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Abstract

Cash transfer programs are often effective at increasing household consumption in their early years, but impacts become more nuanced over time as the use of transfers varies. This paper examines the medium-term effects of Egypt's flagship cash transfer program, *Takaful*, on several measures of household well-being using a regression discontinuity (RD) design. Findings reveal no significant impacts on household consumption (total, food or non-food), but notable decreases in monthly *wage* income that are comparable in magnitude to the average monthly transfer. Employment patterns are suggestive of a decrease in hours worked in formal labour among men. There are positive effects on asset ownership, particularly productive assets, indicating a shift toward longer-term investments. Reductions in informal debt suggest improved financial health among beneficiaries and increases in enrollment in primary and preparatory school suggest increased human capital investment as well. These results underscore the potential of cash transfer programs to foster economic stability and investments in the future, even in the absence of significant immediate consumption effects.

JEL codes: D12, O15, I32, I38 Key words: cash transfers, consumption, assets, productive investment, schooling, health, coping strategies, Egypt

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1 Introduction

Social protection strategies have emerged as key policy tools in addressing poverty and vulnerability in low- and middle-income countries. Cash transfer programs in particular have received widespread attention for their potential to directly alleviate poverty by augmenting household incomes (Banerjee et al., 2024). However, their impacts are often nuanced; average effects on consumption after several years of programming are often only a fraction of the transfer and may include more complex interactions with labor markets, investment behavior, and household decision-making (Leight et al., 2024; Crosta et al., 2024; Bastagli et al., 2016). There is growing evidence of long-run positive effects of cash transfer programs, but the particular program and the economic context matter (Grisolia, 2024).

This paper examines the medium-term effects of *Takaful*, Egypt's ongoing flagship cash transfer program, on household well-being. Launched in 2015, *Takaful* targets poor households across Egypt using a Proxy Means Test (PMT) to determine eligibility, offering monthly cash transfers that vary with household demographics and are *de jure* conditional on children's educational participation and health checks.

We employ a regression discontinuity design leveraging the program's eligibility threshold to estimate causal impacts on household well-being. Using a rich dataset collected in 2022 that includes administrative records and survey data from all regions in Egypt, we assess impacts five years after the program's inception, focusing on a range of outcomes including consumption, income, employment, debt, asset accumulation, schooling, health, and coping strategies in response to shocks.

We find no statistically significant effects of the program on total, food, or non-food consumption, suggesting limited changes in immediate spending patterns. Notably, the program has a negative and statistically significant impact on monthly household *wage* income that is almost as large as the average monthly transfer, indicating a potential displacement of such income. Households may have experienced this change due to changes in other income sources such as non-wage or small enterprise income.[1]

On employment, the results show little evidence of changes in overall labor participation or work hours, though there are weak indications of reduced formal employment and reduced hours among men, suggesting a potential, though small, income substitution effect. We find large, positive, and statistically significant impacts on asset accumulation, particularly productive assets, indicating a shift toward longer-term

[1]It is also possible that, as found in De Brauw et al. (2015*a*), beneficiaries under-reported wage income for fear of losing access to the program.

investments that may enhance future income. Households may thus have reduced their participation in wage income due to potential increases in profits from small enterprises or farming. The program also reduced informal debt, indicating an improvement in financial health among beneficiary households. These results collectively demonstrate that while *Takaful's* medium-term direct impacts on consumption and employment are limited, its role in fostering asset accumulation and debt reduction holds promise for improving household financial well-being over time.

While we do not find evidence of investments in health or resorting to negative coping strategies to cope with shocks, we do find increases in enrollment in primary and secondary school among children in beneficiary households, indicating investments in human capital as well. More years of schooling tend to increase wages for individuals later in life (Glewwe, 2002), contributing to possible inter-generational wealth building for *Takaful* beneficiaries.

Our findings contribute to the literature on cash transfers by highlighting the trade-offs and complementarities between short-term consumption needs and longer-term economic empowerment. In particular, little is known about how such programs influence asset accumulation, labor supply, and financial health over time, especially in economies characterized by high informality and economic volatility such as Egypt. Moreover, we situate the discussion within the broader context of social protection, where targeted interventions often face challenges in balancing immediate needs with sustainable impacts.

Research shows cash transfers boost short-term consumption and reduce poverty (Banerjee et al., 2017; Fiszbein and Schady, 2009), but evidence is mixed and can be context-specific Grisolia (2024). Overall, consumption impacts are modest: Leight et al. (2024) find $1–$2 monthly increases per $100 transferred in ongoing or recently concluded programs, likely driven by lower marginal propensity to consume from lump-sum or completed transfers. A study measuring the short-term impacts of the *Takaful* program showed that, for households receiving transfers for less than one year, consumption was 8.4% higher among beneficiaries (Breisinger et al., 2018). Crosta et al. (2024) find that consumption impacts from cash transfers are concentrated in ongoing programs and that as transfer programs conclude, households prefer instead to invest in assets as they tend to do with lump sum transfers. Additionally, consumption impacts tend to be similar or higher after 2–4 years of program exposure compared to one year or less (Bastagli et al., 2016). A study of the Oportunidades (later, Progressa) program found significantly higher consumption impacts after four years

viz-a-viz after one year, linked to greater productive asset ownership (Gertler et al. (2012)). We contribute to the evidence base on the effects of transfer programs in the medium-run (5 years on).

Beyond immediate consumption and wage income, households must look to the future and build resilience via productive investments that increase future income. The literature has shown strong precedent for cash transfer programs increasing investments in assets, and productive assets in particular. Bastagli et al. (2016) find that out of 8 impact evaluations of cash transfer programs, 3 had positive and statistically significant effects on agricultural productive asset accumulation and 12 out of 17 studies showed that cash transfers increased livestock holdings. More recently, Hidrobo et al. (2023) find very large investments in productive assets from Mali's national cash transfer program and Haushofer and Shapiro (2018) show that while a cash transfer program in Kenya had positive short-term effects on consumption, the effects did not persist in the longer term. Instead, households invested in assets. The extremely high levels of inflation in Egypt meant that assets, particularly productive assets and livestock, were likely of higher value than wage income or cash, which may partially explain our findings.

Several reviews find no systematic evidence of cash transfers changing labour supply on the intensive or extensive margins in developing country contexts (Leight et al., 2024; Bastagli et al., 2016; Banerjee et al., 2017; Handa et al., 2018). In contrast, Crosta et al. (2024) find overall increases in labour supply in among 26 low- and middle-income countries. More consistent with our findings, Aggarwal et al. (2024) find that households in both countries in their sample (Liberia and Malawi) reduce their supply of casual labor. The reduction in hours is large and significant in Liberia (about 7.6 fewer hours over the month prior to the survey, a reduction of about 45%) but smaller and insignificant in Malawi. Also consistent with our results, an evaluation of Indonesia's large cash transfer program that also uses precise proxy-means testing including dynamic information about formal employment found small but significant disincentives to work in the formal sector (Pritadrajati, 2023). De Brauw et al. (2015*a*) also suggests a similar mechanism.

