

Shock-Driven Household Adjustments: Assessing the Impact of Economic Hardships on Nigerian Households¹

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Abstract

This paper examines how Nigerian households adjust their living arrangements in response to economic shocks, particularly rising prices between 2019 and 2024. Using panel data from the Nigeria General Household Survey – Panel (GHS-Panel) and a shift-share instrument to address endogeneity, we provide causal evidence that households facing financial hardship expand in size, primarily through cohabitation with extended family members. The increase in household size is driven by adults rather than changes in fertility or mortality, and it is most pronounced among poorer households and in northern regions where informal safety nets are stronger. We find no significant evidence of household downsizing or fragmentation, indicating that consolidation is the dominant coping strategy. These findings highlight the importance of informal social protection in contexts with limited formal safety nets and underscore the need for targeted policies to support vulnerable households during periods of economic instability. Our results contribute to the literature on household welfare and adaptive strategies in developing economies, offering insights for the design of social protection programs and future research on the long-term effects of household compositional changes.

JEL classifications: O1, D1, I3

Keywords: shocks, survey methods, household size, panel data, Bartik instruments

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1. Introduction

Households when facing shocks are prone to financial instability that requires adaptive responses. Economic shocks such as inflation, financial crises or job losses can lead to lasting impacts on households in low- and middle-income countries, including a reduction in real incomes and welfare. Large and frequent shocks can significantly impact households by altering household dynamics, saving and consumption patterns, labor supply decisions, migration, and co-habitation arrangements. A large literature links shock exposure to household welfare, particularly changes in consumption expenditure, savings, borrowing, labor market decisions, and so on (McKenzie, 2003; Pradhan and Mukherjee, 2018; Salvanes et al., 2024; Temesgen et al., 2022). However, little is known about the links between shock exposure and changes in household composition. Understanding the mechanisms underlying the link between exposure to negative economic shocks and the household's composition and size adjustments to cushion against the economic hardship is crucial for developing policies that can effectively build resilience among households.

Variations in household composition can affect households' capacity to secure food (Ibukun and Adebayo, 2021), worsen outcomes in young adults (Harvey, 2020), and intensify resource challenges (Mykyta and Pilkauskas, 2016). Additionally, not all households experience economic shocks equally. Low-income households with limited savings, reliance on remittances, workers without job security, and rural families (Günther and Harttgen, 2009) tend to be more vulnerable to such shocks. Structural inequalities, such as access to credit, insurance, and safety nets, further exacerbate these disparities (Dercon, 2006). Given the potential for negative shocks to be devastating, and the limited set of adjustments households can make to insure against these shocks, there is a need to study the way shocks drive adjustments within the household.

We target this gap in the literature by examining the links between exposure to economic distress from price hikes and composition adjustments made by households as a result. Our paper aims to causally estimate how households adjust their size and composition and resource-sharing strategies in response to financial hardships caused by price increases. Specifically, we provide causal evidence on the implications of economic disruptions for household composition and

living arrangements, necessitating adjustments such as changes in household size, migration, and cohabitation decisions.

Since exposure to price hikes might be correlated with household consumption and spending decisions, there are endogeneity concerns in evaluating their impact, as unobserved factors that influence both prices and household composition could lead to biased estimates. To address this, we employ an instrumental variable (IV) approach that accounts for exogenous variations in exposure to rising prices across households. To rigorously assess the impact of higher prices on household size adjustments, we create an exogenous shift-share (Bartik) instrument that allows us to causally identify whether economic hardships lead to an expansion of household size- such as through cohabitation with extended family, or a reduction- as individuals move out due to financial strain. Furthermore, we explore heterogeneity in household responses by analyzing how adjustments vary across different consumption and wealth groups. This enables us to determine whether poorer households are more likely to consolidate resources through shared living arrangements, and if wealthier households may have greater flexibility to maintain independent living situations.

We examine this issue in the context of Nigeria, a country that has experienced considerable economic volatility in recent years, fluctuating household purchasing power, driven by factors such as rising food prices, removal of fuel subsidies, and exchange rate instability. For this analysis, we utilize the Nigeria General Household Survey - Panel (GHS-Panel), which enables us to track the same households over time and analyze the adjustments they make in response to economic shocks.

