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Social Spending and Household Welfare: Evidence from Azerbaijan

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We measure the response of household consumption of different income groups to social spending during the 2002-2012 period using the aggregated Household Budget Survey Data. We find that households respond more strongly to changes in pensions than to changes in allowances and in-kind transfers. The very weak response of households to changes in allowances and in-kind transfers, both of which are transitory income, is consistent with the permanent income hypothesis. The estimates of pension elasticities suggest that the response of the low income group to changes in pensions is the strongest, whereas the response of the middle income group is the weakest. We further find that, in aggregate, households of all income groups do not exhibit habit persistence.

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We measure the response of household consumption of different income groups to social spending during the 2002-2012 period using the aggregated Household Budget Survey Data. We find that households respond more strongly to changes in pensions than to changes in allowances and in-kind transfers. The very weak response of households to changes in allowances and in-kind transfers, both of which are transitory income, is consistent with the permanent income hypothesis. The estimates of pension elasticities suggest that the response of the low income group to changes in pensions is the strongest, whereas the response of the middle income group is the weakest. We further find that, in aggregate, households of all income groups do not exhibit habit persistence.

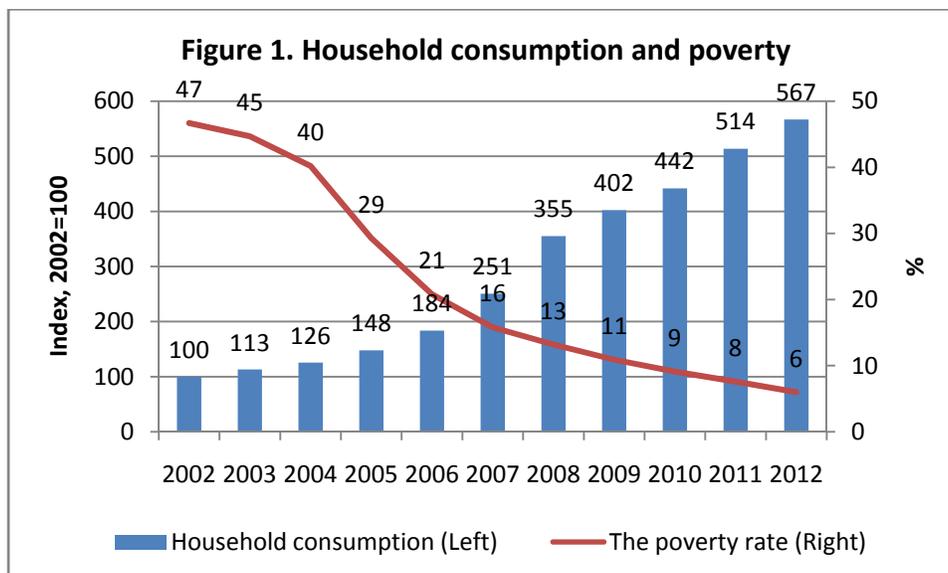
Key words: social spending, consumption, permanent income hypothesis, welfare, Azerbaijan

JEL classification: E21, E61, H24, H55, I31

Introduction

The dissolution of the Soviet Union presaged the beginning of the transformation of the Azerbaijani economy from centrally planned to market one. Similar to the experiences in the post-Soviet area, the transition process in Azerbaijan was accompanied by deterioration of household welfare because real income declined and household deposits depreciated. However, the situation changed dramatically over the last decade when Azerbaijan started receiving petrodollars. Empowered by large oil revenues, the government managed to improve the living standards of the households and as a result, the poverty level declined substantially. Within the decade, household consumption increased 5.6 times, while the poverty level decreased from 47% to 6% (Figure 1).

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A significant decline in poverty has encouraged economists to examine the impact of economic growth on poverty. A common conclusion of the studies is that economic growth through an increase in wages and social transfers led to the reduction of poverty and improvement of household welfare.² However, none of these studies has measured the response of household expenditures of different income groups to changes in social spending. In this paper, estimating the impact of various social transfers on consumption of different income strata, we fill this gap. Our findings can lay grounds for optimization of the current social welfare system in order to increase the benefits of the low income group.