Cash transfer programs have shown significant impacts on education and health, in part due to conditionalities pertaining to them, though results vary by context. In Latin America, CCTs have consistently improved school attendance and attainment, particularly for children at high risk of dropping out (Millán et al. (2019)). Brazil's *Bolsa Familia* program increased schooling participation, especially among

girls (De Brauw et al. (2015*b*)), while Honduras' PRAF-II (*Programa de Asignación Familiar*) program boosted secondary school completion, university attendance, grade attainment, and enrollment with earlier exposure ((2020)). Similarly, long-term evaluations of Mexico's *Progresa* program show that early childhood exposure (in-utero or early years) led to higher educational attainment and improved adult outcomes, including employment and income (Araujo and Macours (2021)). On health, CCTs in Latin America have increased the use of health services, improved nutritional status, and reduced illness episodes, with notable gains in prenatal care and birth outcomes (Lagarde et al. (1996), Glassman et al. (2013)). However, evidence from Sub-Saharan Africa is more mixed, with health impacts varying based on the adequacy of healthcare infrastructure and enforcement of conditions (Onwuchekwa et al. (2021)). These findings highlight the importance of program design and local context in determining the effectiveness of cash transfer programs.

The remainder of this paper proceeds as follows. Section 2 provides an overview of the *Takaful* program and its operational framework. Section 3 describes the data and empirical strategy, including the construction of key measures and identification assumptions. Section 4 presents the results, while Section 5 discusses their implications.

2 The *Takaful* Program

Takaful is Egypt's flagship cash transfer program and a central component of its national social protection strategy. Launched in 2015 and administered by the Ministry of Social Solidarity (MoSS), it supported 4.7 million people as of December 2023, representing 13.5% of the country's households. The monthly transfer amount is based on household demographics, starting at EGP 325 per month and increasing with the number of children and their education level, up to a maximum of EGP 625. While the program is *de jure* conditioned on school attendance and health care utilization, these conditions are not strictly enforced in practice. Children in beneficiary households are required to attend school 85% or more school days, and mothers and children in beneficiary households are required to receive two health monitoring visits per year in addition to maintaining child growth monitoring records and attending nutrition awareness sessions.

The program began in Egypt's poorest districts and has since expanded nationwide. Eligibility is determined by a Proxy Means Test (PMT), which uses over 80

indicators such as housing characteristics, the number of elderly or disabled members, and household assets—based on Egypt's Household Income, Expenditure, and Consumption Survey (HIECS). The PMT score is used to identify households below the poverty line, with each governorate adjusting the formula to its local context. The cutoff score of 4500 points aligns with the poverty threshold defined in the HIECS survey, ensuring that households with a PMT score below 4500 points are those identified as living below the poverty line in the survey.

To qualify for *Takaful*, households must meet the following criteria: 1) the household head must be at least 35 years old; 2) the household's monthly income must be below EGP 400; 3) the household must not benefit from social insurance; 4) the household must have children; 5) the household must be based in Egypt (Al-Masry Al-Yom, 2022). Applicants visit their local MoSS office to register, and if they meet the basic requirements, MoSS officials visit the household to assess their PMT score. The transfers are targeted at women, who are given a card to collect transfers in person each month.

3 Data and Empirical Strategy

3.1 Sample

The data come from a household survey conducted in January and February 2022 in the regions of Upper Egypt (rural areas), Upper Egypt (urban areas), Lower Egypt (rural areas), Lower Egypt (urban areas)/Frontier Region, and Metropolitan (which constitute our strata). We used the administrative database obtained from the MoSS that included over 1.6 million observations to select households that had registered for the program between May and December 2016, among the earliest households to apply for the program. This sample allows us to estimate medium-term impacts for the sample that had been receiving the transfers for about five years.[2]

Our sampling strategy minimized bandwidth within certain parameters. Sample size calculations indicated that we needed a sample of at least 540 villages with 12 households each. We first excluded households who belonged to the ongoing MoSS *Forsa* or *Haya Karima* interventions that also provide social protection services. We calculated the bandwidth for each village for the 16 households closest to either side of the cutoff (8 on each side) to account for non-response. In each stratum, we ordered

[2]While the eligibility threshold changed three times and households often joined or left the program, these particular households all faced the same threshold of 4500 points.

the villages from smallest to largest bandwidth and selected the 540 villages with the smallest bandwidths. This procedure yielded a bandwidth of 63 points on either side of the cutoff and an ultimate sample of 6,475 households with 2,539 households who reported receiving a cash transfer in the two months prior to being interviewed, and 3,936 households who did not.

3.2 Measures

Per the pre-analysis plan, our pre-specified outcomes of interest pertain to several measures of household well-being including consumption, income, employment, investments, debt, schooling and health, and negative coping strategies. We generate measures of expenditures on total consumption, food consumption, and non-food consumption per adult equivalent unit (AEU) whereby weights are assigned to different members of the household to adjust for the amount of consumption needed by adult and child household members (children are given less weight) (Hagenaars et al., 1994).[3]

The survey included a detailed employment module including employment status, sector (formal and informal) and industry of work, farm labour, wage income, and the number of hours and days worked. Wage income is self-reported total monthly income from paid employment (formal or informal).

To measure investments, we construct four asset indices: 1) total household assets including durable assets (such as furniture, television), productive assets (those that can enable increased income generation like irrigation and improved maize seeds), and livestock assets (such as cows, chickens) comprising 37 items; 2) household durable assets comprising 20 items, 3) productive assets comprising 8 items, and 4) livestock assets comprising 9 types of livestock. The indices are the first component of a principal components analysis.

We do not consider the impacts of savings savings because less than 2% of this sample has any savings. Debt is calculated as an indicator variable equal to one if the household reports having any debt, and the amount of debt from all sources is also reported. Informal debt, particularly money owed to vendors via installment payments is common in Egypt and the largest source of informal debt in our sample, and thus we separately report informal debt. We winzorize all measures at the first and 99th percentiles, and in some cases also use the inverse hyperbolic sine (IHS) to

[3] Adult equivalent units are calculated by assigning a weight of 1 to the first adult in a household, 0.7 to each additional adult, and 0.3 to each child under the age of 18.

account for outliers and those who report zero debt.

Two measures of schooling are constructed, at the child level: enrollment is measured using an indicator variable of whether the household reports that the child is enrolled in school (nursery, primary, preparatory, secondary, and tertiary). Attendance is constructed as an indicator variable equal to one if the student has attended school "regularly" in the past year (self-reported by the survey respondent). The education conditionality is attending 85% or more of school days.

We also report the number of child monitoring visits the child received in the past year, an indicator variable equal to one if the child received two or more monitoring visits (a conditionality), an indicator equal to one if the child was ill (diarrhea, vomiting, etc.) in the past month, and whether the mother received any antenatal care during her last pregnancy.[4]

We also report on the dietary diversity of the household, of mothers in the household, as well as a randomly selected child aged 6-23 (up to 2 years old) months and one aged 24-59 months (between 2 and 5 years old). The outcome variables are sums of the number of different food groups consumed in the past 7 days. For households there are 12 groups,[5], for mothers, there are 9 groups,[6] for children aged 6-23 months there are 7 food groups,[7], and for children aged 24-59 months there are 8 food groups.[8]

Negative coping strategies are measured for the sample of households who reported experiencing a shock in the five years prior to the survey. We collect 17 possible responses and create indicator variables equal to one if the household reported using that strategy to cope with the shock.

3.3 Estimation Strategy

We estimate the causal impacts of the *Takaful* program using a regression discontinuity (RD) design given the nature of eligibility for the program. Our endogenous

[4]Receiving two or more visits and attending nutrition information sessions are conditionalities of *Takaful*, but we do not have a variable for attendance at nutrition sessions, so we use antenatal care as a proxy.

[5]Cereals, potatoes and tubers, vegetables, fruits, meat, eggs, fish, legumes nuts and seeds, dairy, oils and fats, sweets, and spices condiments and beverages.

[6]Starchy foods, dark green leafy vegetables, vitamin A rich fruits, other fruits and vegetables, organ meat, meat and fish, eggs, legumes nuts and seeds, and milk and milk products.

