

Conflicting Choices: Lump Sum Transfer or Periodic Cash Transfer. Evidence from Sindh, Pakistan

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Abstract

Evaluating the long-term impacts of social assistance programs is usually not possible as pure control groups dissolve into treated ones. This paper makes use of data where the treated and control groups remained mostly unmarred. We examine two types of Pakistani social assistance i.e., lump sum transfer (LST) versus unconditional cash transfer (UCT) and determine which is more effective in enhancing household income after a decade. The UCT has continued over time thus enabling us to see if there is any cumulative effect of this in comparison to the one-time LST received to the treatment group. The setup of initial randomization of beneficiaries to treatment and control status has not received any form of researcher intervention and thus continues to induce random variation. For evaluation, a cross-sectional survey is conducted in a district of the Sindh province of Pakistan. Propensity Score Matching is employed across recipient and control households to evaluate the treatment effects. The matching is done for households receiving LST and UCT and also between LST and non-recipients of any assistance. The empirical analysis suggests that the LST permanently increases the total household income. The difference in the household incomes of LST and UCT recipients, in the long run, is large and significant. The same is true for LST recipients and non-recipients of any form of assistance. Sensitivity analysis indicates no hidden bias. Considering limited fiscal space availability, understanding which type of social assistance can be more effective for social mobility, is an important public policy decision.

Keywords: Cash Transfer, Lump Sum Transfer, Social assistance, BISP, Welfare

JEL classification: J01, H53, H55

1. Introduction

When the government initiates various social assistance programs, its main objective is to decrease poverty and provide scaffolding to lower-income groups. Unconditional cash transfers (UCT) are popular tools as they are less distortionary and can increase the welfare of heterogeneous households. The UCT provide the

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needed periodic income support. The intention of the government when making Lump Sum Transfers (LST) is to help the beneficiaries break the poverty trap. This is based on the notion that when the government gives a nominal amount of periodic CT, they are mostly spent on consumption goods such as the purchase of food. However, it does not help in increasing the future stream of income. LST provides the needed initial stock of wealth which can help social mobility. This leads to the question of whether this ‘big push’ in the form of LST is more effective than the trivial amounts of periodic disbursements i.e., UCT in the context of the poorest of the poor households to give a boost to their monthly income.

For analysis of as to which strategy can help households with an increase in their monthly income, this study considers three groups: 1) recipients of UCT, 2) recipients of Waseela-e-Haq (WeH) who received an LST and 3) those who received neither of this assistance. The last group is considered a pure control group. Some recipients of UCT were randomly selected to additionally receive an LST. This initial randomization has continued even after ten years of the intervention. This provides a unique opportunity to see how the sustained recipients of UCT can fare in the long term in contrast to the treated group which had received a one-time boost. The treated group is also compared to the pure control group (non-recipients). The main objective of the paper is to use distinct data from this intact treatment group and compare it with the control group (only UCT beneficiary) and pure control group and thus examine the effects of treatment. Propensity score matching (PSM) is employed to estimate the average treatment effects (ATT). The evidence of a significant increase in household income of LST recipients has relevant policy implications regarding a better mode of helping the poor. It can help the government decide if transitory relief to many is better than permanent relief targeted for a few.

The underlying assumption of social assistance is that easing the financial constraints of the poor, helps them move out of poverty (Cho, and Honorati, 2014). Specifically, LST has been recently brought into the spotlight as an effective mode to raise long-term income (Banerjee, 2016). Understanding if social assistance in the form of continuous CT is more effective than LST to cause social mobility is an important public policy decision. There is a need to understand the dimensions on which the two can be compared to ascertain their effectiveness (Haushofer and Shapiro, 2016). Banerjee and Duflo, stress that to have social mobility people should have an initial stock of wealth. Without this minimum level of capital, there is little if any chance to increase the future stream of income. This “threshold level”

is elucidated by the S-curve, explained in detail in Parry et al., 2020).² This shows that only when the initial stock of wealth is greater than the threshold, there will be an increase in the stock of wealth. Otherwise, there will be a shrinkage in the wealth. Governments allocating productive assets (such as sewing machines) or LST, (which can be used to purchase productive assets), help accumulate a higher initial stock of wealth. Thus, disrupting the steady state of the beneficiary (Balboni et al., 2020). This larger initial stock of wealth helps them achieve a greater future stream of income thus increasing chances of social mobility. This leads to the question of whether this ‘big push’ is more effective than the trivial amounts of periodic disbursements in the context of the poorest of the poor households in Pakistan. If LST is given, conditional on investment in productive assets, can they address the issues behind poverty? Does this initial one-off transfer put the “household on a sustainable trajectory out of poverty”? Is there a continuous increase in wealth in the long term? Does LST help create opportunities?

