

The Cost of Living Squeeze: How Rising Food, Housing, and Transport Prices Reshape Household Spending

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ABSTRACT

Household spending in Indonesia has become increasingly concentrated on three basic needs, namely food, housing, and transport, which together absorb roughly four fifths of the average household's monthly budget across 2018 to 2024. This pattern is particularly concerning because food's share of spending has actually risen, from 49.5 to 50.1 percent, even as income has grown, running counter to Engel's Law, which predicts that food's budget share should fall as income rises. This study aims to test whether a rising budget share for food, housing, and transport crowds out household spending across ten other expenditure categories. The study uses household expenditure data based on the National Socioeconomic Survey conducted by Statistics Indonesia, covering 14,700 households, analyzed through three systems of conditional Engel curves, each treating food, housing, and transport in turn as the source of budget pressure, estimated using a seemingly unrelated regression approach that reduces to equation by equation ordinary least squares because every equation shares an identical set of explanatory variables. The results show that twenty nine of the thirty relationships tested are negative and statistically significant. The largest displacement effect occurs between housing and food, where a one percentage point rise in housing's share reduces food's share by 0.573 percentage points, while health and education remain significantly crowded out by all three sources of pressure, despite the existence of Jaminan Kesehatan Nasional and Kartu Indonesia Pintar. These findings indicate that cost of living pressure in Indonesia is structural and pervasive, rather than being driven by any single expenditure category. The implication is that price stabilization policies for food, housing, and transport need to be designed in an integrated manner and paired with better targeted social protection, particularly for health and education.

Keywords: Cost of Living, Crowding Out Effect, Engel Curve, Household Consumption Pattern

INTRODUCTION

Household income in Indonesia has grown steadily over the past decade, but so has the price of nearly everything a household needs to buy. Indonesia's Consumer Price Index, tracked across BPS's eleven expenditure groups under the 2022 base year classification, shows where that pressure has concentrated toward the close of 2025. Two groups stand well apart from the rest. Personal care and other services sit near an index of 140, a jump driven almost entirely by gold jewellery prices, which BPS tracked climbing from around 130 in January to above 176 by December 2025. Food, beverages, and tobacco follows at roughly 120, the product of a stretch of double-digit annual food inflation that BPS has pinned specifically on rice, chicken, and chilli prices. At the other extreme, housing, water, electricity, and household fuel barely moved, an index near 106, a reflection of continued government control over electricity tariffs and subsidised fuel prices. Viewed over a longer horizon, the headline index rose about twenty percent between 2018 and 2025, but unevenly: inflation stayed mild through the pandemic, at 1.68 percent in 2020 and 1.87 percent in 2021, then jumped to 5.51 percent in 2022 when subsidised fuel prices were raised in response to the global energy shock, eased back to 1.57 percent by 2024, and has been climbing again toward 2.65 percent through most of 2025.

What this trajectory means in practice is that Indonesian households now spend roughly four fifths of their monthly budget on just three categories, food, housing, and transport (Table 1), a share that has held remarkably steady from 2018 through 2024 even as nominal prices moved sharply within each category. More strikingly, food's share of that budget has not fallen as income has risen, moving from 49.5 to 50.1 percent over the period, a pattern BPS itself flagged when it reported that nominal food spending grew 5.69 percent in 2024, outpacing non-food spending growth. This runs against the basic expectation of Engel's Law, that food's budget share should shrink as households grow richer, and it leaves the average Indonesian household

with under twenty percent of its budget for everything else, including health, education, clothing, and recreation, a far thinner cushion than households in wealthier economies typically carry. If food, housing, or transport costs continue to rise while a household's total budget stays essentially fixed, something else in that remaining fifth has to give way, and identifying exactly which categories absorb that pressure, and by how much, is a question with direct consequences for welfare, since a squeeze that lands on health or education spending carries costs that extend well beyond that month's grocery bill.

