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Household Durable Goods Spending in Urban Areas: A New Keynesian Micro Perspective

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ABSTRACT

In the New Keynesian model, durable goods are typically assumed to be more responsive to monetary policy than non-durable goods. While this assumption is generally based on macroeconomic policy studies, this research aims to identify whether monetary authorities need to consider household microeconomic aspects such as dependents and long-term saving behavior when formulating policies to stimulate durable goods spending. The study employs two inverse semilogarithmic equations with micro data on urban households. Research findings confirm the existing assumption of the New Keynesian model. Durable goods spending remains sensitive to macroeconomic policies, particularly interest rate adjustments by monetary authorities. Furthermore, the research provides evidence supporting the life-cycle hypothesis for durable goods consumption among urban households. Therefore, this study underscores the pivotal role of durable goods expenditures in ensuring sustainable economic stability.

Keywords: New Keynesian Models, Durable Goods, Life-cycle Hypothesis, Urban, Monetary Policy
JEL Classifications: E12, D1, L68, R51

1. INTRODUCTION

Keynesian economists have widely recognized household spending as a crucial driver of economic growth, particularly in its role of accelerating the business cycle (Vianna, 2023). However, any government intervention aimed at stimulating household expenditure has drawn criticism from classical economists. Excessive household spending can lead to demand-pull inflation when prices have already adjusted. While understandable, Keynesian economics rests on the assumption of price rigidity, minimizing the potential for demand-pull inflation, especially in the short run.

New Keynesian models emerged to reconcile these opposing views by incorporating the concept of durable goods into the analysis (Monacelli, 2009). The extended lifespan of durable goods can contribute to smoother consumption patterns, mitigating sharp fluctuations in demand that could trigger inflationary pressures (Cavoli and Gopalan, 2023). For example, households buy a new refrigerator every ten years. Here, they can spread out their spending over the years, leading to a more consistent level of consumption throughout the decade.

Additionally, durable goods are often more sensitive to interest rates set by central banks. When interest rates fall, it becomes cheaper to borrow money to purchase these items, boosting demand. This allows central banks to use monetary policy to regulate demand for durable goods, potentially preventing excessive spending. Therefore, an in-depth study is needed to identify the determinants of durable goods spending as input for monetary authorities in formulating policies to stimulate non-inflationary spending.

Before delving deeper into the determinants of durable goods spending, it's crucial to note that previous research employing the New Keynesian model for durable goods analysis mostly focused

on a macroeconomic perspective (Luengo-Prado, 2006; Monacelli, 2009). This necessitates microeconomic validation to solidify our understanding (Pech and Milan, 2009; Tin, 2000). At the same time, classical economists criticized the role of household spending in the economy, not just from a macro perspective but also from a micro perspective. They argued that excessive household spending could lead to hedonic consumption patterns, ultimately harming future individual well-being (Colander, 2007).

Therefore, stimulating spending on durable goods presents a fitting response to such criticism. As mentioned earlier, the extended lifespan of durable goods inherently minimizes excessive spending on these items. By promoting strategic investments in durable goods, policymakers can encourage responsible consumption patterns that contribute to long-term economic growth and individual financial security.

This research pursues two key objectives. The first is to identify the determinants of durable goods spending. The second involves validating new Keynesian models by incorporating micro factors. This focus on micro foundations is crucial because basic macro assumptions, particularly those concerning financial markets, often do not yet have a robust microeconomic underpinning. Such weaknesses can lead to imbalances and inflation, as exemplified by situations where the money supply outpaces money demand. By validating new Keynesian models through micro factors analysis, this research seeks to achieve a contribution, such as a deeper understanding of household behavior on durable goods spending and its impact on the economy. This knowledge can then be used to refine New Keynesian models and develop more effective economic policies.

Back to the determinants of durable goods spending, the absence of current income effects (generally considered a primary determinant of spending) in this study stems from the assumption that in urban areas with higher average incomes and a more affluent lifestyle, durable goods ownership may be perceived as a social norm, diminishing the impact of income fluctuations on individual demand (Kehoe and Levine, 1984). In this context, durable goods become more relevant when linked to permanent income and the life-cycle hypothesis (Khan et al., 2016; Vianna, 2023). Household durable goods spending decisions are more likely to be influenced by the magnitude of permanent income expectations, rather than current income. Savings can then represent permanent income expectations, where savings in this context refer to long-term savings.