Social transfers include pensions, allowances, and in-kind transfers³. Given the specific character of each transfer instrument, we can classify allowances and in-kind transfers as transitory income, and pensions as permanent income. Our empirical results support the permanent income hypothesis. In other words, we find that the responses of households to changes in allowances and in-kind transfers are very weak. According to the estimates of pension elasticities, the responses are the strongest for the low income group and the weakest for the middle income group. The small elasticities of non-transfer income and pensions of the middle income group indicate that households in this group have strong precautionary motives. Furthermore, we fail to find any evidence of habit persistence among households from all income groups.

The paper is organized as follows. The second section describes the social protection system of Azerbaijan. The third section provides an overview of the literature. The fourth and fifth sections present the theoretical foundations and empirical methodology of the paper. The

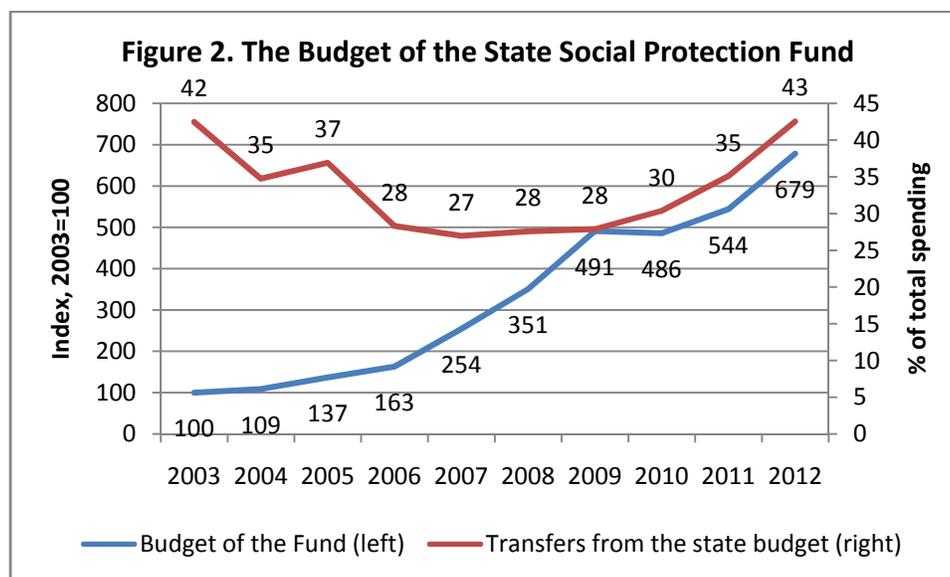
² Between 2002 and 2012, the average monthly wage increased by more than 6 times from 63 AZN to 381 AZN. Average monthly pension also grew significantly during the same period and reached 145 AZN level in 2012, which compared to the 2002 level is about ten times greater. 1 AZN = 1.25 USD.

³ In-kind transfers are a non-cash form of transfers.

sixth and seventh sections describe the data and analyze the empirical results. Finally, the last section concludes the paper with main conclusions and policy implications.

Social Protection System in Azerbaijan

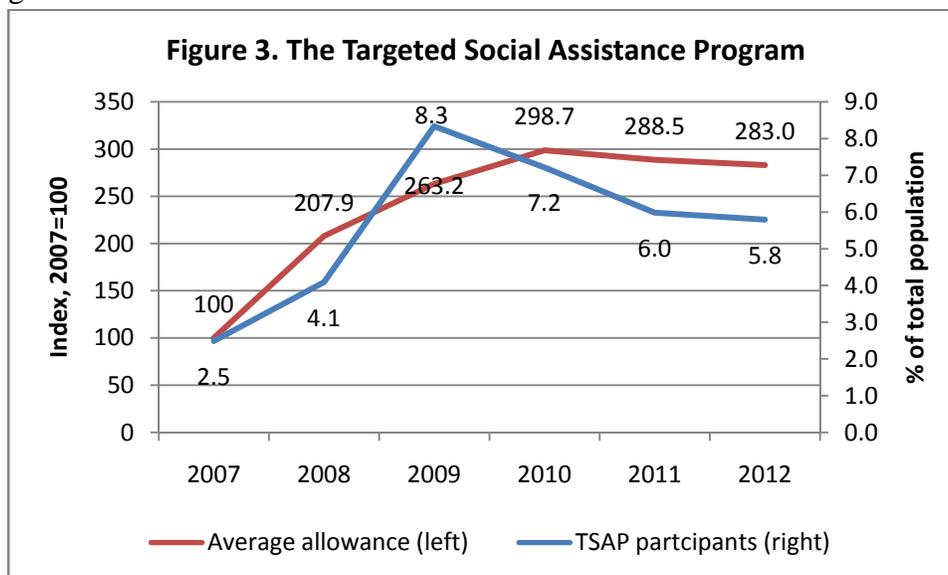
The social protection system in Azerbaijan aims to improve welfare of retirees, disabled people and poor people. There are two agencies responsible for the welfare distribution: The State Social Protection Fund (SSPF) and the Ministry of Labor and Social Protection (MLSP). The SFSP is responsible for the payment of pensions to retirees, disabled people, and families which lost their bread-winners. During the 2002-2012, the average number of pensioners was about 1.3 million which made approximately 14% of total population. The majority of pensioners, about 62%, are retirees. Furthermore, fund's duties include the payment of unemployment benefits and allowances for such occasions as sick leaves, pregnancy, child birth, maternity leaves, and funerals. The budget of the SSPF is formed from two sources: the collection of payroll taxes and the transfers from the state budget. In the course of the 2002-2012 period, the annual fund budget increased more than six times reaching about 2.5 billion AZN (Figure 2). The increase in the budget owes to significant growth in wages and transfers which was possible due to the oil boom.