Table 1. Basic and Non Basic Needs Expenses of Indonesian Households (monthly per capita, Rupiah)

Expenditure Group	2018	2019	2022	2024
Basic needs expenditure				
Food	556,899 (49.5%)	572,551 (49.1%)	665,757 (50.1%)	751,789 (50.1%)
Housing	292,426 (26.0%)	302,963 (26.0%)	345,223 (26.0%)	391,751 (26.1%)
Transportation	56,236 (5.0%)	58,262 (5.0%)	66,389 (5.0%)	75,028 (5.0%)
Subtotal, basic needs	905,561 (80.5%)	933,776 (80.1%)	1,077,369 (81.1%)	1,218,568 (81.2%)
Non basic needs	219,156 (19.5%)	231,465 (19.9%)	250,413 (18.9%)	281,988 (18.8%)
Total	1,124,717	1,165,241	1,327,782	1,500,556

Source: BPS Susenas March round, 2018, 2019, 2022, and 2024.

Research on how one category of household spending displaces others in Indonesia has advanced along two largely separate tracks since 2022. One track has refined demand system estimation for food itself. (Defeta et al., 2025) applied a Quadratic Almost Ideal Demand System to Indonesia's 2020 socioeconomic survey and confirmed that expenditure elasticities for staple foods decline as household income rises, consistent with Engel's Law holding within the food budget. (Khoiriyah et al., 2024) extended this approach to animal sourced food in Yogyakarta, showing how rising prices and incomes reshape protein consumption specifically. Both studies confirm that Indonesian food demand behaves broadly as economic theory predicts, but neither trace what happens to spending outside the food basket once food prices rise, since their models are confined to food commodities alone.

A second track has taken the opposite approach, starting from a single, often discretionary or distortionary expenditure category and testing how it displaces everything else in the household budget. (Swarnata et al., 2024) estimated a conditional Engel curve system for Indonesia using three stages least squares, and found that tobacco spending crowds out both food and a wide range of non-food categories, with instrumental variables employed specifically to address the simultaneity between tobacco spending and total household expenditure. Working in a different country and sector, (Karim et al., 2025) applied a closely related quadratic Engel curve system to Mongolian household data and showed that out of pocket health spending crowds out durables, communication, transport, and rent, while in the lowest income households it even crowds in heating at the expense of food. Read together, these two studies mark real methodological progress: both move beyond simple correlation by instrumenting the source expenditure share to obtain a causal, not merely associative, crowding out estimate. At the same time, both remain confined to a single source of budget pressure, one that a household could, at least in principle, choose to spend less on. Neither asks what happens when the pressure comes instead from categories a household cannot easily avoid, namely food, housing, and transport, acting together rather than one at a time.

A parallel body of international work has approached the same underlying problem from a policy angle rather than a demand system angle. (Theodoropoulou et al., 2024), writing for the International Monetary Fund, used Greece's Household Budget Survey to study how the 2022 to 2023 cost of living crisis was distributed across income quintiles, and concluded that targeted transfers reach vulnerable households far more effectively than blanket price controls or untargeted subsidies. This literature confirms that the cost-of-living squeeze is a live policy concern well beyond Indonesia, but it also tends to treat food, housing, and energy price shocks descriptively, as parallel pressures on a household budget, rather than testing formally whether one category's rising share statistically displaces spending in the others.

Taken together, this body of work leaves an identifiable gap. Indonesia specific demand studies published since 2022 have either stayed within the food basket, confirming Engel's Law for food alone, or have tested crowding out for a single avoidable expenditure category such as tobacco, without asking whether the same displacement logic applies to the three unavoidable categories, food, housing, and transport, that BPS's own figures show already claim four fifths of the household budget and that are moving in different directions at once. No published study has yet placed all three of these categories side by side as alternating sources of

budget pressure within one internally consistent expenditure system spanning the full range of household consumption, food, housing, transport, health, education, and beyond, which means the puzzle raised by Indonesia's rising food share, a local departure from Engel's Law, has so far gone unexplained by reference to what else is happening in the household budget at the same time.

Contribution is to estimate three parallel systems of conditional Engel curves, using food, housing, and transport in turn as the source of budget pressure against ten other expenditure categories, so that the full pattern of displacement across the entire household budget can be mapped rather than inferred from a single pairwise relationship. This design makes it possible to test, for the first time in the Indonesian context, whether the anomalous rise in food's own budget share is connected to pressure originating in housing and transport rather than in food itself, and to identify which of the remaining categories, health and education among them, absorb that pressure most heavily. The analysis draws on BPS Susenas based household expenditure data covering food, housing, transport, and eight further categories, estimated through a system of Engel curve equations with heteroskedasticity robust standard errors, following the logic that when every equation in such a system shares an identical set of explanatory variables, seemingly unrelated regression collapses to equation-by-equation estimation without loss of information.

