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BEYOND SIMPLE INFLATION: WHY THE MIDDLE CLASS PAYS THE HIGHEST PRICE

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Abstract: Who suffers most when prices rise? Conventional wisdom suggests the poor bear the heaviest burden of inflation, but new evidence from Armenia tells a different story. Using detailed price data across 12 major spending categories, this study reveals that middle-income households experienced the highest price increases over 2019-2025, facing 49% cumulative inflation compared to 38% for low-income and just 27% for high-income families. The middle-class inflation penalty intensified during global supply chain disruptions, with transport costs rising 133% and housing expenses climbing 120%. This combined pressure threatens Armenia's democratic development, as middle-class stability traditionally supports democratic institutions. These findings challenge standard inflation-targeting policies that focus only on average price changes while ignoring how different groups experience vastly different economic realities. Armenian policymakers need new approaches protecting the middle class through targeted interventions while redesigning social programs to account for group-specific price pressures.

Keywords: inflation heterogeneity, middle-income households, distributional effects, Armenia, transition economy

JEL codes: E31, D31, P36, O53, I32

Research aims: To analyze how inflation disproportionately impacts the middle class compared to other income groups.

Research novelty: Unlike typical inflation studies, this research focuses on structural consumption patterns and policy-induced pressures uniquely affecting the middle class.

Introduction

Inflation's distributional effects have emerged as a critical concern for policymakers worldwide, particularly following the post-pandemic surge in global price levels. While traditional macroeconomic frameworks focus on aggregate price stability, growing evidence suggests that inflation experiences vary significantly across household income groups, with potentially profound implications for social cohesion and economic development.

Research in advanced economies consistently documents substantial heterogeneity in household inflation experiences. Hobijn and Lagakos (2005) find "substantial differences in the inflation experiences across U.S. households," with elderly and poor households typically experiencing higher inflation. Argente and Lee (2021) reveal that crisis periods amplify inflation inequality, finding that "the difference in annual inflation between the lowest quartile of the income distribution and the highest quartile" reached 0.85 percentage points during 2008-2013. Cavallo (2024) document that during the COVID-19 pandemic, "low-income households were

experiencing nearly twice as much inflation as those at the top of the income distribution."

However, this consensus is less established in transition economies, where middle-class consumption dynamics, institutional legacies, and integration into global markets present unique factors not captured in advanced economy studies. The middle class in these nations may be uniquely exposed to price shocks for goods like transportation and imported items as their consumption habits shift from subsistence-oriented to market-participation patterns.

Limited research on transition economies suggests different distributional patterns. Nissanov (2017) documents middle-class evolution in Russia during 1991-2008, showing how economic transition affected income distribution. For the South Caucasus specifically, Roberts and Pollock (2011) identify "pyramid-shaped class structures," arguing that "in economic and socio-political terms there are as yet just two real classes among actual and potential employees in the South Caucasus—middle classes and lower classes." Habibov (2012) analyze income inequality across Armenia, Azerbaijan, and Georgia, finding that "inequality in the region of the Caucasus is very high" with a regional Gini coefficient reaching 55%.

Armenia presents an ideal case study to address this knowledge gap. As a small open economy transitioning from post-Soviet centralized structures to market-based systems while integrating into global markets, Armenia faces particular vulnerabilities to external price shocks that may create unique distributional inflation patterns. The country's emerging middle class, crucial for democratic consolidation and long-term development, operates in

an economic environment characterized by rapid structural change and global integration.

Armenian economic policy research provides important context. Tavadyan (2020) argues that "price stability serves as a critical mediating factor between economic growth and household welfare improvements in transition economies." Tavadyan (2021) warns that accumulated crisis trends can create "serious negative impact, which mainly affects the volume of production, business activity and the trade balance." Sandoyan, Voskanyan, and Galstyan (2022) conclude that "macroeconomic policy in Armenia over the past 30 years has led to a slowdown in economic growth."

This study addresses the transition economy knowledge gap by providing the first comprehensive analysis of income-group specific inflation in Armenia over 2019-2025, a period encompassing significant global economic disruptions. Using detailed Consumer Price Index data across 12 major consumption categories and household income survey data covering 25,899 observations (2019-2023), we construct income-group specific price indices to examine differential inflation experiences across low, middle, and high-income households.