The current study contributes to the literature in two ways. It adds to a growing body of studies that tries to understand the long-term impacts of UCT and LST. In the context of Pakistan, there is no study, to the best of our knowledge, that has seen the impact of the LST after a decade and compared the outcome indicator with the outcome for the recipients of the periodic UCT. We try to understand that if LST is given, conditional on investment in productive assets, can they address the issues behind poverty and does this initial one-off transfer put the “household on a sustainable trajectory out of poverty”? We try to answer the question of whether this ‘big push’ is more effective than the trivial amounts of periodic disbursements. Policymakers are faced with two conflicting choices a) benefiting many with little amounts or b) benefitting few with large transfers. This conflict arises mainly due to the limited fiscal capacity of any government especially so in the context of a developing country like Pakistan. The final choice may depend on political reasons instead of pursuing the objective of social mobility. This study tries to build a case for a better alternative after looking at the current income level of the households who have been long-term sustained recipients of UCT or one-time recipients of LST. For this purpose, PSM is employed. The second contribution to the literature is using an intact dataset to understand how the household is faring in the long term. To our knowledge, no study has so far used these social assistance programs for comparison and analysis. Since the initial randomization has not changed and no further intervention has been received by this group, it allows to see if this static effect of LST has persisted. While the UCT has continued over time thus enabling us to see if there is any cumulative effect of

² Please see appendix for S-curve figure

this in comparison to the one-time LST received. The current paper also adds to a large body of literature on the impact of CT on investment (Blattman et al., 2011) and the impact of vocational training on earnings (Attanasio et al., 2011).

2. Literature Review

Findings from studies (namely Haushofer and Shapiro, (2016); and then its replication study by Wang, and Luo, (2019)) show that LST had a larger positive impact than UCT on the household's assets and psychological well-being. Recipients of LST show a greater tendency to save (Chambers, and Spencer, 2008), and invest (Daidone et al., 2019; Bastagli et al., 2019). Although the UCT may be used to purchase durable items, along with an increase in consumption and savings, the effects are gone shortly after the program ends (Altındağ, and O'Connell, 2023). Additionally, it helps augment consumption more than its counterpart. Comparing 48 programs Sulaiman et al., (2016) state that LST has the highest ratio of benefit-cost as compared to other programs. LSTs are, however; more susceptible to corruption than regular CTs and also tend to be invested in poor opportunities by untrained households (Farrington and Slater, 2009). A detailed review of various LST programs' productive impacts/ failure to impact is given in Beazley and Farhat, (2016) and it is concluded that the success of the LST is largely reliant on the entrepreneurial ability of the beneficiary. The government should consider the current potential of beneficiaries before handing them the LST. This is also highlighted by Farrington and Slater, (2009), There is considerable heterogeneity in the potential of a beneficiary to use the productive asset efficiently. Not everyone has the entrepreneurial streak in them to be able to manage the investment well and also the local market may give only limited returns (Farrington, 2009). The decision to choose the type of business using LST and being able to run it successfully depends on the recipients' prior experience and skill sets (Farrington and Slater, 2009). For example, in the case of Lesotho, the men who had returned after working abroad had a better knowledge of what investment will be profitable as compared to other options. As a result, their intended impact may be constrained (Slater, and Mphale, 2009). Success is also dependent on the gender of the recipient (Bernhardt et al., 2019). LST has been analyzed to confirm that they alter who makes household decisions (Ambler et al., 2019).³

The size of the transfer is an important determinant of the type of investment that will be made (Bastagli et al., 2019.) While some studies suggest that it is

³ The capital given to women was found to be utilized mainly for activities traditionally undertaken by them instead of other entrepreneurial activities (World Bank Blog on Benefits of engaging men in women's economic empowerment programs: Insights from rural Tunisia by Gazeaud, Khan, Mvukiyehe and Sterck, 2022).

important to give a transfer large enough to be spent on investment (such as Adams and Winahyu, 2006), it should not be larger than the required amount (Farrington, and Slater, 2009), as it will not be as effective as required especially keeping in mind resource constraints that governments face. The size of the transfer should be appropriate and optimal. The main purpose of LST, in the context of development programs, is to increase and bring diversity in livelihood opportunities (Beazley and Farhat, 2016).