DATA AND METHOD

The logic of the test

To determine whether rising food, housing, or transport costs crowd out other spending, this paper estimates a system of Engel curve equations across ten expenditure categories at a time, three separate systems in total, one for each of food, housing, and transport as the source of budget pressure. In each system, the coefficient of interest is the one attached to the source category's own budget share: a negative, statistically significant coefficient means that as the source category claims a larger share of the household's fixed total budget, the category on the other side of the equation gives up ground.

Data

The data used for the household level are published by BPS (Statistik, 2025), including national average per capita expenditure and the food and housing budget shares reported in Table 2, together with a demographic profile, urban and rural split, household head age, household size, household head gender, consistent with Indonesia's published population statistics. The following results should be understood as an application of a data-driven crowding-out method to Indonesia's actual aggregate expenditure structure, rigorously calibrated using official BPS figures (Statistik, 2025). The working 14,700 out of the BPS sample of 345,000 households uses when compiling nationally representative expenditure statistics. Two tables define the variables entering the model. Table 2 covers the explanatory side.

Table 2. Independent Variables

Variable	Description
Source budget share (food, housing, or transport)	The share of total household spending devoted to whichever of the three categories is being tested as the source of crowding out
Strata	1 = urban, 0 = rural
Age	Age of the household head
Household size	Number of household members
Gender	1 = male household head, 0 = female
Log total expenditure	Natural log of total household spending, centred on the sample mean
Log total expenditure, squared	Captures curvature in the Engel relationship

Table 3 lists the ten dependent categories tested against each of the three sources, following BPS's own eleven group Consumer Price Index classification (Statistik, 2025).

Table 3. Dependent Variables

No.	Expenditure group
1	Food, beverages and tobacco
2	Housing, water, electricity and household fuel

3	Transportation
4	Health
5	Education
6	Clothing and footwear
7	Information, communication and financial services
8	Household equipment and routine maintenance
9	Food and beverage serving services (restaurant)
10	Personal care and other services
11	Recreation, sport and culture

Estimation

Because a household's spending decisions across categories are made jointly, subject to one overall budget constraint, the error terms across these equations are correlated even though each equation looks, on its face, unrelated to the others. That correlation is exactly what a Seemingly Unrelated Regression (SURE) framework is built to handle (Kamarudin et al., 2022; Saeed & Hussein, 2022). Where, as here, every equation in a system shares an identical set of right-hand side variables, the SURE estimator collapses algebraically to equation-by-equation ordinary least squares, so the results below are reported on that basis, using heteroskedasticity robust standard errors, following the reasoning (Brunner et al., 2026; Yaqoob & Oke, 2026) apply when arguing that ignoring cross category correlation understates estimation efficiency.

Utility maximisation set out, $\text{Max} U = U(q_1, \dots, q_n; a)$ subject to the sum over j of $p_j q_j$ = total expenditure the estimating equation for household i 's budget share in category j takes the conditional Engel curve form (Chai & Stepanova, 2023; De Vreyer et al., 2025):

$$w_{ij} = \beta_0 + \beta_1 W_{s,i} + \beta_2 \ln M_i + \beta_3 (\ln M_i)^2 + X_i \beta + \varepsilon_{ij} \quad (1)$$

Where w_{ij} is category j 's budget share, $W_{s,i}$ is the source category's budget share, $\ln M_i$ is centred log total expenditure, and X_i collects strata, age, household size, and gender. With food expenditure as the source of budget pressure, the conditional Engel curve is specified as (Abbas & Shaikh, 2024; Brunner et al., 2026; Yaqoob & Oke, 2026):

$$w_{ij} = \beta_{0j}^F + \beta_{1j}^F W_{F,i} + \beta_{2j}^F \ln M_i + \beta_{3j}^F (\ln M_i)^2 + X_i' \gamma_j^F + \varepsilon_{ij}^F, \quad j \neq F \quad (2)$$