Durable goods, characterized by their higher price points compared to non-durable goods, often require households to prioritize saving before making a purchase decision (McKay and Wieland, 2022). The greater the accumulated savings, the higher the household's capacity to acquire these long-lasting items. This doesn't imply a lack of current income for durable goods purchases. However, current income is often prioritized for essential, non-durable goods or allocated towards saving for future durable goods. Non-durable goods, as the name suggests, are essential items with immediate consumption needs, such as groceries and utilities. In contrast, durable goods like vehicles or furniture can be postponed. This distinction underscores the importance of financial planning and saving for households aiming to acquire durable goods.

The number of household dependents is another factor that significantly impacts durable goods spending decisions (Kiran and Dhawan, 2015). As the number of dependents in a household increases, so does the demand for durable goods such as furniture and electronics. Households with more members require more space for sleeping, eating, and relaxing. This drives the purchase of larger furniture, electronics, and kitchen appliances. Additionally, a larger family size naturally necessitates more entertainment options, such as televisions and computers.

The large number of household dependents can also trigger an increase in permanent income expectations and long-term savings. Individuals with a growing number of dependents are motivated to boost their income and savings. This aligns with the theory of permanent income expectations, where spending reflects anticipated long-term income, not just current income. The need to cover rising living expenses and secure the future of their dependents, like education and healthcare, fuels this drive. Ultimately, the number of dependents becomes a powerful motivator for individuals to achieve a more secure financial future.

2. RESEARCH METHODS AND DATA

This study investigates the determinants of durable goods spending among households in Makassar, Indonesia. Makassar was chosen as the research location due to the high demand for durable goods in urban areas. Makassar is one of the metropolitan cities in Indonesia with a relatively high household income level, resulting in high potential for durable goods consumption.

The data used is micro household data collected from 289 respondents who are household heads with jobs. This study employs cross-sectional data to allow for a snapshot analysis of the factors influencing durable goods spending at a specific point in time. This approach is suitable for understanding the immediate impact of various factors such as dependents and saving on durable goods spending decisions.

The data was collected before the COVID-19 pandemic. Using a pre-COVID-19 pandemic research period allows researchers to focus on typical durable goods consumption patterns without distortions from external factors like the pandemic. Policymakers have been prioritizing business cycle acceleration during and after the pandemic (Baker et al., 2020). This is evident in the growing ease of transactions driven by advancements in financial technology, such as e-money, which in the Indonesian case, according to the latest report from Statistics Indonesia, is predominantly used for daily transactions.

This is understandable given that encouraging spending on durable goods during shock events like pandemics or transitional periods like the current recession and uncertainty would be unwise. Durable goods, once again, have the characteristic of being deferrable and require prior saving, hence their impact on the business cycle is not immediate. However, they can contribute

to business cycle stability, which in turn can help maintain price stability and sustainable economic growth (Luengo-Prado and Sørensen, 2008).

This research used two inverse semilogarithmic equations to analyze the determinants of household durable goods spending, as shown in the following equations.

$$\ln SAV = \alpha_0 + \alpha_1 DEP + \mu_1 \quad (1)$$

$$\ln DUR = \beta_0 + \beta_1 \ln SAV + \beta_2 DEP + \mu_2 \quad (2)$$

Where *DUR* is the durable goods spending, measured in the Indonesian rupiah; *SAV* is the amount of saving for long-term purposes, measured in the Indonesian rupiah; *DEP* is the number of household dependents; α_0 and β_0 are the constants; α_1, β_1 and β_2 are the parameters to be estimated; μ_1 and μ_2 are the random error terms and ln is the natural logarithm. The relationships between the variables used in this study can be re-expressed and shown in Figure 1.

By substituting Equation (1) into Equation (2), we obtain the reduced-form equations as shown in Equation (3).