[7]Grains, roots, and/or tubers, legumes, nuts and/or seeds, milk and/or milk products, flesh foods, eggs, vitamin A rich fruits and/or vegetables, and other fruits and/or vegetables.

[8]Grains, roots, and/or tubers, legumes, nuts and/or seeds, milk and/or milk products, flesh foods, eggs, vitamin A rich fruits and/or vegetables, other fruits and/or vegetables, and foods cooked in oil/fat.

variable is whether the household received a *Takaful* transfer in the past two months, as reported by the household.[9] Note that, between 2016 and 2020, households in our sample may have been eligible and subsequently graduated from the program, or have been ineligible initially and subsequently become eligible. Other variables used as robustness checks include whether the household ever received a transfer and whether the household received a transfer in the past two months *and* received at least 45 transfers since the program began (to additionally capture program intensity).[10] We prefer using whether the household received a transfer in the past two months because $\sim 58\%$ of households who reported so received 45 transfers.

Our main specification is linear with a bandwidth of 63 points, and a uniform kernel. The running variable is the PMT score. Region fixed effects are included in all specifications and standard errors are clustered at the village level.

3.4 Validity

For the RD strategy to be valid, several assumptions must hold; the cutoff must be a significant predictor of receipt of the program, the running variable must be smooth, and the distribution of applicants along the running variable must also be smooth. Finally, households just above and below the threshold should appear similar in terms of demographic characteristics, with no discontinuity at the threshold. We check each assumption below.

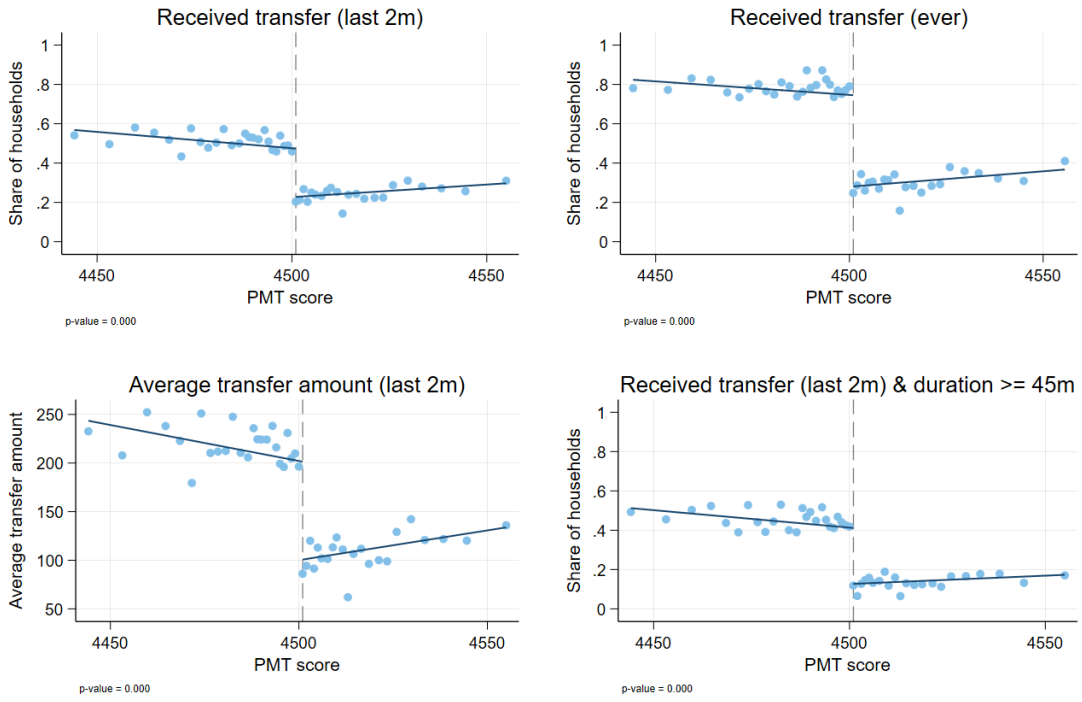
We first note that *Takaful* recipient households reported receiving an average of 432 EGP per month in the past two months and received an average of 42 months of transfers.

Figure 1 shows that there is a significant discontinuity at the threshold value of 4500 points. Households just below the threshold are approximately 65% more likely to receive the program than those just above it, indicating a strong instrument. Ever having received a transfer, the average transfer amount over the past two months, and receiving a transfer in the past two months and having received 45 or more transfers also show large and statistically significant discontinuities.

[9] Administrative data was not used because households may originally have applied but not qualified and then re-applied under a different ID number and we cannot link households across data sets.

[10] Since transfers are distributed once a month, we approximate the number of transfers using household reports of when they began and, as appropriate, when they stopped receiving transfers.

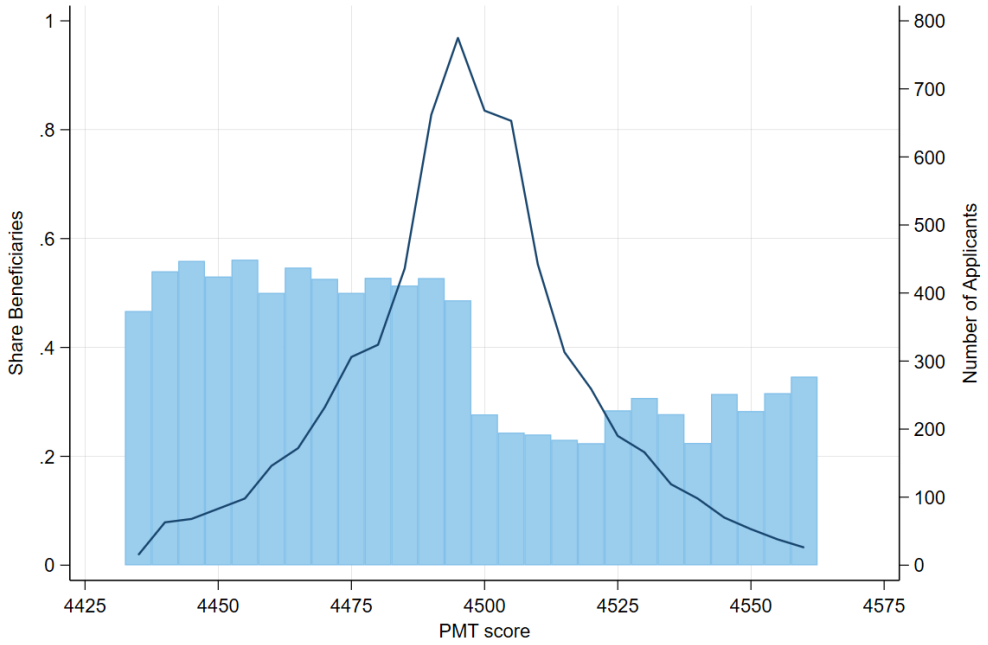
Figure 1. *Takaful* Take-up



Notes: This figure shows that there are strong discontinuities in each potential variable that could represent receipt of the *Takaful* program. Each point represents the average for one of 50 bins. Reported p-values are from a regression of the outcome variable on an indicator for the PMT score being below the threshold of 4500 points, with strata fixed effects and standard errors clustered at the village level.

Next, Figure 2 shows that the running variable, the PMT score, is smooth. There are no discontinuities at the threshold and the shape is as expected. Figure 2 also shows that there is no bunching in the number of applicants with PMT scores just under the threshold, which would indicate the possibility of manipulation of scores.