During the period, approximately 1/3 of the fund's budget was formed from the state budget resources. In fact, the fund asks for the assistance from the government because despite an increase in wages, the collected amount of the payroll taxes does not allow the fund to cover its all spending. The inability of the fund to collect enough funds is tightly connected with the structure of the labor market where the share of employees is much lower than that of self-employed. For example, in 2012, 2/3 of employed people are self-employed.

If the SSPF is in charge of the payroll tax collection and distribution of pensions and allowances, the MLSP is engaged mostly in developing labor and social market policies and designing their implementation mechanism. Additionally, since 2006, the ministry has also been

implementing the Targeted Social Assistance Program (TSAP) whose objective is to assist low-income households to pass the poverty line. To be eligible to participate in the program, a household needs to prove that income per household member is below the subsistence level. During the 2002-2012 period, on average, the program covered 5.7% of population. Furthermore, we observe that starting from 2010, the number of TSAP participants is constantly declining (Figure 3). The drop out of households from the TSAP can be explained by the fact that households had an increase in income from other sources, e.g. a household member found a job or had a wage increase.



Literature review

Several papers and reports have analyzed the impact of economic growth on social welfare in Azerbaijan. Most of them (Ersado, 2006; Walewski and Chubrik, 2010; World Bank, 2010; Onder, 2013) use the consumption approach in their judgment, whereas the other authors (Afandi, 2006) use the income approach. Those who use the former approach agree that the growth was pro-poor⁴, while those who favor the latter approach conclude that the growth was pro-rich.

Analyzing the income-consumption dynamics during the 2002-2004 period, Afandi (2006) concludes that the economic growth was actually pro-rich rather than pro-poor since during this period the growth rate of average income prevailed the growth rate of income of the first decile. In his opinion, the main reasons behind the failure to follow pro-poor growth are social inequality and labor market challenges. Focusing on the latter reason, the author estimates the probit model and concludes that a person working in the agricultural sector has a higher chance to be poor than a person working in another sector. This fact is important from the policy maker's perspective because about 40% of the labor force works in the agricultural sector. Afandi (2006) proposes that the significant poverty reduction can be achieved through sustainable

⁴ Pro-poor growth" is economic growth that reduces poverty.

growth in employment. However, the author thinks that it will be a difficult task because the sectors with high employment experience low growth rates.

Ersado (2006) examines the Household Budget Survey data for the 2002-2004 period to find the reasons of low inequality in the Azerbaijani society. The author concludes that there are two main explanations of low inequality. First, the rich households refrain from participating in the surveys. Second, due to relatively well targeted social programs, low income groups receive the larger share of transfers than high income groups.