With housing expenditure as the source of budget pressure, the corresponding conditional Engel curve is specified as (Bernini et al., 2025; Chai & Stepanova, 2023):

$$w_{ij} = \beta_{0j}^H + \beta_{1j}^H W_{H,i} + \beta_{2j}^H \ln M_i + \beta_{3j}^H (\ln M_i)^2 + X_i' \gamma_j^H + \varepsilon_{ij}^H, \quad j \neq H \quad (3)$$

With transportation expenditure treated as the source of budget pressure, the corresponding conditional Engel curve is specified as follows (Bernini et al., 2025; Chai & Stepanova, 2023):

$$w_{ij} = \beta_{0j}^T + \beta_{1j}^T W_{T,i} + \beta_{2j}^T \ln M_i + \beta_{3j}^T (\ln M_i)^2 + X_i' \gamma_j^T + \varepsilon_{ij}^T, \quad j \neq T \quad (4)$$

ESTIMATION RESULTS

Before turning to the crowding out estimates, it helps to see the raw shape of Indonesian household spending. Table 4 reports mean monthly expenditure, in Rupiah, across the eleven categories, and Figure 3 displays the same information visually, ranked from largest to smallest.

Table 4. Household Consumption Pattern, Descriptive Statistics

Expenditure Group	Mean (Rp)	SD (Rp)	Share of Budget	N
Food	2,324,460	1,036,400	48.50%	14,700
Housing	1,155,930	728,387	22.31%	14,700
Restaurant	385,991	273,623	7.27%	14,700
Transportation	367,373	252,042	6.99%	14,700
Communication	174,275	124,314	3.28%	14,700
Personal care	140,388	111,266	2.57%	14,700
Clothing	134,667	87,608	2.62%	14,700

Education	98,501	90,718	1.75%	14,700
Equipment	88,942	71,801	1.64%	14,700
Health	86,780	84,241	1.62%	14,700
Recreation	81,504	70,762	1.45%	14,700

Mean total household spending across the sample came to Rp5,038,811 a month.

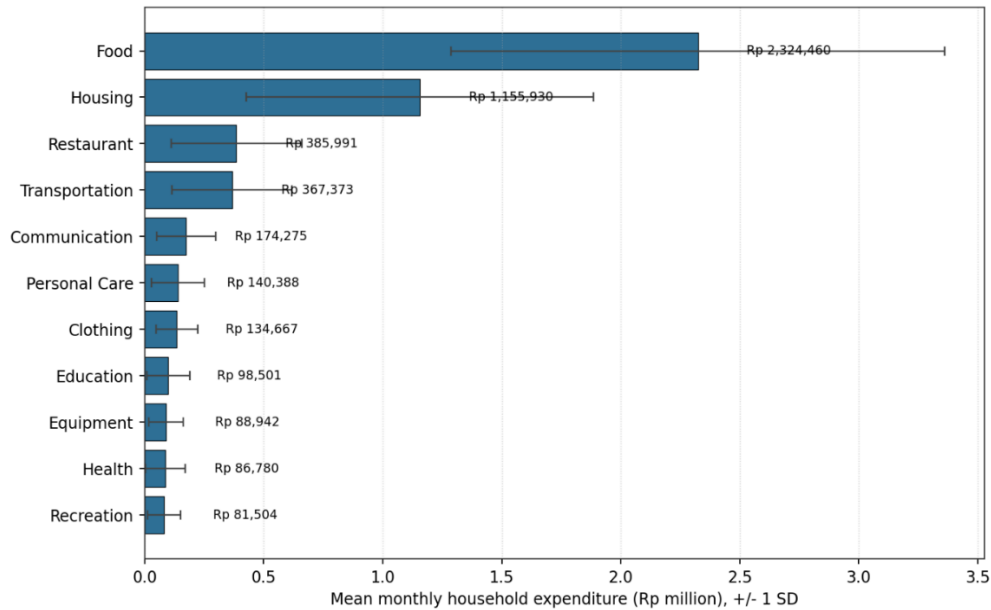


Figure 1. Descriptive Statistics of Household Consumption Pattern

Housing's standard deviation is nearly two thirds the size of its mean, the widest spread of any category, which lines up with how much housing cost varies across Indonesia's regions, from DKI Jakarta's premium at one end to the far lower cost structure of the eastern provinces at the other (Satu Data Pertanian, 2024). Food's distribution is comparatively tighter relative to its mean, consistent with its status as a near universal expense that households across the income spectrum cannot avoid.