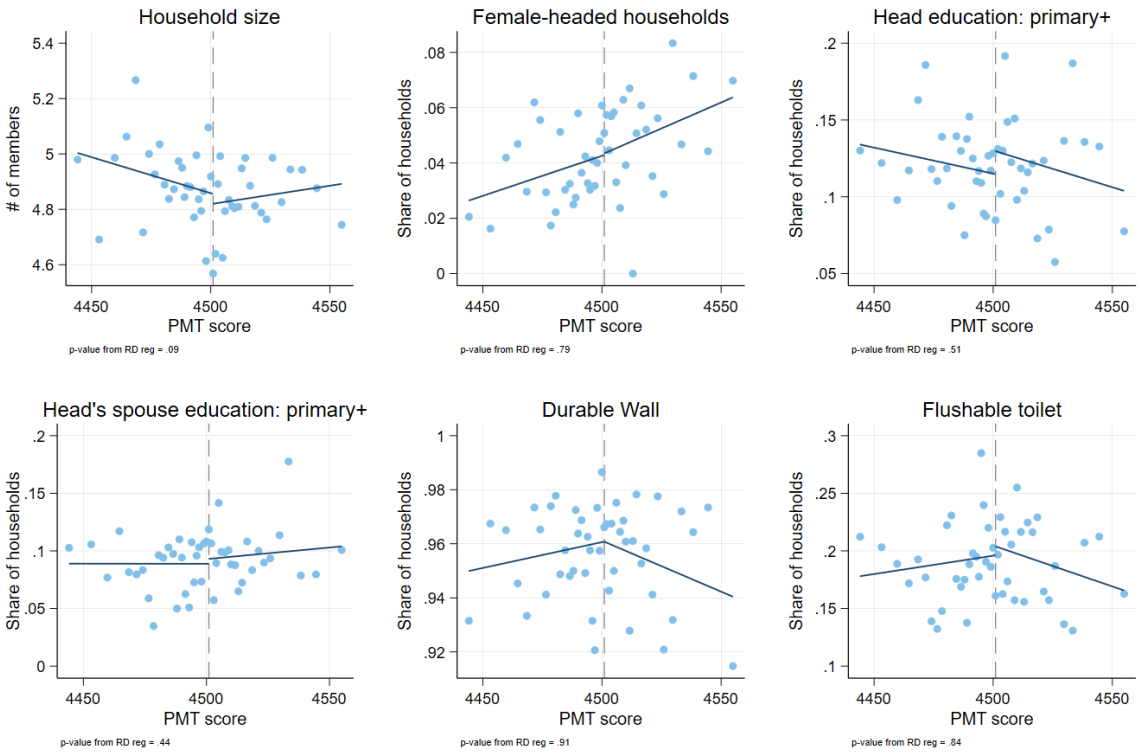
Figure 2. Beneficiary Status and PMT Score



Notes: This figure shows both that the running variable is smooth across the PMT score, indicating no manipulation, and that the share of applicants in each bin does not exhibit bunching just below the threshold. The average share of beneficiaries in each bin is depicted by bars and average number of registrants by lines. The bandwidth in the sample is 63 points on either side of the threshold of 4500, corresponding to PMT scores ranging from 4438 to 4563. The bin width is set at 5.

Finally, in Figure 3 we plot discontinuities in household demographic characteristics: household size, female headed household, household head and the spouse of the household head have a primary level education or above, primary material of the household's roof durable, and the household has a flushable toilet. There is generally good balance in these observable household characteristics (household size is significant at the 10% level). These checks confirm that our estimation strategy is valid.

Figure 3. Demographics



Notes: This figure displays the effects of the program on demographic variables of households in the sample. The lack of significant effects indicates that the households just below and above the threshold are valid comparison groups. p-values of the coefficient estimates from a regression discontinuity specification are displayed underneath each graph. Regressions include strata (governorate) fixed effects and standard errors are clustered at the village level. Each point represents the average for for one of 50 bins.

4 Results

This section reports our findings. Table 1 reports on the effects of the program on food, non-food, and total consumption. Our pre-specified outcome is wisorized consumption expenditure per Adult Economic Equivalent (AEU).[11] Per capita expenditures and raw expenditures (both winsorized) are reported as robustness checks. While the coefficients in each regression are negative, they are all imprecisely estimated with very large standard errors. Beneficiary households thus do not appear to have different total, food, or non-food consumption than non-beneficiaries.

[11] Adult equivalent units are defined as a weight of 1 to the first adult, 0.7 to additional adults and, 0.3 to children under age 18 (Hagenaars et al., 1994).

Table 1. Impacts of *Takaful* program on household consumption expenditure aggregates

	Monthly Consumption Expenditure (EGP)					
	(1) Food	(2) Food (log)	(3) Non-food	(4) Non-food (log)	(5) Total	(6) Total (log)
Beneficiary	-20.654	-0.018	-21.881	-0.055	-42.535	-0.034
	(38.855)	(0.072)	(28.935)	(0.074)	(56.778)	(0.061)
p-value	0.595	0.806	0.450	0.456	0.454	0.579
Mean Dep. Var.	495.08	6.10	383.50	5.84	878.58	6.70
N	6,475	6,475	6,475	6,475	6,475	6,475

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. This table reports the impacts of the *Takaful* program on household consumption in EGP. Columns 1, 3, and 5 report levels and columns 2, 4, and 6 report logs. All consumption variables are winsorized at the 1st and 99th percentiles and reported per Adult Equivalent Units (Hagenaars et al., 1994). The full sample (N=6,475) consists of 2,539 households who reported receiving a cash transfer in the two months prior to being interviewed, and 3,936 households who did not. Model details: linear trend on PMT Score; uniform kernel; bandwidth of 63. Governorate (strata) fixed effects are included and standard errors are clustered at the village level.

Next, we examine household income, including the total and per capita monthly wage income of the household head, the total and per capita monthly wage income of all household members, and the log of monthly wage income for all household members per capita. Table 2 shows consistently negative and statistically significant impacts on income. The reduction in total monthly wage income for all members (366 EGP) is almost as large as the average transfer received by beneficiary households (432 EGP), indicating that the transfers may be partly displacing wage income. However, consistent with De Brauw et al. (2015*a*) and Pritadrajati (2023), it is possible that beneficiaries under-reported their wage income for fear of being removed from the program.

Table 2. Impacts of the *Takaful* program on household wage income

	(1) Total monthly wage income (HH head)	(2) Total monthly wage income of HH head per capita	(3) Total monthly wage income (all members)	(4) Total monthly household wage income per capita	(5) Total monthly household wage income (log) per capita
Beneficiary	-276.499**	-78.132**	-366.518*	-102.172**	-0.153**
	(141.019)	(33.902)	(191.154)	(43.919)	(0.069)
Mean Dep. Var.	1,731.36	366.76	1,848.14	393.30	1.60
N	5,741	5,741	6,475	6,475	6,129

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. This table reports the impacts of the *Takaful* program on wage income. Wage income is defined as total wage income from all paid employment last month and is in EGP. The full sample (N=6,475) consists of 2,539 households who reported receiving a cash transfer in the two months prior to being interviewed, and 3,936 households who did not. Model details: linear trend on PMT Score; uniform kernel; bandwidth of 63. Governorate (strata) fixed effects are included and standard errors are clustered at the village level. All outcomes are at the household level – some households do not report any wage income.

We examine several outcomes related to the extensive margin of employment including participation in: unpaid work, agricultural activities for own consumption, formal work, and informal work. We do so by gender as well as the full sample. Almost all households participate in informal work (97%), and some household members, particularly women, also participate in agricultural activities for own consumption (11%). Tables 3 and 4 show no strong evidence for any differences in employment due to the program. While the coefficient for participation in formal work is negative for men, and is of a large magnitude, we consider this only weak evidence of a potential reduction in formal work.