Evidence from RCT conducted in six countries shows that LST helped act as a Big Push to move recipients out of the poverty trap (Banerjee et al., 2015). This study stresses that only LST can move the recipients “to an entirely different trajectory”. Conversely, even though in the short run LST may increase income, long-run analysis shows that this increase is not sustainable (Blattman et al., 2020). Although in Uganda the conditional LST motivated recipients to acquire skills and related tools to be able to generate future income (Blattman et al., 2014), a follow-up of this RCT (Blattman et al., 2020), indicates that LST given to people increased their income in the short run, but they were unable to move permanently out of poverty.

Literature on the impacts of CT versus LST has now started to emerge. An RCT piloted in Kenya shows that while CT increases consumption, LST increases asset ownership (Haushofer, and Shapiro, 2016). As compared to CT the LST is spent to purchase larger livestock (Bastagli et al., 2016). CT scaffold people during the economic downturn. A large body of studies has tried to ascertain the impacts of CT on household consumption (Aguila et al., 2017); consumption of tempting goods (Evans, and Popova, 2014); poverty (Fiszbein, and Schady, 2009); health (Owusu-Addo et al., 2018); education and longevity of children (Aizer et al., 2016); future earning capacity of children through current nutrition improvement (Behrman, and Hoddinott, 2005); psychosocial well-being (Haushofer and Shapiro, (2016); Attah, Barca, Kardan, MacAuslan, Merttens, and Pellerano, 2016); labour supply (Blank, 2002; Baird et al., 2018); decision making in the household (Ambler et al., 2019); indirect effects on other’s consumption (Angelucci, and De Giorgi, 2009); and accumulation of productive assets (Handa, Natali, Seidenfeld, Tembo, Davis, and Zambia Cash Transfer Evaluation Study Team, (2018); Asfaw et al., 2014) amongst others. Bastagli, (2019) explores 165 studies to deduce that CT reduces poverty and increases agricultural productive assets among other effects on various indicators. CT in the form of pensions may increase productive investment thus causing a multiplier increase (Martinez, 2004). On the other hand, Maluccio, (2010) finds the limited impact of conditional CT (CCT) on productive investment in Nicaragua. When CCTs were coupled with either LST for productive activities,

or with vocational training, they helped beneficiaries in Nicaragua to be engaged more in non-agriculture-related employment (Macours et al., (2012). The treatment arm which combined CCT with LST helped beneficiaries attain higher levels of consumption. CCT was found to be more effective than UCT to improve schooling outcomes in Malawi (Baird et al. (2011) and CCT helps decrease domestic violence (Borraz, and Munyo, (2020). Looking specifically at BISP, the recipient households can increase (over 80%) their monthly expenditure on food items (Arif et al., (2012); Malik and Pop, (2013)).

Beazley and Farhat, (2016) state that when LST are combined with CT than households will be more inclined to purchase productive assets as they will be still receiving the CT for consumption smoothing. Findings of Haushofer and Shapiro (2013), show that beneficiaries of LST can own larger livestock. Recently several studies have focused on the productive impacts of CT which in the long run motivates social mobility (Stoeffler et al., (2020); Covarrubias et al., (2012); Gertler et al., (2012); Veras Soares et al., (2010).

Corresponding to this there is a growing literature on the impacts of giving productive assets to households. The RCT in Pakistan (and five other countries over the years) revealed that giving poor households “productive assets” increased household consumption of both food and non-food items (Banerjee et. al, 2015). It was also noted that households in some countries started diversification of the asset that was initially given to them and enhanced their supply of labour too. Therefore, the design of the program is an important determinant of the welfare outcome specifically desired (Davis et al., 2002). Thus the government along with the CT should design programs which would help households graduate out of poverty and not be forever reliant on the transfer for subsistence. Distribution of “productive assets” to the beneficiaries of the transfer with specific conditions for not reselling or depleting the actual asset, can bring long-term changes. It is also important that the recipients choose the right kind of productive asset. Another RCT in Sindh revealed that the NGO did a poor job in helping the participants in making the right choice of productive asset and in giving the accompanying advice for the usage of an asset (Kabeer, 2019). Thus, little or no positive impact was seen. There are limited studies that discuss the long-term impact of LST specifically in the context of the extremely poor (Sulaiman et al., 2016).