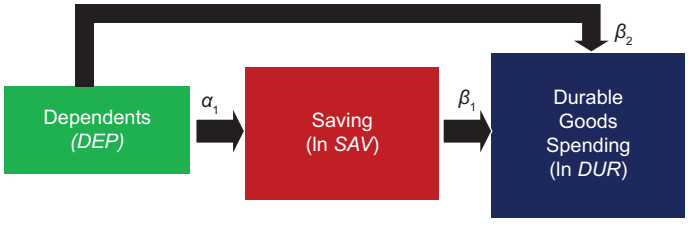
$$\ln DUR = \gamma_0 + \gamma_1 DEP + \mu_{12} \quad (3)$$

Where γ_0 ($\beta_0 + \alpha_0\beta_1$) is a constant and γ_1 ($\beta_2 + \alpha_1\beta_1$) represents the total effect of dependents on durable goods spending. It consists of a direct effect of β_2 and an indirect effect through the saving of $\alpha_1\beta_1$ μ_{12} ($\mu_2 + \mu_1\beta_1$) is the composite error term. This research will use the method of Ordinary Least Squares (OLS) with cross-sectional data to test the hypothesis. In this way, we can obtain the magnitude of the direct effect of the number of dependents on durables goods spending as well as the magnitude of the indirect effect through savings. The reduced-form equation will make it easier to identify both types of effects.

If the β_2 coefficient is significant and positive, demographic factors, particularly the number of dependents, can be a significant consideration for policymakers when implementing strategies to boost durable goods spending. Meanwhile, if the $\alpha_1\beta_1$ coefficient is significant and positive, monetary authorities should also support households' efforts to set aside part of their income for future durable goods consumption, such as education expenses for their family members, by providing excellent service to savers.

Conversely, if the coefficients are significant and negative or are not statistically significant at the 5% level, monetary authorities should primarily focus on controlling macroeconomic variables like interest rates to encourage spending on durable goods (Baghestani and Fatima, 2021; Siddiqui et al., 2016). This is because a large number of dependents in households indicates a greater need for daily needs (which are generally classified as non-durable goods), reducing households' capacity for durable goods spending. Additionally, the relatively high prices of durable goods can also reduce spending. Monetary authorities can help households by facilitating access to credit for durable goods consumption, such as offering low-interest loans. On the other hand, households should also prioritize spending their income on only essential non-durable goods and anticipate the convenience of modern transactions (Baker et al., 2020; Fernández-Villaverde and Krueger, 2011).

Figure 1: Conceptual framework



3. RESULTS

The survey focused heavily on white-collar workers, with professionals making up 41.8% of respondents. It's important to note that agricultural workers, one of the significant sectors of the workforce, were only 1% of respondents. This bias is reflected in the educational background of the participants. Over 47% held bachelor's degrees, indicating a well-educated sample, while a mere 3.8% had junior high school diplomas.

The age distribution also leans towards a more established demographic. The largest group (54%) fell between 26 and 44 years old. Conversely, the youngest age group (15–25) had the smallest representation at only 4.5%. This suggests the survey may not capture the perspectives of younger workers or those just entering the workforce.

The estimation results according to the two inverse semilogarithmic equations can be seen in the following equation.

$$\widehat{\ln SAV} = 13.374 + 0.051 DEP \quad (4)$$

t = (87.744) (1.464)
P = (0.000) (0.144)

R-squared = 0.007; Probability (F-statistic) = 0.144

N = 289; Significant at 5% level

$$\widehat{\ln DUR} = 10.026 + 0.489 \ln SAV + 0.015 DEP \quad (5)$$

t = (8.519) (5.657) (0.295)
P = (0.000) (0.000) (0.768)

R-squared = 0.102; Probability (F-statistic) = 0.000

N = 289; Significant at 5% level

The R^2 value of durable goods spending in Equation (5) means that about 10.2% of the variation in the (log of) durable goods spending is explained by the dependents and (log of) saving. Meanwhile the R^2 value of saving means in Equation (4) that about 0.7% of the variation in the (log of) saving is explained by the dependents. Meanwhile, the probability F-statistic value of 0.000 in Equation (5) means that the dependents and (log of) saving have a significant influence simultaneously. The probability F-statistic value of 0.144

in Equation (4) is equal to the probability t-statistic value and will be discussed later.