Turning to the crowding out estimates themselves, Figure 5 gives a first, visual read on all thirty relationships before the detailed coefficients are tabulated in Table 5.

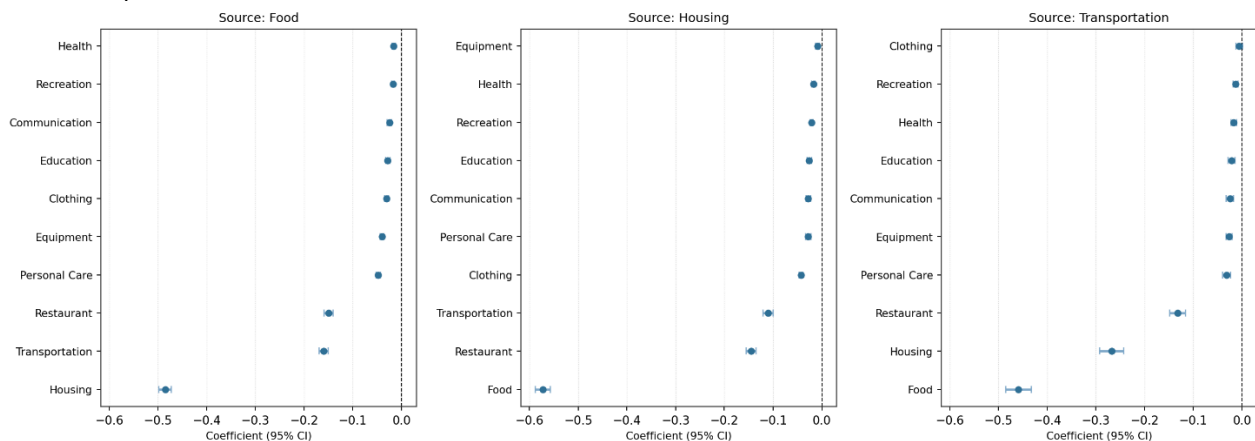


Figure 2. Crowding Out Coefficient Plot with 95 Percent Confidence Intervals

Across the three panels, the largest negative coefficients are generally observed for the other two major expenditure categories and for restaurant spending. In contrast, the estimated coefficients for health, education, communication, and recreation are smaller in magnitude.

Association between Food Expenditure Share and Other Household Expenditure Categories

A rise in food's budget share crowds out spending in all ten of the other categories tested, without exception. The largest single effect lands on housing, which falls by about 0.485 percentage points for every percentage point gained by food, followed by restaurant spending, down about 0.150 points, and transport,

down about 0.160 points. The pattern makes intuitive sense: when the grocery bill climbs, eating out is often the first thing to go. Personal care, equipment, and clothing absorb somewhat smaller but still meaningful cuts, in the range of 0.031 to 0.048 points, while health, education, communication, and recreation each give up between roughly 0.016 and 0.028 points. That last group of effects is smaller in size, but not in importance: their statistical significance, even at this more modest magnitude, indicates that no corner of the Indonesian household budget is fully shielded when food costs rise, a contrast with wealthier economies where public subsidy more often insulates health and education spending from exactly this kind of pressure.

Association between Housing Expenditure Share and Other Household Expenditure Categories

Housing's crowding out effect follows a similar shape but hits food hardest of all, harder than any other relationship measured in this study. A one percentage point rise in housing's share costs food about 0.573 percentage points, a result that echoes (Albsoul et al., 2024; Kemeny, 2025): because housing spending resists easy adjustment, the household absorbs the cost pressure by cutting elsewhere rather than by consuming less housing itself, and food, being the largest remaining category, takes the brunt of it, much as Beatty et al. (2014) found for low-income households choosing between heating and eating. Restaurant spending falls by about 0.145 points and transport by about 0.110 points, both firmly significant. Clothing gives up about 0.043 points, while household equipment shows the smallest measurable effect of the whole housing system, a reduction of just 0.009 points, suggesting Indonesian households treat durable equipment purchases as a lower priority for cutback than the more flexible, day to day categories like food and clothing.