Employing the Household Budget Survey data for the 2004-2009 period, Walewski and Chubrik (2010) analyze factors behind the income growth and examine changes in consumption patterns of different strata of population. Drawing growth incidence curves, they conclude that the economic growth in Azerbaijan was mostly pro-poor. Furthermore, their analysis shows that the contribution of paid employment to overall income was larger among upper deciles, whereas the contribution of self-employment was larger among lower deciles. They also find that the share of pensions in income was larger among low income groups. Another interesting finding is that the share of social transfers in income of lower deciles was very moderate comparatively with middle deciles. The authors suggest that this finding may indicate the need for the improvement of the targeting of social transfers.

World Bank (2010) uses data from two Household Budget Surveys in 2001 and 2008 to examine the change in poverty in Azerbaijan. The authors of the report conclude that the economic growth was mostly pro-poor because they find that the consumption of the first quintile increased 2.4 times, whereas the consumption of the fifth quintile increased only by 80%. In their opinion, the significant decline in poverty from 49.6% in 2001 to 15.8% in 2008 is attributed to a considerable increase in public spending along with structural reforms and macroeconomic stability. The other important factor responsible for poverty alleviation is the improvement of the welfare distribution system which allowed low income groups to benefit more from substantial increases in social spending than high income groups did. The authors estimate that if the distribution system were not improved, the poverty rate would be 11% higher.

Onder (2013) analyzes the impact of economic growth on poverty in Azerbaijan during the 2000-2010 period. The author finds that the consumption growth in the rural areas was pro-poor, while in urban areas, the consumption growth was almost equal for all deciles. He suggests that the pro-poor growth owes to an increase in the amount of social transfers backed by growing oil revenues and raise in real wages. Furthermore, Onder (2013) highlights the importance of social transfers in combating poverty because according to his calculations, approximately two-thirds of population in Azerbaijan is members of households receiving at least one form of social transfers.

While a few studies have examined the impact of the economic growth and increase in social spending on household welfare in Azerbaijan, none of them has measured the elasticities of the social transfers. The ignorance of the elasticities of the social spending can be problematic for policy-makers because understanding the effectiveness of the social spending is important in designing social-economic policies. In this paper, we try to fill this gap in the literature by estimating the elasticities of different social transfers for different income groups.

Theoretical considerations

The permanent income hypothesis model postulates that rational households living in the economy with perfect capital markets respond to changes in permanent income by a large amount and to changes in transitory income by a small amount (Hall and Mishkin, 1982). Permanent income is generated from household's total lifetime wealth which consists of human and non-human assets and received for a long period, and transitory income is generated from sources unrelated to household's lifetime wealth and received for a short period. For example, households should perceive unemployment benefits as transitory income because social assistance programs are financed through the state budget not household wealth. However, a wage is permanent income because it reflects value of human capital.

The social transfer program of the Azerbaijani government includes three tools: pensions, allowances, and in-kind transfers. We consider pensions as permanent income because, for example, an age pension is a "wage" which a person receives regularly for the rest of his life when he or she retires and its amount depends on amount of a wage received before retirement. Allowances and in-kind transfers are transitory sources because they are paid to a person if a person experience temporary financial pressure (unemployed, a refugee, on parental leave, etc.) and their amount is predetermined and unrelated with person's lifetime wealth. Therefore, we expect that an increase in pensions leads to a larger increase in consumption than an increase in allowances and in-kind transfers.

The mechanism of the effect of in-kind transfers can be very interesting. In-kind transfers are food products and supposed to improve nutrition of certain groups of households. In such circumstances, households which are recipients of in-kind transfers can increase their expenditure on other items by spending less on food (Hymans and Shapiro, 1976).

The relationship that we will investigate has the following form:

$$c_{i,t} = \alpha_i + \beta_1 nontrans_{i,t} + \beta_2 pension_{i,t} + \beta_3 allow_{i,t} + \beta_4 inkind_{i,t} + \varepsilon_{i,t} \quad (1)$$

where $c_{i,t}$ is the log of consumption, $nontrans_{i,t}$ is the log of non-transfer income which includes wages, property income, etc., $pension_{i,t}$ is the log of pensions, $allow_{i,t}$ is the log of allowances, and $inkind_{i,t}$ is the log of in-kind transfers over time periods $t= 1, \dots, T$ and deciles $i= 1, \dots, 10$, α_i is the decile specific fixed effects, and $\varepsilon_{i,t}$ is the residuals.