Table 3. Impacts of the *Takaful* program on employment status

	(1)	(2)	(3)	(4)	(5)	(6)
	HH member participates in:					
	Unpaid work	Unpaid work (Male)	Unpaid work (Female)	Agricultural activities for own consumption	Agricultural activities for own consumption (Male)	Agricultural activities for own consumption (Female)
Beneficiary	0.008	0.007	0.010	0.017	0.027	-0.001
	(0.009)	(0.012)	(0.011)	(0.025)	(0.019)	(0.047)
p-value	0.337	0.581	0.339	0.513	0.149	0.991
Mean Dep. Var.	0.01	0.01	0.01	0.06	0.02	0.11
N	16,189	8,302	7,887	16,189	8,302	7,887

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. This table reports the effects of the *Takaful* program on employment status. Regressions are at the individual level. Sample includes all household members above 5 years. The full sample (N=16,189) consists of 6,202 individuals in households who reported receiving a cash transfer in the two months prior to being interviewed, and 9,987 individuals who did not. Model details: linear trend on PMT Score; uniform kernel; bandwidth of 63. Governorate (strata) fixed effects are included and standard errors are clustered at the village level.

Table 4. Impacts of the *Takaful* program on formal and informal employment

	(1)	(2)	(3)	(4)	(5)	(6)
	HH member participates in:					
	Formal work	Formal work (Male)	Formal work (Female)	Informal work	Informal work (Male)	Informal work (Female)
Beneficiary	-0.039	-0.047*	0.106	0.025	0.033	-0.123
	(0.027)	(0.027)	(0.160)	(0.022)	(0.021)	(0.148)
p-value	0.146	0.078	0.508	0.254	0.122	0.408
Mean Dep. Var.	0.04	0.04	0.05	0.97	0.97	0.96
N	7,213	6,766	447	7,213	6,766	447

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. This table reports the effects of the *Takaful* program on employment in the formal and informal sectors by gender. Regressions are at the individual level and the sample is restricted to household members who report working. The full sample (N=7,213) consists of individuals who are of working age and employed. 2,752 individuals in households who reported receiving a cash transfer in the two months prior to being interviewed, and 4,461 individuals who did not. Model details: linear trend on PMT Score; uniform kernel; bandwidth of 63. Governorate (strata) fixed effects are included and standard errors are clustered at the village level.

We next explore the intensive margin of employment, examining impacts on total hours worked per month in the main economic activity for both the formal and informal sectors by all, male, and female household members. Tables 5 and 6 show negative coefficients for the number of hours worked in the main economic activity, particularly among men. Again, we do not take this as strong evidence of a shift in patterns of employment, but these results, coupled with the above, may show evidence

of a weak pattern of less intensive employment.

Table 5. Impacts of the *Takaful* program on monthly work hours

	(1) Total monthly hours worked in main economic activity	(2) Total monthly hours worked in main economic activity (Male)	(3) Total monthly hours worked in main economic activity (Female)
Beneficiary	-16.774	-13.871	-68.969
	(11.647)	(11.649)	(59.391)
Mean Dep. Var.	163.26	163.68	156.89
N	7,207	6,762	445

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. This table reports on the effects of the *Takaful* program on average monthly hours worked by individual household members in the past year. Regressions are at the individual level and the sample is restricted to household members over 5 who report working. Model details: linear trend on PMT Score; uniform kernel; bandwidth of 63. Governorate (strata) fixed effects are included and standard errors are clustered at the village level.

Table 6. Impacts of the *Takaful* program on monthly work hours by sector

	(1) Total monthly hours worked in main economic activity (Formal sector)	(2) Total monthly hours worked in main economic activity (Formal sector) (Male)	(3) Total monthly hours worked in main economic activity (Formal sector) (Female)	(4) Total monthly hours worked in main economic activity (Informal sector)	(5) Total monthly hours worked in main economic activity (Informal sector) (Male)	(6) Total monthly hours worked in main economic activity (Informal sector) (Female)
Beneficiary	-4.272	19.986	136.430	-14.803	-11.162	-83.666
	(102.848)	(133.254)	(203.310)	(11.613)	(11.505)	(65.344)
Mean Dep. Var.	234.19	239.50	180.53	160.89	161.22	155.72
N	233	212	21	6,974	6,550	424

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. This table reports the effects of the *Takaful* program on the average monthly hours worked by individual household members over 5 in the past year. Model details: linear trend on PMT Score; uniform kernel; bandwidth of 63. Governorate (strata) fixed effects are included and standard errors are clustered at the village level.

We now turn to investments. Investments and the accumulation of assets are good for the financial stability poor households – they can protect households from shocks and enable increases in future income. We examine the stock of a household's total assets, durables, livestock, and non-livestock productive assets as a proxy for cumulative investments. The coefficient on total assets is positive and statistically significant; beneficiary households own 50% more assets than non-beneficiaries, and the effect is concentrated in productive assets. Examining individual assets, most investments were in irrigation and ploughs, which greatly improve farm productivity (Turral et al., 2010). At the time of the survey, Egypt was experiencing high

levels of inflation and poorer households and those in rural areas were disproportionately affected (AlAzzawi and Hlásny, 2023). Consequently, holding assets may have been more valuable than cash, potentially explaining this result (Crosta et al., 2024). Households' marginal propensity to consume may have been low because the future income they may expect from cash transfers was falling due to high inflation.

Table 7. Impacts of the *Takaful* program on household assets

	Asset index for			
	(1) Durables, productive assets and livestock	(2) Durables	(3) Livestock	(4) Productive assets
Beneficiary	0.515**	-0.051	0.347	0.465**
	(0.217)	(0.225)	(0.229)	(0.188)
p-value	0.018	0.820	0.130	0.014
N	6,474	6,474	6,474	6,474

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. This table reports on the effects of the *Takaful* program on normalized asset indices. All indices are constructed as the first principal component from a principal components analysis (PCA). Durables include household good such as beds, chairs, refrigerators, etc. Livestock include goats, chickens, cows, etc. Productive assets include irrigation, ploughs, agricultural inputs, etc. The full sample (N=6,475) consists of 2,539 households who reported receiving a cash transfer in the two months prior to being interviewed, and 3,936 households who did not. Model details: linear trend on PMT Score; uniform kernel; bandwidth of 63. Governorate (strata) fixed effects are included and standard errors are clustered at the village level.

Next, we turn to debt; results are presented in Table 8. We show whether the household owes any debt, the total amount of both formal and informal debt (winsorized and winzorized and transformed using the inverse hyperbolic sine (IHS)) and total informal debt (winsorized and winzorized and transformed using the IHS). All coefficients are negative, indicating that beneficiary households had lower levels of debt. A common form of informal debt is installment payments at shops, which comprises the largest portion of informal debt among this sample (35%). This coefficient is statistically significant and of a very large magnitude; almost 100% less than the mean for the whole sample. Reductions in debt are promising as they indicate that the household may have more disposable income for other needs. In this case, perhaps for productive investments.

Table 8. Impacts of the *Takaful* program on household debt

	(1) Household owes debt	(2) Total debt amount (win)	(3) Total debt amount (win + IHS)	(4) Total informal debt (win)	(5) Total informal debt (win + IHS)
Beneficiary	-0.116	-1891.799	-1.147	-3128.488**	-1.116
	(0.073)	(1641.786)	(0.712)	(1560.162)	(0.715)
p-value	0.112	0.249	0.107	0.045	0.119
Mean Dep. Var.	0.34	4,293.33	3.21	3,970.17	3.71
N	6,475	6,475	6,475	6,475	6,475

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. This table shows the effects of the *Takaful* program on household debt. Total informal debt includes any debt owed to informal lenders or owed for purchases on credit. Amounts are in EGP unless stated otherwise. Win indicates that the debt amount is winsorized at the 1st and 99th percentiles and IHS indicates that it has also been transformed using the inverse hyperbolic sine (IHS) transformation. The full sample (N=6,475) consists of 2,539 households who reported receiving a cash transfer in the two months prior to being interviewed, and 3,936 households who did not. Model details: linear trend on PMT Score; uniform kernel; bandwidth of 63. Governorate (strata) fixed effects are included and standard errors are clustered at the village level.