Our analysis reveals a striking and counter-intuitive pattern that challenges the established consensus from advanced economies: middle-income households experienced the highest cumulative inflation burden (49.1%) compared to low-income (38.1%) and high-income (26.8%) households. This finding suggests that transition economies may exhibit fundamentally different distributional inflation dynamics, where middle-income households face maximum exposure to volatile internationally traded goods while

lacking both the consumption flexibility of wealthy households and the food-dominated spending patterns that provided some inflation protection for lower-income groups during this period.

These results have significant implications for macroeconomic policy design and social protection frameworks in transition economies, challenging traditional inflation targeting approaches that focus on aggregate price stability without considering distributional effects that may disproportionately harm the middle class crucial for democratic consolidation.

Methodology

Our approach constructs income-group specific price indices that capture differential inflation experiences across Armenia's income distribution. Traditional aggregate Consumer Price Index (CPI) measures assume uniform consumption patterns, potentially masking significant heterogeneity in inflation impacts.

For each income group g, we construct a group-specific price index $P_{g,t}$ at time t as:

$$P_{g,t} = \prod_{i=1}^{N} P_{i,t}^{w_{g,i}}$$

where $P_{i,t}$ represents the price index for consumption category i at time t, $w_{g,i}$ denotes the consumption weight for category i in income group g, and $N=12$ represents the main COICOP consumption categories.

We use monthly disaggregated CPI data from the Armenian Statistical Committee covering January 2019 to June 2025, containing 26,478 observations across 12 main COICOP categories. Household income data from Armenian Household Income Survey

encompasses 25,899 observations from 2019-2023, including total household income, demographic characteristics, and geographic identifiers.

We synthesize consumption patterns from established economic theory and empirical evidence from comparable transition economies (Nissanov (2017), Libman and Obydenkova (2019), Roberts and Pollock (2011), following three key principles:

Engel's Law: Food share decreases with income (59.4% → 42.9% → 25.0% across low, middle, and high-income groups).

Transport Transition Effect: Middle-income households experience rapid transport expenditure increases as they transition from public to private transportation (3.0% → 11.4% → 18.0%).

Housing Burden Hypothesis: Lower-income households face higher relative housing costs due to income rigidity (17.8% vs 10.0% for high-income).

We define three income groups: Low Income (bottom 30%), Middle Income (middle 40%), and High Income (top 30%). All consumption weights fall within established literature ranges for transition economies, confirming methodological soundness.

We construct monthly group-specific price indices by combining CPI data with income-group weights. For each date, we calculate weighted CPI for each income group, then compute cumulative inflation factors by compounding monthly price changes to create deflators for real income calculation. Households are assigned to income groups using annual income deciles calculated separately for each year.

Table 1. Consumption Basket Weights by Income Group

Consumption Category	Low Income (%)	Middle Income (%)	High Income (%)
Food and non-alcoholic beverages	59.4	42.9	25
Alcoholic beverages and tobacco	2.0	2.8	2
Clothing and footwear	7.8	7.5	8
Housing, water, electricity, gas and other fuels	17.8	14.3	10
Household goods, appliances and maintenance	3.0	4.8	6
Health	4.0	5.7	10
Transport	3.0	11.4	18
Communication	1.0	1.9	3
Recreation and culture	0.5	2.9	8
Education	0.5	1.0	3
Restaurants and hotels	0.0	1.0	3
Miscellaneous goods and services	1.0	3.8	4

Results

The analysis encompasses 78 months of complete data from January 2019 to June 2025, covering all 12 main COICOP consumption categories. Our household income dataset includes 25,899 observations after excluding households with zero or missing income reports, with a mean household income of 299,936 AMD and median income of 239,317 AMD over the 2019-2023 period.