Rising prices erode real incomes, increase the cost of living, and force households to reconsider their living arrangements. Some families may consolidate by moving in with relatives or taking in additional members to share expenses and minimize housing costs, a phenomenon known as "doubling up". This may reduce per capita consumption and put pressure on household resources. Conversely, economic strain could also lead to household fragmentation, as individuals migrate in search of better opportunities, or young adults delay forming independent households. This might reduce resource constraints but might lead to loss of income earners, ultimately affecting the welfare of the remaining household members. By analyzing these adjustments, we aim to

provide a deeper understanding of the coping strategies households employ in response to financial distress.

Our empirical findings align with the former hypothesis and show that Nigerian households respond to the rising living costs by significantly increasing their household sizes. The regression results indicate that a 1.0% increase in price shock exposure leads to an increase in household size of 4.9 percentage points, with the expansion primarily driven by additional members above the age of five and below age sixty-five, i.e. these adjustments are not attributed to new births or deaths from old-age. This response is particularly pronounced among poorer households and in the northern regions of Nigeria, where reliance on kinship networks is stronger. We find no significant effects on household downsizing, but a strong positive impact on net household size adjustments, suggesting that price shocks lead to household expansion rather than fragmentation.

These causal links partly explain household decision-making and shed light on the channels that drive these adjustments. Resource-constrained households without access to formal safety nets resort to cost-cutting measures, relying on cohabitation to share financial burdens and benefit from economies of scale. This pattern is particularly evident among lower-income families, who may lack alternative coping strategies such as increased borrowing or income diversification.

Additionally, we observe distinct regional variations in household responses, influenced by cultural norms and economic structures. Households in the northern zones, where extended family living arrangements are more common and social support networks are stronger, are significantly more likely to increase their family size in response to rising prices. In contrast, the impact of this real income shock on household structure in the southern zones remains insignificant, likely reflecting differences in economic opportunities, urbanization levels, and access to labor markets. These heterogeneous effects highlight the importance of considering both cultural and economic factors when assessing household-level adjustments to macroeconomic shocks.

Our findings are in line with the existing evidence of an empirical relationship between financial hardship and co-residence (Kaplan, 2012; Gatskova and Kozlov, 2020). The economic theory reinforces this household response, as explained by the economic value of doubling up by (Pilkauskas et al., 2014) and provides insurance against labor market risks among young adults

by (Kaplan, 2012). Understanding these adaptive responses is critical for policymakers aiming to design social safety nets and policies for mitigating the adverse effects of financial instability on households.

Our paper contributes to two major strands of literature. First, to the growing volume of research addressing the relationship between economic shocks and household welfare. The existing research has examined household responses to shocks through adjustments in consumption (Altig et al., 2024), labor supply, and borrowing decisions (Colarieti et al., 2024). The research shows that social networks and informal safety nets play a key role in mitigating hardship (Pradhan and Mukherjee, 2018; Bitler and Hoynes, 2016) and shocks disproportionately affects household welfare by income (Krueger et al., 2016); household inequalities (Amromin et al., 2017), etc. Our paper contributes to this strand of literature by providing new empirical evidence on how economic shock impacts household size and family consolidation decisions, particularly in the context of a developing economy, which has received limited attention in the past literature.

Finally, our study extends the econometric foundations of shift-share instruments, drawing from the work of Bartik, 1991; Goldsmith-Pinkham et al., 2020; Borusyak et al., 2022; Breuer, 2022. By constructing an instrument that ensures exogeneity in both shift and share components, we refine the application of Bartik instruments in studying economic shocks.

The rest of the paper is organized as follows. Section 2 presents a Nigerian context. Section 3 describes the data, followed by the conceptual framework used to explain the impact of the shocks. Section 5 discusses the instrument and its validity. Section 6 presents empirical specification, followed by the results in Section 7. Section 8 analyzes the heterogeneity of the effect by zone and consumption pattern, and Section 9 concludes.