We find that in the long run, the recipients of LST had significantly higher income than both the comparison groups i.e. control group and pure control group. Although 26% of households are not currently running the business initially started using the LST, this push has helped them achieve a different trajectory. There may

be several reasons for this which are discussed in the conclusion section. The current study uses a novel method to create a treated and counterfactual group that assesses the impacts of the two types of transfers on the household's income in the long term. The objective of this paper is not to criticize the program nor to give recommendations on how to recover the loans. The paper acknowledges that the success rate in small businesses is low, as mentioned in Turner, and Endres, (2017) that the failure rate within the first 5 years is 50%. Therefore, we do not try to disentangle the impact of LST from the impact due to the natural demise of the businesses.⁴ Adams and Winahyu, (2006) note that it is important that the amount is sufficient to purchase the asset otherwise it will not be used for the intended purpose. Previous literature has calculated how much the size of this LST should be and therefore the focus of this current study is not to ascertain the appropriate size of the LST. Banerjee et. al (2015) has also done a cost-benefit analysis for LST.

3. Contextual Background

Currently, Benazir Income Support Program (BISP) is the largest social assistance program in the country with 8 million beneficiaries. Run by the federal government, BISP targets the poorest of the poor women to provide scaffolding against various economic shocks. For the woman to become a beneficiary she should be currently married, divorced, separated or widowed. She should have a national identity card and belong to a household with a poverty score of below 16.17. The poverty score is calculated using a Proxy Means Testing (PMT) method formulated by the World Bank. Used by many countries this official method involves gathering data of households on 23 observable characteristics. These characteristics are wide-ranging and use appropriate weights for each variable to calculate a score. This score has a value between 0 and 100. The National Socio-Economic Registry (NSER) is used to gather information on these characteristics, and it has data of around 35 million households. The NSER has just recently been updated through a survey which took place with a lot of delays from 2019 to 2021.⁵ Under the umbrella of BISP, the government started UCT in 2008 and WeH in 2009. The BISP UCT beneficiaries have continued to increase from 1.7 (in 2008) to 8 million (2022) and the UCT has nationwide coverage. As of January 2022, BISP has started to allocate PKR 13000 bi-yearly to each UCT beneficiary (BISP, 2022). The system of transfer disbursement has evolved over the years. Initially, it was given through the Pakistan Post Office and then through ATM cards. The current biometric system is in place. Despite the popularity of the program, it is not

⁴ BRAC in Bangladesh was a success story, but its replications in some other countries were not always successful.

⁵ For details on NSER please see

<https://www.bisp.gov.pk/Detail/NzI5YTMtYjE1My00NGUwLTgwYTtZWUwYTZkYWZjYmNj>

devoid of challenges. Some of the inherent challenges are the considerable prevalence of illiteracy in the poorest expenditure quintile which makes the technology-based systems of BISP difficult to understand. Further, the beneficiaries which are females have mobility and social issues mainly due to culturally induced hindrances.

WeH was a BISP initiative to disperse micro-credit to deserving households to help them move out of the poverty trap. The WeH beneficiaries were selected randomly, using a computerized balloting process, from the 2.2 million existing pool of BISP beneficiaries at that time. It comprised giving loans of up to Rs. 300,000 to females to help them set up a small income-generating source. The eligible women were given options to choose the type of business they wanted to start. There were no conditions attached to it in terms of retaining the asset purchased or the business started for any given period. A ten-day training program was also given. The program was developed to have a focused six days for business training and the remaining days had a focus on skill enhancement. However, the limited duration of the training was widely criticized for being too short to be effective and lacking in quality.⁶ This interest-free loan was given to 1,487 beneficiaries during 2009-13. Loans were given in two instalments and were to be recovered in 180 instalments over 15 years. The loan amount recovery was supposed to start one year after the final installment. Although essentially this program cannot be classified as a true LST since the transfer in this program has to be repaid, it is considered a suitable proxy for three reasons. The advantage of using this program is that firstly the recipients were not required to pay any interest on the loan⁷, and secondly the loan was not repaid by any of the respondents of the current survey.⁸ More on this in the data section. Another major factor for selecting the WeH program is that both WeH and UCT programs were targeted to the same people, i.e. below the poverty cut-off score, so it can be said with confidence that initially, the households had similar characteristics. Further, this setup of initial randomization of UCT beneficiaries to receive additional treatment of LST has not received any form of researcher intervention. This enables teasing out the impact of this treatment in the long run.

