frequency of consumption, sales, and production reduced after COVID-19. The average monthly frequency of consumption of the market vendors was 979,701.50 before the pandemic but this figure reduced to 552,276.10 after COVID-19. The reduction in consumption levels by the market vendors can be attributed to the loss income during the pandemic. The reduction in consumption during the pandemic echoes the findings of earlier researchers (45,33,3835).

The study findings further revealed a drop in monthly average sales among market vendors from shillings 775895.50 to 352672.2. The drop in sales represents a negative demand shock arising out of deficiencies in demand. The restrictions on movement and the closure of non-essential businesses ordered by the government as a measure to combat the spread of Covid-19 left many people out of employment. The lack of employment resulted into income

<table>
<thead>
<tr>
<th>Level of education</th>
<th>College/Tertiary(14-16)</th>
<th>Mean</th>
<th>Sd</th>
<th>Mean</th>
<th>Sd</th>
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<td>108</td>
<td>80.6</td>
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<td>80.6</td>
<td></td>
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<tr>
<td>Marital status</td>
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<td></td>
<td>Married</td>
<td>82</td>
<td>61.19</td>
<td>38</td>
<td>31.67</td>
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<td>10.45</td>
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<td>27</td>
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<td>Widowed</td>
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<td>5.97</td>
<td>11</td>
<td>9.17</td>
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<td>77</td>
<td>57.46</td>
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<tr>
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<td>32</td>
<td>23.88</td>
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<td>23.88</td>
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<tr>
<td></td>
<td>Both husband and wife</td>
<td>14</td>
<td>10.45</td>
<td>14</td>
<td>10.45</td>
</tr>
<tr>
<td></td>
<td>Other (Specify)</td>
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<td>8.21</td>
<td>11</td>
<td>8.21</td>
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<td>Business type</td>
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<td>Food vendor</td>
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<td>50.41</td>
<td>61</td>
<td>50.41</td>
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<td>50</td>
<td>41.32</td>
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<td></td>
<td>Mobile money</td>
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<td>4</td>
<td>3.31</td>
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<tr>
<td></td>
<td>Retail shop</td>
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<td>4.96</td>
<td>6</td>
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<tr>
<td>Age (years)</td>
<td>Mean</td>
<td>36.15</td>
<td>9.86</td>
<td>38.15</td>
<td>4.36</td>
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<tr>
<td>Total hhsize</td>
<td>Mean</td>
<td>5.72</td>
<td>3.36</td>
<td>8.72</td>
<td>3.36</td>
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<tr>
<td>Fiscal policy (%)</td>
<td>Mean</td>
<td>55.99</td>
<td>14.59</td>
<td>77.99</td>
<td>23.15</td>
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<tr>
<td>Monetary policy (%)</td>
<td>Mean</td>
<td>54.67</td>
<td>25.90</td>
<td>64.37</td>
<td>25.90</td>
</tr>
<tr>
<td>Consumption (Ug shs)</td>
<td>mean</td>
<td>979,701.50</td>
<td>133,430.00</td>
<td>552,276.10</td>
<td>39157.90</td>
</tr>
<tr>
<td>Sales (Ug shs)</td>
<td>mean</td>
<td>775895.50</td>
<td>898,730.30</td>
<td>352672.20</td>
<td>13682.1</td>
</tr>
<tr>
<td>Production (Ug shs)</td>
<td>mean</td>
<td>655,261.20</td>
<td>177,097.00</td>
<td>107,978.64</td>
<td>94,423.24</td>
</tr>
</tbody>
</table>
shocks and the related disruptions in people’s demand levels. The result was what the study has revealed as the inevitable reduction in sales. This finding confirm the earlier findings of (36) that reported a drop in SMEs sales revenue and profitability during Covid-19. The drop in business sales is also reported in (32,37,44).

The variable production was used to measure the extent of Covid-19 manifestation as a supply shock. Earlier studies reported the disruptions in production or generally supply. This was attributed mainly to the restrictions in movement and social distancing rules that resulted into the closure of most SMEs. The supply disruption was manifest in the increased levels of unemployment and job layoffs during the pandemic (44,32,33). The current study renders credence to these findings when it reports a noticeable decline in the level of production from a monthly average of 655261.20 before COVID-19 to 107,978.64 after COVID-19. Whereas some sectors like agriculture were allowed to continue operating during the pandemic, their access was greatly hampered due to the restrictions on movement. The same applies to other enterprises that were granted permission to stay in operation. The lack of access to places of employment therefore resulted in the significant disruptions in production reported in the current study.