However, the assumption of the model that all households respond to changes in permanent income in the same way is not necessarily satisfied in real life due to differences in household characteristics. Indeed, empirical evidence (Dynan et al, 2004) shows that the marginal propensity to consume of the rich households is lower than that of the poor households. It is assumed that the poor consume the larger fraction of their income than the rich do due to liquidity constraints. Banks refrain from giving credits to the poor households since the latter, as a rule, lacks assets to provide as collateral. Thus, liquidity constraints leave poor households with no

choice as to follow closely their income and therefore we observe high marginal propensities to consume among them.

Methodology

The econometric method which we use to estimate the relationship between consumption and different kinds of social transfers is the fixed effects estimator. The advantage of this estimator over the pooled estimator, is that it accounts for period and cross-section specific effects. However, the fixed effects estimator has some disadvantages: it does not control endogeneity and assumes homogenous dynamics among different cross-sections. In fact, there are estimators which control endogeneity (e.g. the dynamic panel estimator, panel FMOLS, panel DOLS) and allow heterogeneity in dynamics (e.g. the panel FMOLS and panel DOLS), but we limit ourselves to the use of the fixed effects estimator because of the small sample. The cross-section dimension is not large enough to use the dynamic panel estimator, and the time dimension is not long enough to use the FMOLS estimator.

It is problematic to settle the endogeneity issue within the framework of the fixed effects estimator, and this is the main shortcoming of this paper; however, it is possible to partially account for heterogeneity in dynamics among different cross-sections. We can assume that households from the close income groups demonstrate the similar behavior because of the similar financial opportunities. Therefore, we estimate the consumption-social transfers equations separately for the low, middle, and high income deciles.

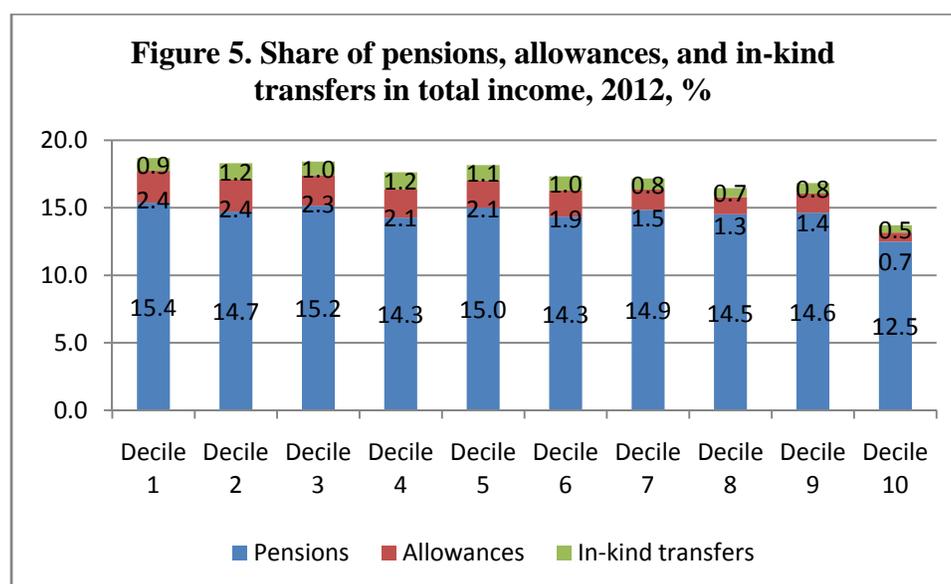
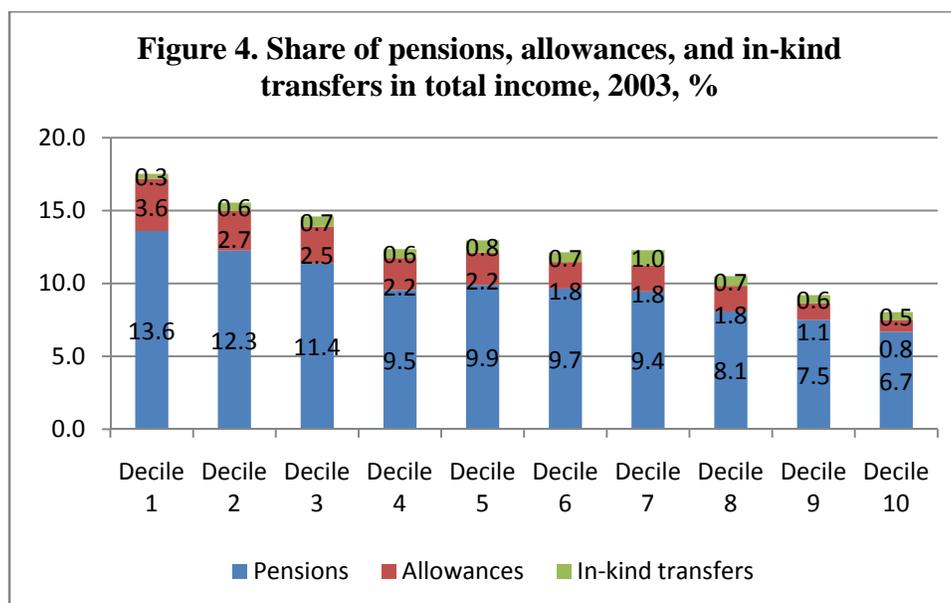
Data description