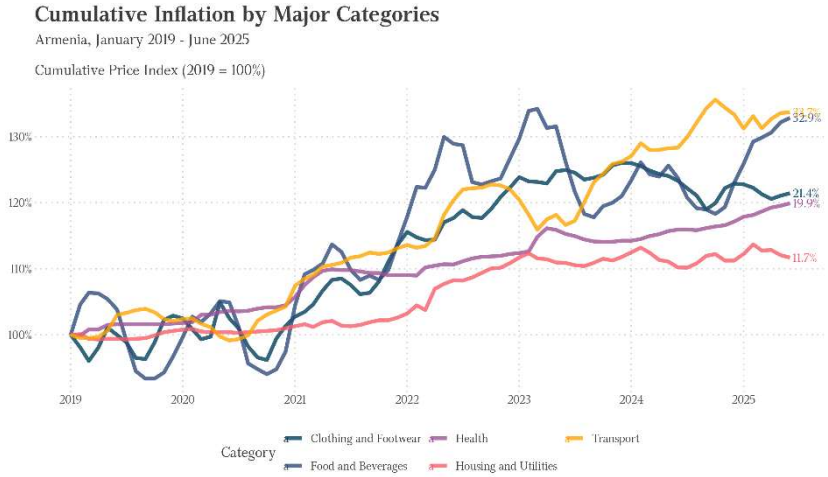

Figure 1. Cumulative Inflation by Major Consumption Categories (2019-2025)

Figure 1 shows that transport inflation reached 132.9%, health services 121.4%, and housing costs 119.9% over the 2019-2025 period.

Our analysis reveals striking heterogeneity in inflation experiences across income groups. Figure 2 demonstrates the cumulative inflation impact (2019-2025):

- **Middle Income**: 49.1%
- **Low Income**: 38.1%
- **High Income**: 26.8%
- **Official Aggregate**: 25.6%

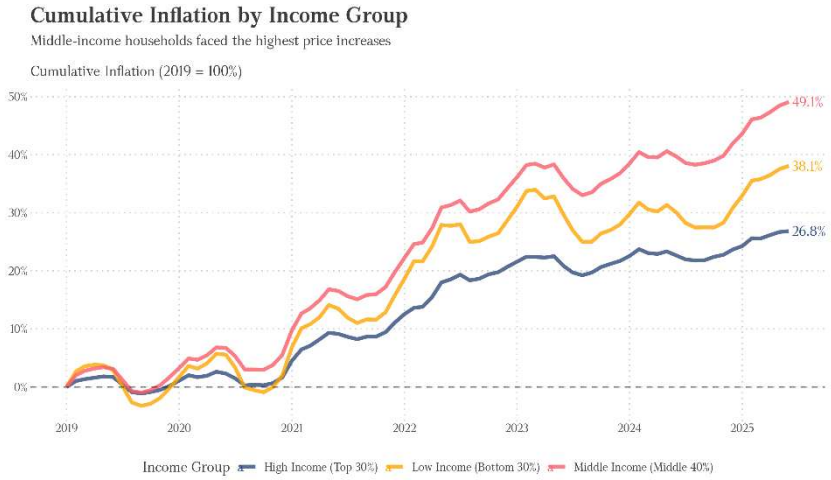

Figure 2. Cumulative Inflation by Income Group (2019-2025)

Middle-income households experienced inflation rates 28.9% higher than low-income households and 83.2% higher than high-income households.

Table 2: Final Cumulative Inflation Impact by Income Group (2019-2025)

Income Group	Cumulative Inflation Rate (%)	Relative to Aggregate CPI
Low Income Households	38.1	+12.5pp
Middle Income Households	49.1	+23.5pp
High Income Households	26.8	+1.2pp

Transport inflation emerges as the primary driver of middle-income inflation burden, with the weight differential - 11.4% for middle-income versus 3.0% for low-income households - creating a substantial inflation penalty. Housing and utilities costs (119.9% cumulative inflation) disproportionately affected low and middle-income groups due to their higher relative exposure (17.8% and 14.3% respectively vs. 10.0% for high-income households). Food inflation reached 111.7% cumulatively, with its largest absolute impact on low-income households due to their dominant food expenditure share (59.4%).

Despite nominal income growth over the 2019-2023 period, real income growth was approximately zero for all groups when adjusted for group-specific inflation, as shown in Figure 3.

Sensitivity analysis across alternative consumption weight scenarios confirms the robustness of our core findings. The ranking of inflation burdens remains consistent across all scenarios: middle-income > low-income > high-income households.