The study also explored the respondents’ opinions on the policy options available to the government to management the pandemic related effects. The findings revealed the need for more government intervention in form of fiscal policies. This is shown by the desired change in fiscal policy that moves from 66% to 78%. During the informal interactions with the respondents, there was a clear expression for the need for tax reductions, exemptions and postponement. The reduction in taxes would probably lower the cost of inputs and boost production. Similarly, the postponement of taxes on people’s earning would raise their purchasing power and boost demand. The increase in demand tend to signal brighter business prospects, which stimulates investment, production and increased employment opportunities. The government of Uganda did not do much of this, though it announced postponement of payments for utilities like water. For electricity, this could not work as most clients are on prepaid electricity. The provision of fiscal support is in line with (48).

The desired change in monetary policy was shown by the change in frequency from 54.67 before the pandemic to 64.37 after the pandemic. This expresses the desire for the respondents of the need for the government to do more in terms of monetary policy. The monetary policy advocated for in this respect is expected to lead to increased money in circulation. Economic theory relates increases in money supply to increases in purchasing power. In Uganda, there were several attempts by the Central Bank to increase the amount of money in circulation mainly through lowering of the bank rate (43). This was expected to encourage the commercial banks to lower the lending rates. When the lending rates are lowered, borrowing is encouraged for both investment and consumption. This may consequently result into improvements in supply and demand respectively. The government of Uganda through the Central Bank also encouraged the commercial banks and other financial institutions to allow for loan rescheduling with their clients. This however according to reports from the potential beneficiaries came along with a cost associated with increases on interest payable on borrowed money out of the rescheduling plan.

<table>
<thead>
<tr>
<th>Table 2: Parameter estimates</th>
</tr>
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<tbody>
<tr>
<td>Variables</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>Age of respondents</td>
</tr>
<tr>
<td>Education level</td>
</tr>
<tr>
<td>Never</td>
</tr>
<tr>
<td>Primary</td>
</tr>
<tr>
<td>Secondary</td>
</tr>
<tr>
<td>Tertiary</td>
</tr>
<tr>
<td>Business type</td>
</tr>
<tr>
<td>Groceries</td>
</tr>
<tr>
<td>Food vendor</td>
</tr>
</tbody>
</table>
The Blinder-Oaxaca approach first estimates two group-specific regression models (before and after) and then performs the decomposition. Therefore, before looking at the results of the decomposition, we examined the specific independent characteristics that were causing changes in consumption, sales, and production. Overall, these independent characteristics were; gender, education level, business type, household size, and government policy (Monetary and fiscal policy). All the above variables were found to be statistically significant at various levels. The consumption levels by the female gender for example dropped significantly by 0.562 after the COVID-19 restriction compared to the before COVID-19 consumption level of 0.205. This confirms what various authors have found that the pandemic affects more the female gender (33,36,36).

Under education levels, all the coefficients of consumption and production were negative and insignificant implying that the levels of education of the market vendors were not a factor during COVID-19. Both the educated and uneducated market vendors were affected equally. However, the coefficients of sales before COVID-19 were negative and significant for the vendors who never had any education level and for those vendors with secondary education. This points to a possible lack of marketing skills and fewer customers for all categories of the market vendors. The most affected business types were groceries, food vending, and retail shop. All these business ventures registered a decline after COVID-19. For example, the mean of the log sales of the groceries was 1.462 before the pandemic, but this reduced to 0.973 after the pandemic representing a decline of 0.489. The household production levels equally worsened implying that the supply chain was disrupted. Before COVID-19, the household production level was -0.195 which worsened to -0.260. This means that whatever the market vendors were producing was for domestic consumption and it wasn’t being supplied to the market.

In terms of policy, the use of contractionary fiscal policy (increasing taxes and decreasing government spending) was affecting both consumption and sales. In a pandemic period, the government is expected to pursue expansionary fiscal policy (cutting taxes and increasing government expenditure). On the other hand, the expansionary monetary policy (increase in money supply and cutting interest rates) improved the level of consumption and sales. The government was supposed to reduce interest rates and increase money supply. The recommended policy mix during the pandemic would be to adopt an expansionary fiscal policy and monetary policy at various rates depending on the realities on the ground. As (45) has argued, this should be largely dependent on the clear assessment of the problem. The examination of the adjusted R-squared shows that 60.1%, 14.1% and 27.5% of the variation in consumption, sales, and production respectively was due to Covid-19 related containment measures.