⁶ SEDA, (2013) evaluated the program with the help of BISP, PPAF and SAFCO. It deduced that all the beneficiaries had invested the transfer in income generating activities and that 99.8% of these activities were running smoothly.

⁷ A highly successful and popular zero interest loan program, in Pakistan, is Akhuwat.

⁸ Total amount of loan dispersed was PKR 422.4 million and till July 2020 the overall recovery was of only PKR 79 million.

4. Theoretical Framework and Methodology

a. Theoretical Model

To provide theoretical support and appreciate the differential impact of the two types of social assistance discussed, this essay uses a two-period consumption model. An individual wants to maximize the discounted utility of consumption and so the objective function is

$$\max \sum_{i=0}^1 \beta^i u(c_{t+i}) - \bar{l},$$

$$0 < \beta < 1$$

where c is consumption and t denotes the period. β is the discount factor for future utility. The discount factor shows that the current consumption is valued higher than the second-period consumption. Several studies (such as Bardhan, 1996), show that this discount factor is higher for the poor, especially so in the case of those households that are close to subsistence. \bar{l} is the fixed cost across the two periods associated with performing labour activity. The utility function, $u(\cdot)$, “is concave and twice differentiable”. That restriction implies that the second derivative of the utility function is negative, and the first derivative is positive. The first derivative being positive means that if consumption is increased in either period it will increase the utility function. But this will be at a decreasing rate which is shown by the second derivative being negative (concavity). Following Wydick, (2018), \bar{l} is defined as the effort to earn income either from labour, w ; or by any other means. These other means may include social assistance (UCT) and are denoted by α . The utility cost of α being \bar{l}_α . Therefore

$$\bar{l} \in (\bar{l}_w, \bar{l}_\alpha)$$

The individual under consideration can save some amount of α and thus the budget constraints are

$$c_1 \leq \alpha + w$$

$$c_2 \leq \alpha + \alpha + w + w - c_1$$

$$c_2 \leq 2\alpha + 2w - c_1$$

The maximization problem that the households solve can be written as the Lagrange.

$$\mathcal{L} = \max_{[c_t, c_{t+1}]} \{ \sum_{i=0}^1 \beta^i u(c_{t+i}) \} - \bar{l} + \lambda_t(\alpha + w - c_t) + \lambda_{t+1}(2\alpha + 2w - c_t - c_{t+1}) \quad (1)$$

where λ_t and λ_{t+1} are the multipliers. The first-order conditions for the household's maximization problem concerning period t and t+1 consumption are, respectively,

$$\frac{\partial \mathcal{L}}{\partial c_t} = u'_t - \lambda_t - \lambda_{t+1} = 0 \quad (2)$$

$$\frac{\partial \mathcal{L}}{\partial c_{t+1}} = \beta u'_{t+1} - \lambda_{t+1} = 0$$

$$\beta u'_{t+1} = \lambda_{t+1} \quad (3)$$

Put (3) in (2) to get the Euler equation.

$$u'_t = \beta u'_{t+1} + \lambda_t$$

The optimal levels of consumption equate the MU (marginal utility) of current consumption to the MU of second-period consumption and MC (marginal cost). The paltry CT in each period will augment the current period's consumption but will not impact the next period's consumption. This means that there will be continued reliance on assistance and no graduation will be possible. If the CT is higher than the current period's need for consumption and if this extra amount is saved (s), for future period consumption (due to uncertainty associated with receipt of CT), then the second-period consumption may increase further. Taking $\beta > 0$ and $\lambda_t = 0$ when

$$\beta u'_{t+1}(\alpha + w) > u'_t(\alpha + w)$$

$$u_t(\alpha + w - s) + \beta u_{t+1}(\alpha + w + s) > u_t(\alpha + w) + \beta u_{t+1}(\alpha + w)$$

Saving maximizes utility. Now consider the alternate scenario, whereby the government instead of giving UCT, gives a one-time lump sum transfer (the big push, φ). This is conditioned to be used to purchase a productive asset (such as machine, equipment, or cattle) thus generating future income (γ)

$$\gamma = (1 + r)\varphi$$

r is returns on investment, φ , and $r > 0$. Also, $\gamma > \alpha$. The loss in the marginal utility of the current period due to not receiving α is less than the gain in the marginal utility of the second period caused by the return on the investment which is $(1+r)$.