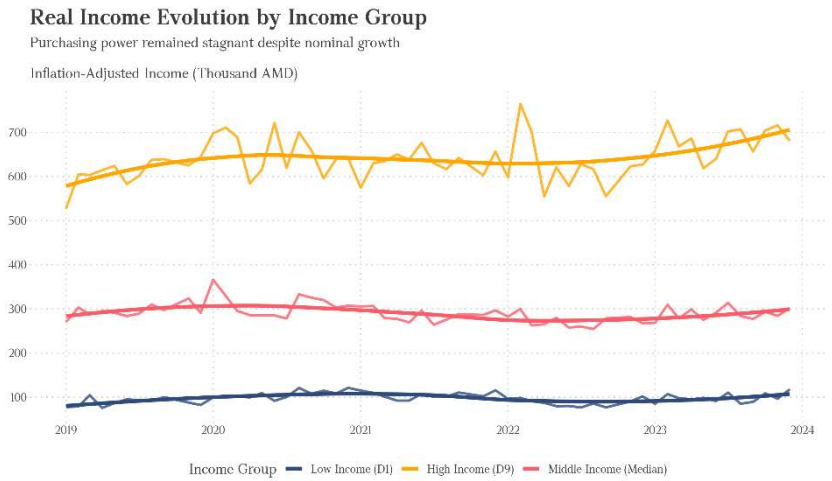

Figure 3. Real Income Evolution by Income Group (2019-2023)

Annual analysis confirms the persistence of heterogeneous impacts across multiple years rather than single-year anomalies, with middle-income households facing higher annual inflation in four of the six years analyzed (2019, 2020, 2021, 2023). Statistical significance testing with pairwise t-tests shows that while the differences between groups are economically substantial, they do not reach conventional statistical significance levels ($p > 0.05$) when examining monthly inflation rates.

Table 3. Robustness Analysis: Cumulative Inflation Under Alternative Scenarios

Weight Scenario	Low Income Inflation (%)	Middle Income Inflation (%)	High Income Inflation (%)	Middle-Low Income Gap (pp)
Baseline Scenario	38.1	49.1	26.8	11.0
Conservative Weights	35.2	43.8	24.1	8.6
Extreme Differentiation	41.7	52.4	29.2	10.7

Table 4. Annual Inflation Rates by Income Group (2019-2024)

Year	Low Income Rate (%)	Middle Income Rate (%)	High Income Rate (%)	Official CPI Rate (%)
2019	1.71	3.25	1.08	0.73
2020	5.03	6.30	3.40	3.66
2021	11.10	11.40	7.69	7.68
2022	10.40	11.40	8.02	8.30
2023	-0.95	1.74	0.80	-0.62
2024	2.47	3.73	1.41	1.45

Discussion and Conclusion

Our analysis reveals a striking and counter-intuitive middle-class inflation penalty in Armenia, where middle-income households experienced the highest cumulative inflation burden (49.1%) compared to low-income (38.1%) and high-income (26.8%) households over 2019-2025. This result challenges the

conventional focus on low-income vulnerability found in advanced economy studies and highlights previously unrecognized structural vulnerabilities in Armenia's emerging middle class.

The middle-income inflation penalty emerges from structural factors unique to Armenia's economic position as a small open transition economy. Transport inflation (132.9% cumulatively) disproportionately affects middle-income households transitioning from public to private transportation, with transport expenditure weights of 11.4% versus 3.0% for low-income households. Unlike high-income households who can substitute toward stable luxury goods and services, or low-income households whose food-dominated consumption experienced moderate inflation (111.7%), middle-income households are caught in consumption patterns that maximize exposure to volatile internationally traded goods. Housing and utilities costs (119.9% cumulative inflation) create additional burden, as middle-income households face substantial exposure (14.3% of consumption) while lacking the income flexibility of wealthy households or subsidized housing access sometimes available to lower-income groups.

Our findings reveal patterns specific to transition economies that differ from advanced economy evidence. Argente and Lee (2021) demonstrate that crisis periods amplify inflation inequality in advanced economies, with low-income households bearing the greatest burden during the Great Recession. Our results suggest that transition economies exhibit fundamentally different distributional dynamics during global shocks, where middle-income households face maximum exposure to volatile internationally traded goods. Armenia's 11 percentage point gap between middle

and low-income inflation exceeds regional averages of 6-8 percentage points observed in Russia (2014-2015) and Poland (2011-2012), suggesting that small open economy characteristics combined with rapid middle-class formation amplify distributional inflation effects.