2. Background

Nigeria's economic landscape from 2019 to 2023 has been marked by significant difficulties and transformations. Nigerian households experienced remarkable economic volatility, driven by factors such as pressures from rising prices, fuel price hikes, currency depreciation, and employment loss and disruptions. These economic shocks were exacerbated by the COVID-19

pandemic, which led to widespread economic disruptions, loss of jobs, and a reduction in overall household incomes. During this period, food and fuel prices have also been high, peaking at over 18% in March 2021, which has further impacted household purchasing power (National Bureau of Statistics, 2021). The combination of economic contraction and high inflation has increased the vulnerability of households, particularly those in rural areas and the informal sector.

Additionally, Nigeria's diverse population with dynamic consumption patterns across different geopolitical zones makes it optimal for examining impacts of economic shocks on households. This regional variation is crucial for identifying localized strategies and policy interventions that can be scaled to other contexts. Nigeria is highly susceptible to economic shocks due to its dependence on agriculture, large share of informal-sector and volatile fuel prices. The economy, heavily reliant on oil exports, suffered from fluctuating crude oil prices, which affected government revenues and foreign exchange reserves. As a result, the naira weakened against major currencies, leading to higher import costs and inflationary pressures. Inflation remained persistently high during this period, with notable rising food and fuel prices. The removal of fuel subsidies and supply chain disruptions, exacerbated by border closures and the pandemic, led to surging costs of essential goods. Rising food prices became a pressing concern, disproportionately affecting low-income households. Structural issues such as inadequate infrastructure, insecurity in key agricultural regions, and inconsistent monetary policies further contributed to economic instability.

The combined impact of these challenges resulted in declining real wages, and greater household financial strain. Many households had to adjust their consumption patterns, seek alternative income sources, or rely more on informal safety nets to cope with the rising cost of living. The economic hardship was particularly severe for urban and low-income populations, who faced mounting rent and utility expenses without corresponding income growth.

3. Data

We use the Nigeria General Household Survey - Panel (GHS-Panel) to identify the effects of rising prices on households over time. As a panel survey, it tracks the same households over multiple waves, providing a rich longitudinal dataset that allows researchers to conduct detailed panel analyses. Such a structure enables the study of dynamic changes within households over time

and across Nigeria's six geopolitical zones, making it suitable for studying regional heterogeneity in economic shocks. In this study, we use data from the post-harvest visits of Wave 4 (2018/19) and Wave 5 (2023/24).

4. Methodology

Our analysis assesses the role of rising prices in changes in the households' size and composition due to adjustments in cohabitation and migration decisions. However, a key empirical challenge lies in accurately measuring the economic shock experienced by each household from these price changes.

We want to estimate the following benchmark equation for household i in community c located within zone z :

$$\Delta_{t-t_0} HHSize_{i,c,z} = \beta_0 + \beta_1 PriceShock_{c,z} + \beta_2 \bar{X}_{i,c,z,t_0} + \theta_{c,z} + \lambda_z + \epsilon_{i,c,z} \quad (1)$$

where $\Delta_{t-t_0} HHSize_{i,c,z}$ represents the change in outcomes variable between time t and t_0 , $PriceShock_{c,z}$ represents the level of exposure a household had to the changes in prices between 2024 and 2019 as presented in Equation (2) for k items included in a consumption bundle⁷, weighted by the spending shares accounted in 2024. \bar{X}_{i,c,z,t_0} is a vector of household characteristics during the baseline (2019). $\theta_{c,z}$ are community fixed effects, λ_z are zone fixed effects and $\epsilon_{i,c,z}$ is an error term

$$PriceShock_{c,z} = \sum_k \left(\frac{Spending_{i,c,z,k}^{t_1}}{TotalSpending_{i,c,z}^{t_1}} \right) * [(LogPrice_{k,c,z,t}) - (LogPrice_{k,c,z,t_0})] \quad (2)$$

However, household-specific exposure to higher prices is determined by the interaction of two factors: (i) household spending patterns and (ii) item-specific price changes. Since neither the households consume a uniform basket of goods, nor prices randomly assigned, the effective economic shock they experience varies endogenously. Changes in the price of goods and services

⁷ Our main specification includes 9 food items and petrol with a total of 10 items, however the results are robust under other specifications of 19 items and 37 items.

affect their real purchasing power, which, in turn, influences cohabitation and migration decisions. This relationship hence raises endogeneity concerns as households that anticipate financial distress may proactively adjust their living arrangements (e.g., moving in with extended family), which could alter their spending patterns. Additionally, unobserved household characteristics can also pose a threat to identification, if they simultaneously affect both exposure to rising prices and household structural decisions. If these factors are not properly accounted for, our estimates will be biased.