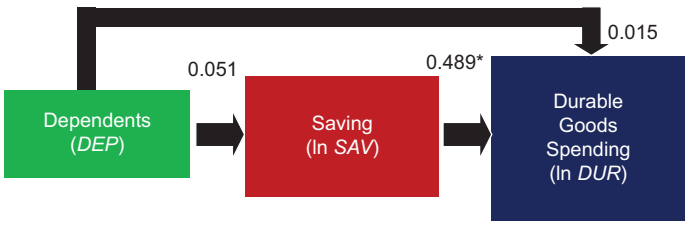
Equation (4), Equation (5), and Figure 2 will guide us in discussing and comparing the direct and indirect effects (through saving) of dependents on durable goods spending. This discussion will also present what, how, findings, and implications of the results of this study. Initially, the direct effect of dependents on durable goods spending is not statistically significant (probability t-statistic value of 0.768). This implies that the number of dependents is not a factor considered by households when allocating their income for durable goods expenditures. This finding contradicts the initial hypothesis that households would spend more on durable goods as the number of dependents increases (Kiran and Dhawan, 2015).

Meanwhile, the indirect effect of dependents on durable goods spending through saving also shows statistically insignificant results. This is due to the insignificant effect of dependents on saving (the probability t-statistic value of 0.144 and the probability F-statistic value of 0.144). Although the effect of saving on durable goods spending shows a positive and significant relationship (probability t-statistic value of 0.000 and coefficient value of 0.489), overall, these indirect effects show insignificant results. These results also do not correspond to the initial hypothesis that the number of dependents will affect durable goods spending through its effect on long-term savings.

The findings suggest that the household heads in this study view durable goods as long-term investments that require advanced saving. Therefore, even though the number of dependents increases, the household's decision to add durable goods can be postponed. Vehicles, for example, have a long lifespan, so households may choose to use their existing vehicles. This is especially true if the owned vehicles are of the highest quality. The adequate public transportation system in urban areas also makes it possible to postpone the purchase of a new vehicle. The research sample, which is dominated by professional and highly educated workers, further supports the assumption that the households in this study have a good long-term vision (Bils and Klenow, 2001).

The dominance of household heads aged 26-44 among the respondents could lead to a sense of sufficiency in durable goods ownership to meet the long-term needs of their family members. The insignificant influence of dependents on durable goods spending through long-term savings further indicates that the majority of respondents also have adequate long-term savings prepared for future family needs (Chamon and Prasad, 2010).

Figure 2: Conceptual framework with the estimation results
*Significant at 5% level.



Source: Equation (4) and Equation (5)

In encouraging durable goods spending in urban areas like Makassar, monetary authorities should consider implementing strategic measures, one of which is facilitating access to long-term credit for the purchase of specific durable goods. This can be achieved by offering low and competitive interest rates on loans. Household heads in Makassar who have good long-term financial management planning will have a low risk of credit default.

Another implication is that households in Makassar with a large number of dependents, who naturally have a lot of daily needs (generally non-durable goods), need to realize the importance of continuing to invest in durable goods. In other words, while these households may have to spend a significant portion of their income on necessities, they should also make an effort to save some money for the purchase of durable goods, such as appliances, furniture, and vehicles. These items can provide long-term benefits and help to improve the quality of life for the entire family. Here, the rapid advancement of financial technology has made it easier than ever for people to make daily transactions. While this can be convenient, it also raises the risk of excessive spending on non-durable goods. This, in turn, can contribute to inflation.

4. CONCLUSIONS

A common assumption among New Keynesian economists is that durable goods spending is sensitive only to macroeconomic policies, namely interest rate adjustments by monetary authorities. This assumption holds even at the household level in urban areas. The life-cycle hypothesis plays a crucial role in explaining household behavior regarding durable goods spending. Households will save first before purchasing durable goods. In other words, households view durable goods as long-term investments that will be significantly influenced by interest rates.

The criticisms of classical economists have been answered. Government intervention in stimulating household spending can be continuously supported, especially for durable goods. The evidence of the correspondence between macroeconomic and microeconomic factors of durable goods will further facilitate the monetary authorities in regulating the intensity of durable goods expenditure so as not to be excessive. On the other hand, household spending on durable goods will also not lead to excessive consumptive behavior, given the long lifespan of the goods.

As a note, households in urban areas need to anticipate the rapid development of financial technology and not be complacent with the convenience of daily transactions that can lead to excessive spending that can trigger inflation. Therefore, households are expected to continue to invest in durable goods. Finally, the overall research findings emphasize the importance of durable goods in maintaining sustainable economic stability.

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