**Table 3: The Blinder-Oaxaca decomposition for the different models**

<table>
<thead>
<tr>
<th></th>
<th>Retail shop</th>
<th>1.296(0.485)**</th>
<th>1.241(0.508)*</th>
<th>0.350(0.557)</th>
<th>-2.970(1.887)</th>
<th>-3.581(2.252)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household size</td>
<td></td>
<td>0.276(0.573)</td>
<td>0.063(0.029)**</td>
<td>-</td>
<td>(0.112)*</td>
<td>-0.260(0.133)*</td>
</tr>
<tr>
<td>Decision maker</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wife</td>
<td>1.126(0.441)**</td>
<td>0.697(0.373)*</td>
<td>-</td>
<td>1.065(1.454)</td>
<td>3.462(1.735)**</td>
<td></td>
</tr>
<tr>
<td>Decision</td>
<td>0.778(0.395)*</td>
<td>0.317(0.334)</td>
<td>-</td>
<td>0.237(1.301)</td>
<td>2.242(1.552)</td>
<td></td>
</tr>
<tr>
<td>Joint</td>
<td>1.796(0.513)***</td>
<td>0.957(0.434)**</td>
<td>-</td>
<td>-0.124(1.689)</td>
<td>2.172(2.015)</td>
<td></td>
</tr>
<tr>
<td>No. p’ple who lost</td>
<td>0.015(0.092)***</td>
<td>0.009(0.078)</td>
<td>-</td>
<td>0.126(0.304)</td>
<td>-0.102(0.363)</td>
<td></td>
</tr>
<tr>
<td>Fiscal policy</td>
<td>-0.023(0.006)***</td>
<td>-0.012(0.005)**</td>
<td>-0.004(0.005)</td>
<td>-0.081(0.006)*</td>
<td>0.28(0.019)**</td>
<td>0.042(0.023)*</td>
</tr>
<tr>
<td>Monetary policy</td>
<td>0.023(0.006)***</td>
<td>0.012(0.005)**</td>
<td>-0.009(0.005)</td>
<td>0.030(0.005)*</td>
<td>0.014 (0.019)</td>
<td>0.037(0.023)</td>
</tr>
<tr>
<td>_cons</td>
<td>10.766(1.120)***</td>
<td>10.253(0.948)***</td>
<td>14.978(0.991)***</td>
<td>15.301(1.08)</td>
<td>5.082 (3.691)</td>
<td>3.276(4.404)</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.61</td>
<td>0.69</td>
<td>0.285</td>
<td>0.169</td>
<td>0.231</td>
<td>0.368</td>
</tr>
<tr>
<td>Adj. R-squared</td>
<td>0.24</td>
<td>0.601</td>
<td>0.218</td>
<td>0.141</td>
<td>0.118</td>
<td>0.275</td>
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<tr>
<td>RMSE</td>
<td>0.843</td>
<td>0.996</td>
<td>0.897</td>
<td>0.984</td>
<td>3.283</td>
<td>3.917</td>
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<tr>
<td>N</td>
<td>126</td>
<td>126</td>
<td>126</td>
<td>126</td>
<td>126</td>
<td>126</td>
</tr>
<tr>
<td>Model P&gt;F</td>
<td>&lt;0.0001***</td>
<td>&lt;0.0001***</td>
<td>&lt;0.0001***</td>
<td>0.0200**</td>
<td>0.0159</td>
<td>&lt;0.0001***</td>
</tr>
</tbody>
</table>

***p<0.01; **p<0.05; *p<0.1
Table 3 shows the decomposition output for consumption, sales and production before and after COVID-19 pandemic. The outputs indicate that the mean of the log consumption was 12.581 before the pandemic and 12.080 after the pandemic, yielding a consumption gap of 0.501. This clearly shows that the pandemic led to a decline in the consumption levels. The sales equally reduced. The mean of the log sales before COVID-19 was 14.546 which reduced to 14.129 after COVID-19, representing a gap of 0.417. The outputs equally show that the mean of the log production was 8.523 COVID-19 and 5.559 after the pandemic, representing a decline of 2.964. These findings have clearly revealed the economic shocks that came along with the Covid-19 pandemic. The loss of paid employment represents a wage shock as well as an income shock that explains the revealed decline in consumption (44,48). Without adequate income, people’s purchasing power reduced which explains the revealed drop in sales (36). The decline in consumption and sales is a manifestation that Covid-19 was indeed a demand shock. The fall in production represents a supply shock that became inevitable as a result of closure of non-essential business and restrictions on movement. This finding rhymes with earlier authors that relate the pandemic with disruptions in production (44,33,32).