We now turn to outcomes that pertain to the conditionalities on schooling and the health of young children. Recall that the conditionalities were not enforced, but we check if simply the presence of them affects these aspects of well-being. First, the *Takaful* program led to large positive effects on educational enrollment. Table 9 shows that children in beneficiary households were 8.6 percentage points more likely to be enrolled in primary school and 2.1 percentage points more likely to be enrolled in preparatory school (similar to middle school). The magnitudes are large given that the base values are 87% and 84% for primary and preparatory enrollment, respectively.[12] The conditionality, however, was about attendance; the program required students to be present in school at least 85% of the time. Table 10 shows that, of those enrolled in school, students in beneficiary households are not more likely to attend school regularly. These results suggest that households may have had financial constraints in sending children to school rather than struggling on the intensive margin. Education is also an investment in the future – a human capital investment. Accordingly, it is encouraging to see improved schooling participation.

[12]The sample sizes reflect the children in households who fall into the age categories designated for that level of education.

Table 9. Impacts of the *Takaful* program on school enrollment

	(1)	(2)	(3)	(4)	(5)
	Enrolled in:				
	Nursery	Primary	Preparatory	Secondary or institute	University or higher
Beneficiary	-0.019	0.086**	0.210***	-0.016	-0.065
	(0.030)	(0.044)	(0.080)	(0.136)	(0.070)
p-value	0.534	0.048	0.009	0.909	0.356
Mean Dep. Var.	0.03	0.87	0.84	0.65	0.04
N	4,700	8,354	2,699	1,936	818

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. This table reports on the impacts of the *Takaful* program on enrollment of children in school at various levels of education. Regressions are at the individual level and samples are designed to include only children who fall within the designated age range of that level of schooling. Model details: linear trend on PMT Score; uniform kernel; bandwidth of 63. Governorate (strata) fixed effects are included and standard errors are clustered at the village level.

Table 10. Impacts of the *Takaful* program on school attendance

	(1)	(2)	(3)	(4)	(5)	(6)
	Attending school regularly in the past year:					
	Nursery	Primary	Preparatory	Secondary	University	All
Beneficiary	-0.068	0.010	0.021	0.161	-1.256	0.034
	(0.231)	(0.081)	(0.057)	(0.127)	(2.392)	(0.050)
p-value	0.769	0.898	0.711	0.204	0.599	0.506
Mean Dep. Var.	0.86	0.89	0.89	0.84	0.73	0.88
N	121	2,266	7,294	1,253	33	10,967

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. This table reports on the impacts of the *Takaful* program on "regular" attendance of children in school at various levels of education (self-reported by the main respondent of the questionnaire). The regressions are at the individual level and samples are designed to include only children who fall within the designated age range of that level of schooling. Model details: linear trend on PMT Score; uniform kernel; bandwidth of 63. Governorate (strata) fixed effects are included and standard errors are clustered at the village level.

The other conditionality pertained to health. Beneficiary households had to ensure mothers and children received two health monitoring visits per year, kept child growth monitoring records, and attended nutrition sessions. Ultimately, we care about child health as a result of these conditionalities, so we additionally explore child illness in the past month. Table 11 shows that beneficiaries did not (or could not) adhere to the health conditionalities. While almost 70% of mothers had two or more health monitoring visits for their child in the past year, and the average number

of monitoring visits was almost 4, there was no difference between beneficiaries and non-beneficiaries. Finally, beneficiary children were also not less likely to have had an illness in the past month. Mothers were also not more likely to have received antenatal care during their last pregnancy.

Table 11. Impacts of the *Takaful* program on conditionalities and child health

	(1) Number of child monitoring visits	(2) 2+ health monitoring visits for child	(3) Child had any illness (last month)	(4) Received antenatal care during last pregnancy
Beneficiary	-0.198	-0.010	-0.064	0.180
	(1.246)	(0.139)	(0.109)	(0.147)
Mean Dep. Var.	3.83	0.69	0.25	0.90
N	5,252	5,252	5,254	4,757

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. This table shows the impacts of the *Takaful* program on healthcare usage and child health. Observations are weighted by the number of children under 6 in the household. The sample for columns (1)-(3) is restricted to children under 6 years old (N=5,254). It consists of 2,235 children from households who reported receiving a cash transfer in the two months prior to being interviewed, and 3,019 in households who did not. The sample in column (4) is restricted to households in which a female household member was pregnant in the past two years (N=4,757) with 1,899 from households who reported receiving a cash transfer in the two months prior to being interviewed, and 2,378 from households who did not. Model details: linear trend on PMT Score; uniform kernel; bandwidth of 63. Governorate (strata) fixed effects are included and standard errors are clustered at the village level.

Another important ultimate health outcome is dietary diversity. In Table 12, we see that there are no impacts of the program on mother's dietary diversity, children's dietary diversity (neither for young children 6-23 months nor older children 24-59 months), or household dietary diversity.

Table 12. Impacts of the *Takaful* program on dietary diversity

	Dietary diversity score:			
	(1)	(2)	(3)	(4)
	Mother (0-9)	Children 6-23 months (0-7)	Children 24-59 months (0-8)	Household (0-12)
Conventional	-0.267	0.684	-0.273	-0.287
	(0.293)	(1.039)	(0.370)	(0.226)
Mean Dep. Var.	3.842	3.344	4.909	9.772
N	3340	483	2468	6475

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. This table reports on the impacts of the *Takaful* program on the dietary diversity of households, mothers, and children. Numbers in parentheses in column titles indicate the range of the variable and represent the number of food groups asked about in the questionnaire. Samples in columns (1)-(3) are restricted to households with a mother who has a child under 5, to children aged 6-23 months, and children aged 24-59 months. Model details: linear trend on PMT Score; uniform kernel; bandwidth of 63. Governorate (strata) fixed effects are included and standard errors are clustered at the village level.

Finally, we examine household resilience to shocks. Resilience is one of the main goals or most social protection programs, and an aim is to reduce the use of negative coping strategies by households in distress, including practices such as pulling children out of school, selling assets, or going hungry, among others. In Table 13 we report on 21 negative coping strategies and find that there is no evidence that beneficiary households are differentially resorting to negative coping strategies. Households appear to rely less on selling jewelry, but overall, there is no evidence of an impact, suggesting that households were not investing in assets or paying down debt at the expense of other important aspects of well-being.