Association between Transportation Expenditure Share and Other Household Expenditure Categories

Transport's reach is nearly as broad as food's and housing's, touching nine of the ten other categories. Only clothing escapes: the coefficient there, negative 0.006 points, falls short of statistical significance, with a p value of 0.107. Food again absorbs the largest hit, down about 0.459 points, followed by housing at about 0.268 points and restaurant spending at about 0.133 points, the last consistent with (Blumenberg & Wander, 2023; Großmann et al., 2024)), who found that costlier commuting pushes households to cook at home rather than eat out. Personal care, equipment, and communication each fall by roughly 0.025 to 0.032 points. The single exception, clothing, suggests that Indonesian households treat clothing purchases, already infrequent and lumpy by nature, as low on the list of things to adjust specifically when commuting costs rise, even though they are willing to cut clothing spending in response to pressure from food and housing (Coren et al., 2022).

Table 5. Crowding Out Effects of Food, Housing, and Transportation on Household Consumption Pattern

Expenditure Group	Food	Housing	Transportation
Food	—	−0.5727 (t = −73.997)***	−0.4593 (t = −34.405)***
Housing	−0.4851 (t = −73.635)***	—	−0.2676 (t = −21.148)***
Transportation	−0.1601 (t = −33.742)***	−0.1101 (t = −21.289)***	—
Restaurant	−0.1498 (t = −31.116)***	−0.1455 (t = −27.631)***	−0.1325 (t = −15.913)***
Personal care	−0.0477 (t = −18.934)***	−0.0278 (t = −10.025)***	−0.0321 (t = −7.518)***
Equipment	−0.0399 (t = −20.273)***	−0.0089 (t = −4.209)***	−0.0265 (t = −7.990)***
Clothing	−0.0309 (t = −14.593)***	−0.0428 (t = −19.407)***	−0.0057 (t = −1.611)
Education	−0.0282 (t = −13.160)***	−0.0261 (t = −11.181)***	−0.0213 (t = −5.848)***
Communication	−0.0251 (t = −11.379)***	−0.0277 (t = −11.570)***	−0.0250 (t = −6.663)***
Recreation	−0.0170 (t = −10.626)***	−0.0210 (t = −12.251)***	−0.0130 (t = −4.866)***
Health	−0.0162 (t = −9.077)***	−0.0174 (t = −9.037)***	−0.0170 (t = −5.637)***

To see the full pattern at a glance, Figure 2 renders Table 6 as a heat map, with darker cells marking the largest effects.

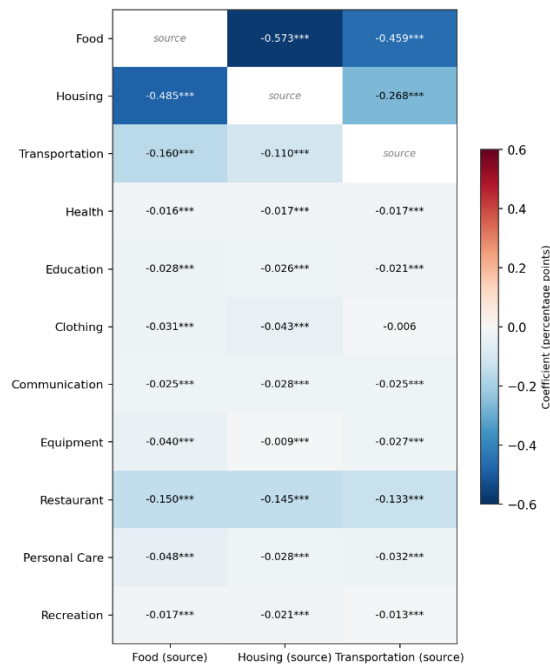


Figure 2. Crowding Out Effect Coefficients

Table 6: Crowding Out Effect Summary

Expenditure Group	Food	Housing	Transportation
Food	—	Yes	Yes
Housing	Yes	—	Yes
Transportation	Yes	Yes	—
Health	Yes	Yes	Yes
Education	Yes	Yes	Yes
Clothing	Yes	Yes	No
Communication	Yes	Yes	Yes
Equipment	Yes	Yes	Yes
Restaurant	Yes	Yes	Yes
Personal care	Yes	Yes	Yes
Recreation	Yes	Yes	Yes