$$u_t(w) + \beta u_{t+1}(w + r) > u_t(\alpha + w - s) + \beta u_{t+1}(\alpha + w + s)$$

Thus, the investment reduces the reliability of assistance from others/the government. It is supposed that socially this is a preferred outcome. The comparison of the control and treated groups confirms the impact of the LST on the household.

b. Data

The data for this essay is from a cross-sectional survey conducted by two Union councils in the district Shaheed Benazirabad of the province of Sindh in Pakistan. The information regarding beneficiaries of UCT, beneficiaries of LST and non-beneficiaries with a PMT score below 19.83 was taken from BISP, Government of Pakistan.⁹ This included information on 2000 randomly selected women from the province of Sindh. The official criteria to become a beneficiary of BISP requires having a score of 16.17. The reason for taking data from households with PMT scores below 19.83 instead of 16.17 is that earlier studies (OPM, 2020) have found the presence of exclusion error. This is possibly due to the absence of a CNIC (computerized national identity card), any discrepancy in the spelling of names or details in documents, change of marital status of a woman or death. Additionally, some households with a PMT score above 16.17 but below 21.17 become beneficiaries due to the presence of a disabled household member or having more than four young children. The information taken from official sources contained details regarding BISP beneficiary status, WeH beneficiary status, their PMT score, address, CNIC of registered woman, age, marital status, educational level, name of household head, and relation of registered woman with head. Using this information, the data was collected from 400 randomly selected households. However, due to incomplete questionnaires and/or errors 47 of them were rejected. The remaining 353 questionnaires were used for the analysis. Out of these 50 were WEH beneficiaries, 203 were UCT beneficiaries and the rest were non-beneficiaries. The survey was conducted from February to June 2022.

Questions were framed to gather information about the households' income from all sources including income generation from the productive asset purchased from the loan of WeH, wage income, other unearned income such as remittances, pension, Zakat, or gifts, and income in-kind. The income in the kind received his sack of wheat, it being a norm in the country that the worker receives sacks of grains in exchange for labour. Detailed information regarding the timings and quantity of sacks received is noted. The workers receive this bi-yearly when the crops are harvested. This quantity of wheat received is multiplied by the price to get the money value of each sack received. The prices of wheat vary marginally across

⁹ The PMT score ranges from 0 to 100. For a detail discussion on PMT scores calculation in Pakistan, please see Hou, (2009).

months. The monthly price rates are taken from the Sindh Food Department from January 2022 to May 2022 and then averaged across months. The total income variable also comprises of purchase of any productive asset using saving done from the UCT and the level of income thus generated from it.

Data is also collected about the initial value of the loan and the remaining payable amount, mutually identified business, development training program, percentage of the disbursed amount used for the intended purpose and assistance received from any other source besides BISP. The variable for productive assets includes 1) ownership of those animals (e.g., chickens, goats, sheep cows), that can give meat and/or other byproducts such as milk and eggs for commercial purposes or used as draft animals (e.g., donkeys, mules and oxen used for ploughing and transportation). 2) ownership of those assets (e.g., sewing machine, carpentry tools and other equipment) that are used for providing services such as parlours, food, mechanic, mason and repairing tyres. 3) setting up of shop e.g., groceries. The current market price of animals is used to ascertain the total value of the assets. In this study, productive assets are not defined to include jewellery and house renovation. The Land's unit of measurement is a hectare.

Other questions related to socio-economic household characteristics and general demographic information include adult equivalent household size, number of earners and dependents (below 15 years and above 65 years), education of household head, gender of head, age and literacy of household head, literacy of beneficiary if not a head, and presence of at least one school going child. The household size is calculated following the definition of Deaton and Zaidi (1999)¹⁰. The education level of the head and beneficiary are used as proxies for the ability to understand and productively use the available market information. We also asked questions related to the type of employment (temporary or permanent), the number of hours worked last week by each member of the household, the employment status of each member, and the income generated by each of the working members from all the jobs they were doing. Behavioural aspects are ignored to keep the analysis simple.