The systematic middle-income inflation disadvantage in Armenia requires fundamental reconsideration of macroeconomic policy frameworks. The Central Bank of Armenia should incorporate distributional considerations alongside aggregate price stability objectives, developing income-group specific inflation indices for policy monitoring. Given transport inflation's role as the primary driver of middle-income disadvantage, monetary policy should consider sector-specific price pressures rather than relying solely on broad interest rate adjustments.

Armenia's landlocked position with closed borders creates fundamental transport cost pressures disproportionately affecting middle-income households. Despite tariff-free trade with Russia through the Eurasian Economic Union, goods must transit through Georgia, creating vulnerability to border delays. Recent cases show cargo trucks experiencing extended delays with informal payments ranging from $1,200 to $1,500 per truck ("Are Sticky Fingers Responsible for Delays at Georgian Customs Checkpoints?" 2025; "Armenian LPG Lorries Claim Georgians Demanding $1,500 Bribe to Be Allowed Through Border" 2025). Policy responses should focus on improving border infrastructure efficiency, digitizing customs procedures, and developing alternative transit routes. Government spending should prioritize domestic production capacity in sectors affecting middle-income households, particularly

food processing and light manufacturing, while tax policy should adjust progressive brackets using group-specific inflation rates.

These findings carry significant implications for macroeconomic policy frameworks beyond Armenia. Traditional inflation targeting approaches focusing on aggregate price stability may inadvertently perpetuate distributional inequities, particularly harming the middle class crucial for democratic consolidation in transition economies. The systematic middle-income disadvantage suggests need for policy frameworks incorporating distributional considerations and sector-specific interventions addressing transport and housing inflation.

Our methodology provides a framework for analyzing distributional inflation effects in data-constrained transition economies. The approach of constructing income-group specific consumption weights based on economic theory and regional evidence offers a practical model for similar analyses in countries lacking detailed household expenditure surveys. If middle-class formation - traditionally viewed as stabilizing for democratic institutions - coincides with systematic economic disadvantage through inflation mechanisms, this may explain some of the political volatility observed in transition economies. Protecting middle-class purchasing power may thus be not only an economic imperative but a democratic one.

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ՊԱՐԶ ԳՆԱՃԻՑ ԱՅՆ ԿՈՂՄ. ԻՆՉՈՒ Է ՄԻՋԻՆ ՇԵՐՏԸ ԿՐՈՒՄ ԳՆԱՃԻ ԱՄԵՆԱՄԵԾ ԲԵՌԸ

Աղասի Թավադյան
Հայաստանի պետական տնտեսագիտական համալսարան
տ.գ.թ., դոցենտ

Բանալի բառեր – գնաճի անհավասարություն, միջին եկամուտներ, սոցիալական բաշխում, Հայաստան, անցումային տնտեսություն

Գնաճի բեռը ո՞ր շերտի վրա է ընկնում ամենաշատը: Կա կարծիք, որ առավելապես աղքատ ընտանիքներն են տուժում բարձրացող գներից, սակայն Հայաստանի փորձը ցույց է տալիս այլ իրականություն: Վերլուծելով 12 հիմնական ապրանքաշարի գնային փոփոխությունները՝ պարզվում է, որ 2019-2025 թվականներին միջին եկամուտ ունեցող ընտանիքները զգացել են ամենածանր գնաճի աճը՝ 49 տոկոս, մինչդեռ ցածր եկամուտ ունեցողներինը՝ 38, իսկ բարձր եկամուտ ունեցողներինը՝ 27 տոկոս: Միջին շերտի գնաճային տառապանքը սաստկացել է համաշխարհային ճգնաժամի տարիներին՝ տրանսպորտի գները բարձրացել են 133, իսկ բնակարանային ծառայությունները՝ 120 տոկոսով: Սա վտանգ է ստեղծում երկրի ժողովրդավարական ապագայի համար, քանի որ հենց միջին խավն է ապահովում հասարակական կայունությունը:

Հետազոտությունը հարցականի տակ է դնում ներկայիս տնտեսական քաղաքականությունը, որը հետևում է միայն ընդհանուր գնաճին՝ անտեսելով խմբային տարբերությունները: Պետությունը պետք է նոր մոտեցումներ ընտրի՝ միջին շերտի պաշտպանությանը տալով առաջնահերթություն և վերանայելով սոցիալական ծրագրերը:

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