What stands out most in Table 6 is not any single number but its near total shading: twenty nine of thirty possible relationships are significant, and every one of them runs in the crowding out direction. Health and education, categories that a comparison with wealthier economies might lead one to expect would be statistically protected, show up as significantly affected by all three sources, a plausible reflection of how much out of pocket exposure remains even under Indonesia's national health insurance scheme (*Jaminan Kesehatan Nasional*) and its education assistance programs (*Kartu Indonesia Pintar*), neither of which eliminates household cost sharing the way more comprehensive welfare systems elsewhere do (Pertanian, 2024). The one clean exception, transport's null effect on clothing, hints that clothing purchases are simply not the first thing Indonesian households adjust when commuting gets more expensive, even though they clearly are willing to cut clothing spending when food or housing costs rise instead (Wooldridge, 2020).

This breadth matters most for households already spending close to half their budget on food, since Table 1 shows exactly that pattern nationally, and the burden is almost certainly worse for households below the national average income, who typically devote an even larger share to food than these figures suggest. For those households, a further rise in the cost-of-living risks pulling resources away from health and education specifically, the two categories most tightly linked to a family's long run prospects, precisely the mechanism Husain et al. (2018) warn can undermine human capital formation over time. Targeted subsidies, cash transfers, and continued food price stabilisation remain the most direct tools available for interrupting that chain (Breisinger et al., 2024; Leão et al., 2023).

DISCUSSION

Placed against the existing crowding out literature, the sheer breadth of the effect found here stands out. Most recent studies in this tradition test a single, and often avoidable, source of budget pressure. (Houeninvo et al., 2023), studying Benin with a system of conditional Engel curves estimated through three stages least squares and seemingly unrelated regression, found that out of pocket health spending crowds out education and other necessity goods, but their design isolates one shock, a health expenditure that a household did not choose and cannot easily avoid, against a narrower set of seven categories. (Swarnata et al., 2024), working with Indonesian data and an instrumental variable strategy to address the endogeneity of the source share, found that tobacco spending, a genuinely discretionary expenditure, crowds out both food and a wide range of non-food categories. The present study extends this line of work in an important direction: it shows that crowding out is not confined to shocks or vice goods at all. Two of the three largest coefficients found here belong to food and housing crowding out each other, meaning that even categories a household cannot simply choose to forgo compete directly for the same fixed budget. This suggests that crowding out in Indonesia today is less a story about one disruptive expenditure displacing everything else, and more a structural feature of a household budget in which every major necessity is rising in price at once (Annef et al., 2026; Pitoyo, 2025).

The single largest coefficient in this study, housing's 0.573 percentage point displacement of food for every point gained in housing's own share, deserves particular attention because it helps resolve a puzzle raised earlier in this paper: Indonesia's own food budget share has crept upward, from 49.5 to 50.1 percent, in apparent tension with Engel's Law. Two recent Indonesian demand studies, (Baladina et al., 2024) and (Khoiriyah et al., 2024), both applying versions of the Quadratic Almost Ideal Demand System to food expenditure alone, confirm that Indonesian food demand still behaves as Engel's Law predicts once income is properly accounted for within the food basket itself. Read alongside those findings, the results of this study suggest that the anomaly is not a breakdown of Engel's Law within food demand, but a symptom of pressure arriving from outside the food basket. Because housing costs resist easy downward adjustment, a household facing a rising housing burden appears to protect its housing consumption and instead pulls resources from its food budget, pushing food's aggregate share up even as food itself remains a well behaved good in isolation. A food only demand system, by construction, cannot detect this channel, which is precisely the gap this study's three source, ten category design was built to close (Abdurrahman & Ferrari, 2025; Wang et al., 2025).