In the second panel of the decomposition, consumption, sales and production gaps are divided into three parts. The endowments part reflects the mean decrease in the after-pandemic consumption, sales, and production if they had the same characteristics (conditions) as before the pandemic. The significant decrease of 0.601 in consumption and 0.315 in sales indicate that differences in endowments accounted for about 60.1% and 31.5% reduction in consumption and sales gaps respectively. For production, the endowments were insignificant. The second term of the coefficients quantifies the change in consumption, sales, and production before and after the COVID-19 pandemic restrictions. The third part is the interaction term that measures the simultaneous effect of the differences in endowments and coefficients.

5. Conclusions and policy recommendations

The economic effects of Covid-19 pandemic on market vendors in Kampala city were manifest in the reduced levels of consumption, sales, and production. The reduction in consumption and sales represent a negative demand shock. During Covid-19, people lost their jobs and others had their salaries reduced or postponed (7,44,48). The loss of income represents an income shock as well as a wage shock. The loss of income leads to deficiencies in demand due to lost purchasing power. The economic shocks like earlier studies revealed (33,37) affected the more vulnerable more, specifically in our study, the females. It is recommended that the government adopt measures tailored towards the support of vulnerable groups. For example, discriminatory lending where female and other vulnerable groups are provided access to finance at lower levels of interest. The low interest rates would enable the groups to borrow and boost their businesses that the literature cites among those that suffered most (33,36,37) because of the containment measures.
The COVID-19 containment measures caused a demand shock to the economy. Though there were manifestations of a positive demand shock, the shocks were mainly negative. The positive demand shocks were experienced in the form of increased demand for goods and services thought to protect the people from the pandemic. This list includes the increased demand for facemasks and hand sanitizers. The negative demand shock was revealed especially in the SME sector (36) and other service sectors like tourism, restaurants and accommodation. The demand for these services reduced as the population fear to contract the virus due to close contact from such places heightened (48, 38). There was a drop in the consumption levels of the market vendors due to the loss of purchasing power during the pandemic. In the same vein, the market vendors experienced a drop in the sales of their products, as their potential customers could not reach out to their premises due to the restrictions on movement. In scenarios of restricted movement, it is recommended that the government build the capacity of market vendors in e-commerce. This will enable the market vendors to stay in close contact with their customers using digital platforms.

The COVID-19 containment measures caused a supply shock to the economy. In some sectors like the manufacturing sector, the supply shock was essentially positive. This is because the sector was considered essential and allowed to operate during lock down. The negative supply shock was common in sectors considered non-essential. Though agriculture was considered an essential sector, the restrictions in movement made it difficult for the population to access their gardens. In the end, this sector experienced disruptions in production. The findings have revealed that the pandemic simultaneously caused a supply and demand shock (40). This is mainly because the closure of non-essential businesses and restrictions on movement led to job layoffs. This affected the labor supply even in some industries considered essential. Without jobs, people lost incomes, which reduced their purchasing power. With inadequate purchasing, even what was produced faced limitations of inadequate demand. In the end, the supply chains were disrupted (24).

This study scope was limited to the market vendors in the five divisions of Kampala City. The Covid-19 containment measures limited the number of market vendors that could be accessed. It is recommended that an expanded study be undertaken to cover more sections of the market vendors especially those that were not allowed to operate during the pandemic. A similar study could also be conducted with other market vendors outside Kampala City.

**Statement and Declarations**

**Author Contributions:** J.K was the Principal Investigator and conceptualized the study. Together with the team, Z.R and A.J. developed the research instruments, formulated the draft and edited the final report. D.A and N.K. participated in the data collection process and analysis. All authors have read and agreed to submit the manuscript for publication in this journal.

**Funding:** Kyambogo University Competitive Research Grant, 6th call Award

**Conflict of interest:** The authors declare no conflict of interest

**Data Availability Statement:** Data for the study will be provided on request

**References**