The paper uses a panel data set of household deciles (ten cross-section units) over the 2002-2012 period (ten years) to study how households respond to changes in social spending. The data come from the Household Budget Survey which measures the standard of living. The survey collects information on such topics as household consumption and income, consumption categories, income sources, food, non-food and water supply, and the use of the time fund. The survey is conducted by the State Statistical Committee on quarterly basis. The respondent households are randomly selected and represent all economic regions of the country. The sample includes 4250 households which approximately makes 17 000 people. The response rate is 100%.

For the purpose of the current study, we use data on total transfers, pensions, allowances, in-kind transfers, and total consumption. All variables are real and expressed in log forms. Total consumption, non-transfer, and transfer variables were converted into real terms using decile specific CPI indices, which were computed in accordance with the structure of consumption baskets of each decile.

The dynamics of the social transfers shows that during the 2003-2012 period, on average, the share of the social transfers in total income increases by 4.73% across deciles (Figure 4 and Figure 5). Although the share of social transfers in income of the poorer deciles remained higher than that in income of the richer deciles, the upper deciles had the largest rises in shares. The pattern pensions demonstrate is similar to that of the total transfers. Furthermore, we observe a

decline in shares of allowances in income across deciles. The case with in-kind transfers is somewhat different. Here we see an increase, especially, among the lower deciles.



Empirical results

The results of the fixed effects estimation, which are reported in Table 1, show that a 10% increase in non-transfer income in all deciles increases total consumption by 5.2%. When pensions increase by 10%, consumption increases by 0.9%, while when allowances increase by 10%, consumption increases only by 0.2%. Furthermore, the results indicate that the impact of in-kind transfers is statistically insignificant. When we estimate the consumption –income equation

for low, middle, and high income groups separately, we find that the elasticity of non-transfer income is larger in the high income group than in the low and middle income groups.

The elasticity of pensions is also the largest in the high income group and the smallest in the middle income group. A 10% increase in pensions raises consumption in the low income group by 1.1%, in the middle income group by 0.7%, and in the high income group by 1.3%. As for allowances, we find that its elasticity is significant only for the middle and high income groups. Thus, a 10% increase in allowances increases consumption in the middle income group by 0.1% and in the high income group by 0.3%. Finally, we find that a change in in-kind transfers affect consumption of the middle and high income groups. So, a 10% increase in in-kind transfers increases consumption of the middle and high income groups by 0.1%.

Table 1. Fixed effects estimates

	All deciles	Deciles 1-3	Deciles 4-7	Deciles 8-10
Non-transfer income	0.52* (41.30)	0.51* (32.35)	0.43* (16.83)	0.74* (3.65)
Pensions	0.09* (18.07)	0.11* (5.50)	0.07* (7.31)	0.13* (8.76)
Allowances	0.02* (4.28)	0.02 (0.93)	0.01** (2.41)	0.03* (4.11)
In-kind transfers	0.00 (0.72)	0.00 (0.02)	0.01* (3.87)	0.01** (2.43)
Constant	1.90* (33.86)	1.81* (20.14)	2.29* (19.94)	1.00 (1.12)
R ²	1.00	1.00	1.00	1.00
Number of observations	100	30	40	30

Notes: the dependent variable is consumption; t-statistics is in parentheses; *, **, and *** indicate 1%, 5%, and 10% levels of statistical significance

Consumption literature also suggests that household consumption depends not only on income but also on its own past level. The dependence of the current consumption on its past level is known as habit persistence. To account for such a possibility, we include the lag of consumption variable into the equation as an independent variable. The larger the coefficient of the lag of consumption is, the larger the habit persistence is. The results are reported in Table 2. The elasticities of the past consumption for the low and high income groups are statistically insignificant, while the elasticity for the middle income group is significant but negative. The insignificant or negative coefficient implies that at the aggregate level, households do not demonstrate habit persistence. Therefore, we can conclude that most households from all income groups do not consider past consumption much when they make a decision regarding current consumption.