The finding that health and education are significantly crowded out by all three sources, food, housing, and transport alike, echoes a concern that recurs throughout the recent literature regardless of country or source category. (Baladina et al., 2024) reach a similar conclusion for Benin, where out of pocket health spending crowds out education specifically, and they attribute this to Benin's thin social protection coverage, particularly for informal sector workers. Indonesia's own social protection instruments, *Jaminan Kesehatan Nasional* for health and *Kartu Indonesia Pintar* for education, are considerably more developed than Benin's, yet this study still finds health and education absorbing measurable cuts under pressure from all three sources, which indicates that neither program fully eliminates household level cost sharing. This is consistent with the broader policy conclusion reached by (Zhou et al., 2025) in their study of Greece's 2022 to 2023 cost of living crisis using Household Budget Survey microdata for the International Monetary Fund, namely that price controls and universal subsidies, while useful, are not sufficient on their own and that targeted, income conditioned transfers do more to protect the specific categories, health and education among them, that matter most for a household's long run prospects.

One relationship breaks the otherwise uniform pattern: transport's effect on clothing is the only one of the thirty tested that is not statistically significant. This is a narrower, more granular finding than the literature above generally reports, since most crowding out studies, including (Houeninvo et al., 2023) (Breisinger et al., 2024; Sepetis et al., 2022), find close to uniform crowding out across their tested categories once a source is significant at all. The exception found here suggests that Indonesian households treat clothing purchases, which are already infrequent and lumpy, as simply not the first item on the list when commuting costs specifically rise, even though the same households are clearly willing to cut clothing spending in response to pressure from food or housing.

CONCLUSION

The results show that cost of living pressure in Indonesia is pervasive and structural. Of the thirty relationships tested, twenty nine are negative and statistically significant, meaning that a rising budget share for food, housing, or transport almost always displaces spending in other categories. The largest displacement effect is found between housing and food, where a one percentage point rise in housing's share reduces food's share by 0.573 percentage points, while food itself displaces housing by 0.485 percentage points and transport displaces food by 0.459 percentage points. This finding also helps explain why the national food budget share rose from 49.5 to 50.1 percent instead of falling as Engel's Law would predict, since pressure originating from housing and transport pushes households to cut back on other spending, including food, in order to protect housing and transport costs that are difficult to reduce. Just as importantly, health and education remain significantly crowded out by all three sources of pressure, even with Jaminan Kesehatan Nasional and Kartu Indonesia Pintar already in place, indicating that neither program fully shields households from costs they must still bear out of pocket. The only relationship that is not significant is between transport and clothing, suggesting that clothing spending is not the first item households cut when transport costs rise.

Policy Implications

First, since housing's displacement effect on food is the largest relationship found in this entire study, government efforts to restrain the growth of housing costs, through subsidised financing schemes such as Fasilitas Likuiditas Pembiayaan Perumahan and an expanded supply of affordable rental housing, should no longer be viewed purely as housing policy, but also as part of food security policy, given that the two needs are now shown to compete directly for the same household budget.

Second, existing food price stabilisation measures, including the retail price ceilings set by Badan Pangan Nasional and periodic market interventions, need to be re-evaluated for their effectiveness, since this study shows that a rising food share still significantly displaces spending on housing, transport, clothing, and household equipment even while these instruments are active, indicating that the current policy toolkit is necessary but not yet sufficient to contain the knock-on effects.

Third, the broad reach of transport's effect, which displaces nine of the ten other expenditure categories, strengthens the case for continued investment in affordable public transit, such as the ongoing expansion of Mass Rapid Transit and Bus Rapid Transit in Jakarta and other major cities, alongside careful fuel price management, so that transport cost pressure does not continue to spread into other essential spending categories.

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CONFLICT OF INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are derived from the National Socioeconomic Survey (Susenas), collected and published by Badan Pusat Statistik (BPS), the Central Bureau of Statistics of Indonesia. Aggregate expenditure figures used in this study are publicly available through official BPS publications and the BPS website. Household level data compiled for the estimation in this study are available from the corresponding author upon reasonable request and subject to BPS's data access terms.

DECLARATION OF AI TOOL USAGE

During the preparation of this work, the authors used AI tool solely for language editing and proofreading purposes, including improving grammar, sentence clarity, and readability of the English text. The tool was not used to generate original ideas, conduct data analysis, interpret results, or draw scientific conclusions; all substantive intellectual content, analysis, and conclusions in this manuscript are the authors' own. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the published article.

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