Table 13. Impacts of the *Takaful* program on negative coping strategies

	(1) Sold land	(2) Mortgaged/ leased land	(3) Sold productive asset	(4) Mortgaged productive asset	(5) Sold household good	(6) Sold gold/ jewelry	(7) Borrowed money relatives
Beneficiary	0.003	0.003	0.003	0.001	0.000	0.022*	-0.109
	(0.003)	(0.003)	(0.005)	(0.001)	(0.007)	(0.012)	(0.087)
Mean Dep. Var.	0.00	0.00	0.00	0.00	0.00	0.01	0.32
	Borrowed money trader/bank	Loan from NGO	Ate less food	Ate lower quality food	Reduced spending on education	Reduced spending on health	Adult member migrated for work
Beneficiary	-0.012	0.014	0.021	0.068	-0.040	0.001	-0.005
	(0.027)	(0.021)	(0.082)	(0.073)	(0.037)	(0.017)	(0.007)
Mean Dep. Var.	0.03	0.01	0.31	0.22	0.05	0.01	0.00
	Children started working	Children increased hours	Daughter married	Changed occupation	Moved to less expensive housing	HH member started working	Used savings
Beneficiary	-0.003	-0.004	0.001	0.003	-0.004	-0.007	0.011
	(0.008)	(0.004)	(0.001)	(0.008)	(0.003)	(0.008)	(0.021)
Mean Dep. Var.	0.00	0.00	0.00	0.00	0.00	0.00	0.01
N	3,914	3,914	3,914	3,914	3,914	3,915	3,919

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. This table reports on the effects of the *Takaful* program on negative coping strategies that households may use if faced with shocks. The sample is restricted to households that experienced a shock in the past 5 years. The full sample here (N=3,914-3,919) consists of 1,529-1,531 households who reported receiving a cash transfer in the two months prior to being interviewed, and 2,385-2,388 households who did not. Model details: linear trend on PMT Score; uniform kernel; bandwidth of 63. Governorate (strata) fixed effects are included and standard errors are clustered at the village level.

4.1 Robustness Checks

In this section we report on several robustness checks. First, we conduct falsification tests using other thresholds to examine whether the effects we estimate are truly due to the official cutoff, and thus the program itself. We use two cutoff points below the threshold and two above, equally split along the 63 points of bandwidth on each side (4459, 4480, 4522, and 4543). We test these cutoffs on 14 key outcomes: total consumption (winzorized, AEU), total monthly wage income, total assets, total informal debt, participation in formal and informal work, total hours worked in main economic activity, enrollment in primary and preparatory school, receipt of antenatal care, two or more health monitoring visits, any child illness, and the household dietary diversity score.

Appendix Table A1 shows that there are no statistically significant impacts, and there is no systematic pattern of effects, confirming that our threshold value is valid and the results are not statistically significant by chance. We also plot the results for the same 14 variables above varying bandwidth. We measure effects at intervals of ten

points for the same 14 outcomes. Naturally, confidence intervals are wide with small bandwidths, but the results are consistent with those reported in our main tables; further indication of robust results (see figures A2 and A3.)

The results in this paper point to the success of the *Takaful* cash transfer program in improving households' financial health and their prospects for the future. While a previous study on the same program found positive effects on consumption (8.4% increase) and reductions in poverty for those who had been in the program for about a year (Breisinger et al., 2018), here we find that investments seem to have been prioritized over immediate consumption needs. We note, however, that the macroeconomic conditions at that time were very also different from those at the time of this study, which was characterized by the pandemic and severe inflation. Consequently, we avoid making direct comparisons.

5 Conclusion

We evaluate the medium-term effects of Egypt's *Takaful* cash transfer program on measures of household well-being, focusing on consumption, income, employment, asset accumulation, debt, schooling, health, and coping strategies for shocks. While we do not find significant impacts on consumption, there are positive effects on asset ownership, particularly productive assets, suggesting a reallocation of resources toward longer-term investments. These findings align with previous literature indicating that cash transfer programs often facilitate asset accumulation rather than sustained increases in immediate consumption in the longer-term (e.g., Hidrobo et al. (2023); Bastagli et al. (2016); Haushofer and Shapiro (2018)). Additionally, reductions in informal debt among beneficiaries imply an improvement in financial health, further supporting the program's role in stabilizing household economic conditions. Additionally, human capital investments are also observed, with increases in enrollment of primary and preparatory aged children in school.

Observed reductions in household income may reflect a labor supply response to the transfers or external factors such as inflation and wage dynamics, highlighting the importance of complementary interventions such as labor market programs, to enhance the effectiveness of cash transfers in improving overall economic outcomes. Indeed, the Government of Egypt started the *Forsa* program, a graduation program

that provides skills training and/or assets to those who graduate from the *Takaful* program. The findings underscore that, while cash transfers serve as an essential safety net, they also have the potential to promote longer-term investments can contribute to sustained economic resilience.

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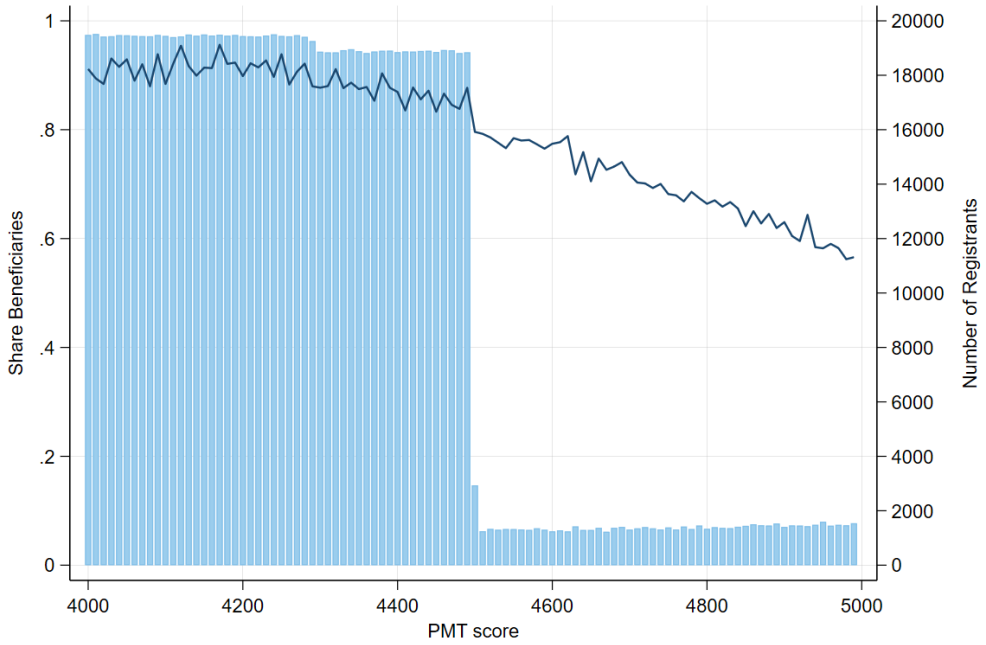
A Appendix: Additional Tables and Figures

Appendix Table A1. Falsification Tests

	Total consumption (Win + AEU)	Total monthly household wage income per capita	Index for Durables, productive assets and livestock	Total informal debt (win)	Participates in formal work	Participates in informal work	Total work hours in main activity
Panel A:							
Cutoff = 4459	296.94	-415.83	1.17	1664.91	-0.120	0.050	-31.933
	(324.63)	(303.76)	(0.99)	(7471.50)	(0.177)	(0.146)	(88.198)
Cutoff = 4480	124.86	950.57	-0.89	2124.03	-0.139	-0.033	-81.447
	(694.25)	(1103.69)	(3.03)	(17404.26)	(0.567)	(0.473)	(288.863)
Cutoff = 4522	-139.47	-237.13	-0.56	-15415.91	0.014	-0.002	-21.174
	(418.34)	(307.81)	(1.86)	(12475.93)	(0.324)	(0.250)	(132.734)
Cutoff = 4543	32.41	-146.13	3.31	3363.57	-0.072	0.049	33.044
	(240.13)	(164.25)	(2.24)	(6157.15)	(0.101)	(0.071)	(54.843)
Mean Dep. Var.	878.6	393.3	0.0	3970.2	0.04	0.97	163.26
N	6,475	6,475	6,474	6,475	7,213	7,213	7,207
	Enrolled in primary level	Enrolled in preparatory level	Received antenatal care during last pregnancy	2+ health monitoring visits for child	Child had any illness (last month)	Mother's dietary diversity score (0-12)	Household's dietary diversity score (0-9)
Panel B:							
Cutoff = 4459	0.161	0.020	0.097	-23.383	-15.945	0.35	-0.35
	(0.348)	(0.191)	(1.027)	(437.816)	(291.674)	(3.15)	(0.88)
Cutoff = 4480	0.137	-1.096	-1.026	4.146	11.288	-1.99	-1.58
	(0.857)	(2.546)	(11.251)	(63.530)	(178.266)	(2.22)	(1.46)
Cutoff = 4522	-0.058	0.438	0.798	1.157	-0.029	-2.43	-3.73
	(0.287)	(0.828)	(1.161)	(0.963)	(0.437)	(5.72)	(4.74)
Cutoff = 4543	0.020	0.518	0.910	0.598	0.549	-0.35	-1.29
	(0.191)	(1.139)	(1.265)	(0.573)	(0.590)	(0.88)	(1.83)
Mean Dep. Var.	0.87	0.84	0.90	0.69	0.25	3.8	9.8
N	8,354	2,699	4,757	5,374	5,376	3,340	6,475