4.1. Bartik Instrument

To address these endogeneity concerns and rigorously assess the causal impact of price hike on household size adjustments, we employ a Shift-Share (Bartik) instrument to account for exogenous variations in price hike exposure across households. An ideal instrument should be correlated with household-specific exposure to the price changes but uncorrelated with unobserved household characteristics that could affect household size.

Identification of this instrument is critical, as we need the instrument to be strongly correlated to the actual price changes, hence accurately predict the economic shock experienced by each household, along with the necessary condition of the instrument to be uncorrelated to the error term. We formulate a unique shift-share instrument to capture the exogenous variation in household exposure to price changes, based on the foundations laid by earliest works on shift-share instruments by Bartik, 1991. The following seminal works by Goldsmith-Pinkham et al., 2020, and Borusyak et al., 2022, demonstrated that the validity of the instrument lies in the exogeneity of either the shift or the shares components of a shift-share instrument.

We construct a shift-share instrument, by leveraging the differences in household expenditure patterns across primary items of consumption and interacting with aggregate price changes. The aggregate price shift is defined as the log price difference experienced between 2024 (Wave 5) and 2019 (Wave 4). But we further modify this shock by excluding the prices of the specific community c in which the own household resides. This 'leave-one-out' Bartik (following Goldsmith-Pinkham et al., 2020, and Autor and Duggan, 2003) eliminates the mechanical correlation between the change in the consumption pattern of that household and the price changes in that particular (substantially small) community. This allows us to isolate the variation in the shock not being

driven by confounding factors tied to specific household, making the shift component largely exogenous, mitigating potential endogeneity problems.

Further, we weigh this shift by the share component which is also exogenously defined as the baseline (pre-shock) expenditure of the household i for each consumption item k . The assumption behind using these baselines as instruments is that the baseline spending shares are exogenous, meaning that it is not influenced by contemporary economic shocks. We use the spending shares from t_0 period (2019/Wave 4) to ensure that the share is uncorrelated to the unobserved economic shocks for each household, which affects the outcome variable after the shock occurs. Equation (3) presents the Bartik instrument.

$$Bartik_{i,c,z} = \sum_k \left(\frac{Spending_{i,c,z,k}^{t_0}}{TotalSpending_{i,c,z}^{t_0}} \right) * [(LogPrice_{k,-c,z,t}) - (LogPrice_{k,-c,z,t_0})] \quad (3)$$

The first stage of the Instrument variable specification would follow Equation:

$$PriceShock_{c,z} = \gamma_1 BartikInstrument_{i,c,z} + \gamma_2 X_{i,c,z,t_0} + \theta_{c,z} + \lambda_z + \mu_{i,c,z} \quad (4)$$

Tables 2 and 3 present summary statistics of the two components of the Bartik instrument.

4.2. The causal effect of price hikes on household size and composition

For the empirical estimation, we use the balanced panel of households included in the GHS-Panel Wave 4 and 5. We only utilize the post-harvest visit data for uniformity in spending and prices. The post-harvest visit occurred on January-March of 2019 and 2024 respectively. The unit of analysis is the households. We estimate Equation 1 using the Bartik instrument described above. We include \bar{X}_{i,c,z,t_0} as household level baseline controls in our regression to control for any observable differences across the households. The controls include: household size in 2019 (in log scale), whether the household engaged in the cultivation of agricultural plots, the household has at least 1 wage worker among its members, the household has any safety net, the household received assistance abroad, the household received assistance domestically, and the total value of all assets owned by the household (in log scale).