Table 2. Fixed effects estimates with habit persistence

	All deciles	Deciles 1-3	Deciles 4-7	Deciles 8-10
Consumption(-1)	0.02 (1.55)	0.01 (0.22)	-0.22* (-5.28)	0.05 (0.56)
Non-transfer income	0.51* (16.30)	0.60* (16.41)	0.38* (14.94)	0.72** (2.85)
Pensions	0.09* (9.90)	0.19* (9.57)	0.05* (4.48)	0.13* (8.76)
Allowances	0.02* (4.00)	0.01 (0.55)	0.01** (2.05)	0.03* (4.92)
In-kind transfers	0.00 (-0.13)	0.03* (3.66)	0.01** (2.20)	0.01 (1.59)
Constant	1.87* (14.51)	1.35* (12.84)	3.39* (18.93)	0.90 (0.59)
R ²	1.00	1.00	1.00	1.00
Number of observations	90	27	36	27

Notes: the dependent variable is consumption; t-statistics is in parentheses; *, **, and *** indicate 1%, 5%, and 10% levels of statistical significance

After the introduction of the past consumption, the coefficients of some non-transfer and transfer variables also changed. For example, the elasticity of non-transfer income for the low income group rose to 0.6, whereas the elasticities of the middle, and high income groups fell to 0.38 and 0.72 respectively. The elasticity of pensions for the high income group did not change, but the elasticity of pensions for the low income group increased, and the elasticity for the middle income group declined. Now a 10% increase in pensions raises consumption in the low income group by 1.9% and in the middle income group by 0.7%. The elasticities of allowances remained the same for all income groups. Furthermore, if in the case of the fixed effects, the elasticity of in-kind transfers for the low income group was not statistically different from zero, now, the elasticity became significant. The elasticity of in-kind transfers for the high income group, on the contrary, became insignificant, and the elasticity for the middle income group remained significant. Thus, a 10% increase in in-kind transfers increases consumption of the low income group by 0.3% and consumption of middle income group by 0.1%.

Our results show that we fail to reject the permanent income hypothesis because the elasticities of allowances and in-kind transfers are significant but very small for all income groups at the aggregate level. Furthermore, the elasticities of non-transfer income show that the responses are the largest for the high income group and smallest for the middle income group. This result does not agree with our initial expectation that the rich save more than the poor. Instead, it suggests that precautionary motives dominate among households in the middle and low

income groups. As for the pensions, our estimates indicate that the responses are the largest for the low income group and smallest for the middle income group. However, the elasticities of pensions are much smaller than the elasticities of non-transfer income. This is a counterintuitive result because pensions are a permanent income, and therefore the magnitude of the responses to changes in pensions should be close to the magnitude of the responses to changes in non-transfer income. We can speculate that there is a large share of households in all income groups which perceives pensions as transitory income.

Conclusions and policy implications

We conclude that the permanent income hypothesis holds for the Azerbaijani households because the elasticities of transitory income variables, allowances and in-kind transfers, are very small for households from all income groups. Among the transfer variables, households demonstrate the largest response only to changes in pensions which, theoretically, they should perceive as changes in permanent income. Our estimates for the elasticities for non-transfer incomes and pensions imply that saving motives are the strongest for households from the middle income group. Finally, the point estimates of the lag of consumption show no evidence of habit persistence among households from all income groups.

Our findings suggest that within existing set of tools, to improve the welfare of households, especially from the low income group, in an effective way, the government can use the pension channel. The absence of habit persistence in aggregate consumption across all income groups implies that household consumption responds immediately to a policy shock but then quickly returns to its equilibrium level. Finally, strong saving motives among households of the middle income group imply that an increase in income of the middle class will boost domestic savings.

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