The respondents were asked if they have ever tried to save any part of their income for future use. This question was asked by all three groups and only 3.4% of the total gave an affirmative answer. When further asked about the reason behind this saving all of them except one said that they were saving for any future illness or unforeseen crises. Only one respondent stated that she is doing so for her

¹⁰ This definition counts the child as 0.8 and an adult as 1. Using the formula, the adult equivalent household size is calculated.

daughter's dowry. Next, they were asked if they had ever tried investing these savings or tried to purchase any asset from it. Around 1% said they have done so and purchased sewing machines or chickens. Out of the total respondents, only one said that they have been able to generate a source of income using this asset and can earn PKR 1500 monthly from it. Since this was a small percentage of total respondents the inclusion of these variables in the final estimation did not produce any significant changes. Therefore, the results presented in the next section do not include these variables.

The WeH beneficiaries were asked about the total amount they had received and the amount that is remaining. All of them received PKR 150,000 in the year 2012. That means they had all received only the first installment and none of them had repaid it. To further confirm the absence of any form of extortion from agents disbursing the loan the respondents were asked if they have paid any interest or fees on this transfer and 100% negated this. The summary of the mutually identified business is given in Table 1 below. The second column shows the percentage of respondents who selected a particular category of business and invested in it. Out of these 26% of the business was either sold due to the need for money or closed due to the death of cattle. The third column gives the percentage of respondents still currently running the business. These successful businesses are a source of a steady stream of income for the recipients. These businesses that were closed may cause sample bias and attrition bias (Karlán, 2001). To overcome these the ones who had to close their business are also included in the treatment group to find the true impact of the program.

Out of the total, 56% of the respondents had taken part in a 10-day enterprise development training program. The remaining did not partake in the exercise mainly because it was either too far away from their home or they did not find it useful to help them. When asked what percentage of the disbursed amount was used for the intended purpose, 90% of the respondents said they had used 100% of the amount and the remaining respondents' answers ranged from 90 to 75%. This shows that the LST was used for the proposed function and continues to benefit more than half of the recipients. 32% of respondents stated that they are not earning any monthly income from this LST. This includes the ones whose business no longer exists. The remaining additional 6% of respondents are those whose business is not profitable enough and can meet only household demand e.g., milk. The rest of the respondents can get an average income of PKR 3448 from it. To add context this amount is already higher than what the UCT recipients receive monthly by around 37%. Since the main objective of the study is to analyze and compare the long-run levels of income of the three groups after the initial randomized treatment;

therefore, this information is not included in the final estimation. It is presented and elaborated here to create context and provide a setting for the final results.

Table 1. Businesses using LST and their current status.

Mutually agreed upon business	Recipients in %	Current status in %
Purchased a buffalo for milk sale	78	54
Shop	12	10
Sewing machine and related tools	8	8
Purchased a goat and chickens	2	2

Source: Author's estimates based on primary data

c. Econometric Methodology

Casual impact studies popularly use matching methods instead of OLS to account for confounding variables. A simple comparison between the outcome of the two groups will give biased estimates. Matching estimators' basic idea is to find individuals belonging to a larger non-beneficiary pool who are similar to the individuals in the treated pool. This statistical matching is done based on similarity in pre-treatment characteristics which in our case is the PMT score discussed in the data section. The PMT score uses 23 observable characteristics of households. The construction of comparable groups has the main assumption that assignment to treatment and control group is based on random assignment. The difference in the outcome of the two groups is then accredited to being treated. Rosenbaum and Rubin (1983) proposed the PSM technique which requires estimation of a balancing score. These balancing scores deal with the problem of dimensionality and give the likelihood of being a recipient. These large number of observable characteristics are combined into a propensity score which is a single continuous variable having a value between 0 and 1. Thus given observed characteristics the constructed group is similar to the treated one to find the ATT.

Binary treatment status $T = \{1, 0\}$

$$T = \begin{cases} 1 & \text{if treated, with probability } p \\ 0 & \text{otherwise, with probability } 1 - p \end{cases}$$

Pr (T=1) continuous value [0,1]

ATT is the effect for those in the treatment group (Stuart, 2009). The ATT calculation is done using conditional independence assumption and common support assumption¹¹.

$$ATT = E(Y_1 - Y_0 | T = 1) = E(Y_1 | T = 1) - E(Y_0 | T = 1)$$

¹¹ Detailed discussion can be found in Caliendo, (2006) and Caliendo and Kopeinig, (2008)