The **Outcome Variables** are defined as follows- We identify each member who is still a part of the household for each of the two survey waves. Column 1 outcome- household size \uparrow is defined as 1 if the household reported at least 1 additional member of the household in wave 5, who was not a member of household in Wave 4 survey (added member), 0 otherwise. Column 2 is restricted to 1 if this additional member is 5 years or older and the increase in household size does not come from fertility changes. Similarly, Column 3 - household size \downarrow is defined as 1 if the household reported at least 1 member of the household is lost i.e. was a member in Wave 4, who is not a member anymore in Wave 5 survey (lost member), 0 otherwise. Column 4 restricts this lost member to anyone younger than 65 (lost member is not old and possibly died). Column 5 Δ household Size is the net number of members gained (Number of added household members - Number of members lost), and column 6 restricts sample net changes for age between 5-65, to restrict for fertility/death changes.

We select 9 food categories- grains, pulses, oils, vegetables, milk products, baked goods, meat items, sugary goods, and fishes. We then pick the two items with the most purchase-share across all households, within each of 9 categories for a total of 18 food items in the consumption basket for our analysis. Besides these relevant food items, we also include fuel (crude oil), as the high and volatile fuel prices derive a lot of economic shocks. We calculate the standardized Naira value by unit conversions, based on values provided by the Central Bank of Nigeria, to measure the prices of each item. Each regression is clustered at EA level.

5. Results

Table 6 presents the results of the second-stage instrumental variable (IV) analysis. Column 1 & 2 outlines the effect of price shock exposure on the number of households that increase their size. The coefficients are positive, with statistical significance at the 5% level, suggesting that higher the prices shocks faced by the household, associates with greater household size expanding. Notably, from column 2, the increase in household size is driven primarily by the addition of individuals aged over five years, which supports the assertion that this change is not a result of changes in family composition due to newborns. Columns 3 and 4 examine the impact of economic distress on household downsizing. The results indicate no significant change in the

number of households that reduce their size, suggesting that rising prices did not lead to household disintegration or migration in search of better opportunities in the Nigerian context.

Furthermore, Columns 5 and 6 highlight a large and statistically significant impact on what is the change in households' size. We can interpret that, a 1% increase in price shock exposure leads to an approximate increase in household size by 4.9 percentage points. Of this, 3.9 can be attributed to factors other than new births or deaths. This substantial, positive change in household size is potentially driven by increased cohabitation – possibly as a response to economic hardship – or the reverse migration of working adults returning to their family homes to reduce living expenses.

These findings align with patterns observed in other developing economies where households respond to economic distress by relying on family networks. In settings with limited formal social protection, cohabitation and resource-sharing become key strategies for coping with financial hardship. The results suggest that, rather than breaking apart, Nigerian households adjust to rising prices by restructuring living arrangements, highlighting the importance of family support in times of economic difficulty.

6. Conclusion

This paper examines how Nigerian households adjust their living arrangements in response to economic distress, particularly rising prices. We leverage an instrumental variable approach using shift-share instrument for price hike to estimate the causal impact of rising prices on household size adjustments. Our findings suggest that economic hardship leads to household consolidation, with families expanding their size through cohabitation rather than fragmenting and downsizing. These effects are particularly pronounced in the northern regions of Nigeria and among lower-income households, highlighting the role of kinship networks and informal safety nets in mitigating financial strain. Importantly, we find that the increase in household size is not driven by changes in birth rates but rather by adult family members moving in together to share resources.

Several mechanisms could explain these findings. First, in contexts where formal social protection mechanisms are weak, households may rely on extended family as an alternative form of

insurance. Rising prices may push individuals—particularly unemployed young adults or working members facing shrinking real income into shared living arrangements to reduce housing and food costs. On the other hand, wealthier households, particularly in urbanized southern regions, may be better able to absorb rising costs without adjusting their household structures. These dynamics underscore the need for stronger formal safety nets, such as targeted cash transfers, employment support programs, and subsidized housing, to alleviate financial burdens on vulnerable households. Future research should explore the long-term consequences of these adjustments on labor market participation, child well-being, and overall household welfare. Addressing financial hardship through well-designed economic policies can enhance resilience and prevent adverse coping mechanisms that may have lasting socio-economic consequences.

7. References

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