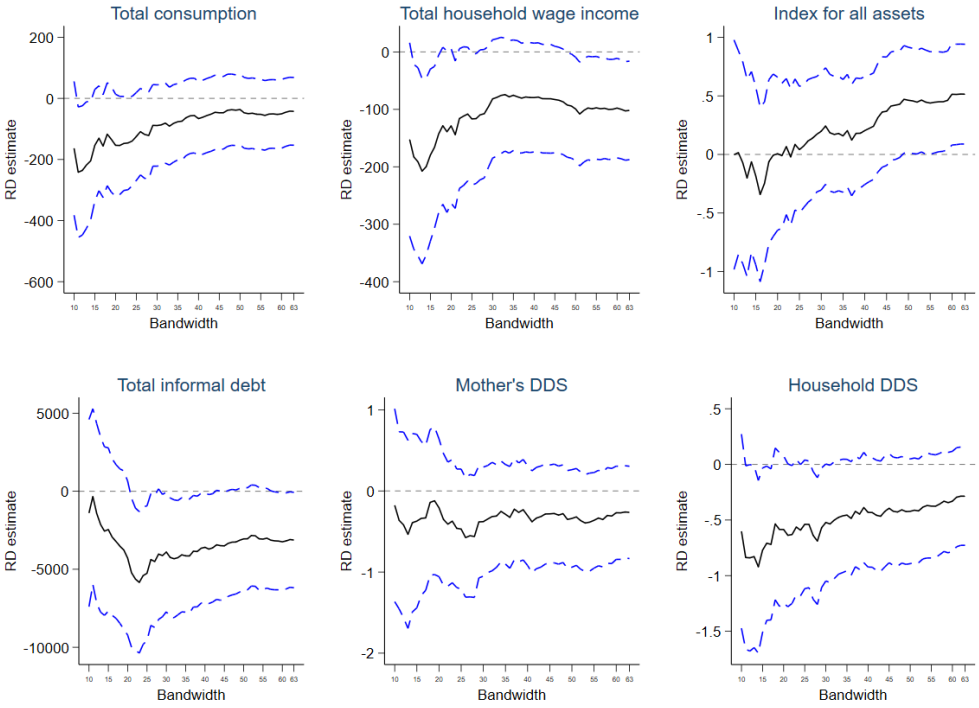
Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. This table reports falsification tests that estimate treatment effects at thresholds that are not the one specified as the cutoff for receipt of the *Takaful* program (4500 points). Cutoffs tested are 4,459, 4,480, 4,522, and 4,543. The full sample (N=6,475) consists of 2,539 households who reported receiving a cash transfer in the two months prior to being interviewed, and 3,936 households who did not. Model details: linear trend on PMT Score; uniform kernel; bandwidth of 63. Governorate (strata) fixed effects are included and standard errors are clustered at the village level.

Appendix Figure A1. Beneficiary Status and PMT Score



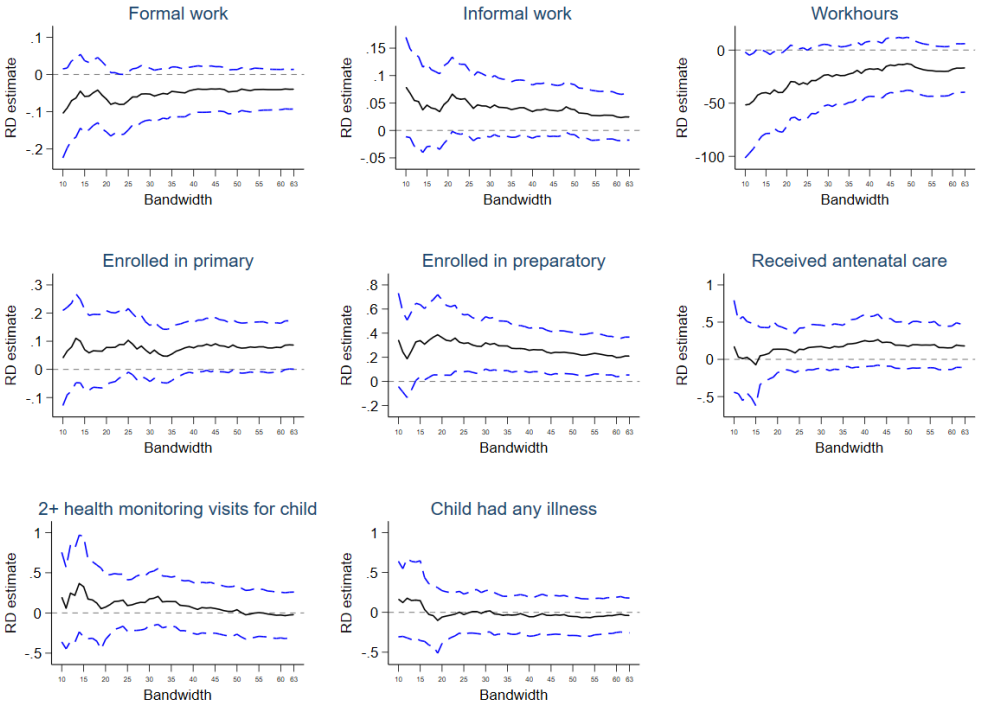
Notes: This figure uses administrative data provided by the Ministry of Social Solidarity (that runs the *Takaful* program) for all applicants to the program between May and December 2015. It shows the share of beneficiaries (bars) and number of registrants (line) by PMT scores. The bin width is set as 10.

Appendix Figure A2. Bandwidth Sensitivity – Household Outcomes



Notes: This Figure shows the coefficient estimates from a regression discontinuity design at different bandwidths for household-level outcomes. The full sample (N=6,475) consists of 2,539 households who reported receiving a cash transfer in the two months prior to being interviewed, and 3,936 households who did not. Model details: linear trend on PMT Score; uniform kernel; bandwidth of 63. Governorate (strata) fixed effects are included and standard errors are clustered at the village level.

Appendix Figure A3. Bandwidth Sensitivity – Individual Outcomes



Notes: This Figure shows the coefficient estimates from a regression discontinuity design at different bandwidths for individual-level outcomes. The full sample (N=6,475) consists of 2,539 households who reported receiving a cash transfer in the two months prior to being interviewed, and 3,936 households who did not. Model details: linear trend on PMT Score; uniform kernel; bandwidth of 63. Governorate (strata) fixed effects are included and standard errors are clustered at the village level.