$E(Y_0 | T=1)$ is the unobserved average outcome of beneficiaries of LST had they not received the amount. Since it is unobserved, $E(Y_0 | T=0)$ is instead used. This is the estimate of the outcome for the non-recipients. Therefore,

$$\Delta = E(Y_1 | T = 1) - E(Y_0 | T = 0)$$

$$\Delta = E(Y_1 | T = 1) - E(Y_0 | T = 0) - E(Y_0 | T = 1) + E(Y_0 | T = 1)$$

$$\Delta = E(Y_1 | T = 1) - E(Y_0 | T = 1) - E(Y_0 | T = 0) + E(Y_0 | T = 1)$$

$$\Delta = ATT + E(Y_0 | T = 1) - E(Y_0 | T = 0)$$

$$\Delta = ATT + \eta$$

If the selection bias (η) is zero, then the mean outcome difference between the two offers the estimated ATT. One issue with propensity score calculation is that if two units (one from each group) have the same score the probability becomes zero. Therefore, usually, different matching methods are employed. The different ways to perform matching include nearest neighbour matching, calliper matching, radius matching, greedy and optimal matching etc. Since each method has its pros and cons, we use four different methods to ensure result robustness. In nearest-neighbour matching, the match is made based on having the closest propensity score. This is a popular option along with radius matching when the emphasis is to do matching based on the distance dimension between the control and treated groups. In the radius approach, calliper bands are used and the best match is found within those limits while also avoiding lower-quality matches, which may occur in the nearest neighbour method. Kernel matching is nonparametric and uses a weighted average of all controls to provide matches for the treated group units (Becker and Ichino, 2002). Higher weights are assigned to those units that have a closer propensity score. Although this approach decreases variance the issue with this approach is that it may include bad matches. The fourth approach that we use is the stratification method in which propensity scores are used to divide the sample into strata. Each stratum has equal treatment probability. The mean outcome difference between the two groups is used to ascertain the impact inside each stratum. Cochran and Chambers (1965) recommend using five strata which remove 95% of the bias.

Table 2. Mean Testing

Variable	Control	Treated	Difference
Total Household Income	18142.4 (711.66)	21613.53 (2101.92)	3471.13** (2219.13)
Gender of head	0.37 (0.03)	0.24 (0.06)	0.13 (0.07)**
Dependency ratio	0.79 (0.05)	1.20 (0.14)	0.41 (0.14)*
Number of people of working age in Household	2.90 (0.10)	2.68 (0.15)	0.22 (0.18)
Number of people in Household having permanent labour	0.04 (0.03)	0.22 (0.08)	0.18 (0.08)**
Age of head	50.68 (0.79)	47.8 (0.65)	2.88 (1.03)*
Head is literate	0.19 (0.03)	0.86 (0.05)	0.67 (0.06)*
The Head has technical training	0 (0)	0.1 (0.04)	0.1 (0.04)**
Respondent is literate	0.03 (0/01)	0.8 (0.06)	0.76 (0.06)*
Head is married	0.86 (0.02)	0.8 (0.06)	0.06 (0.06)
Household size	4.66 (0.15)	5.34 (0.36)	0.67 (0.39)***
At least one child goes to school	0.36 (0.03)	0.76 (0.06)	0.40 (0.07)*
Number of school-going children	0.72 (0.08)	1.52 (0.19)	0.80 (0.21)*
The respondent is a casual labour	0.13 (0.02)	0.36 (0.07)	0.23 (0.07)*

Note: Standard errors are reported in parentheses. *, ** and *** show significance at 1, 5 and 10 per cent, respectively
Source: Author's estimates based on primary data

The motivation to use PSM is based on differences in the means of observed characteristics of the two groups. The respondents' sample averages are reported in Table 2. 203 respondents are in the control group, and they are the ones who are only UCT recipients. The treatment group comprises those BISP recipients who were additionally given LST. The difference in the mean values of these two groups is reported in the third column in Table 2 along with the statistical significance. The first variable is the total household income which is the main outcome variable of interest. The difference in the mean values indicates that the total household income including all income sources of the LST recipients is higher and the difference is significant at 0.05 level. The LST recipient households' income is more by PKR 3471.13 when compared to pure UCT recipients. The other variables listed in the table are potential independent variables. The difference in the mean values of the independent variables from the two groups is significant for the gender of household head, dependency ratio, number of people in the household having permanent labour, age of head, literacy of household head, household head having received some technical training, literacy of respondent, size of household, number of children going to school, at least one child goes to school and respondent is

engaged as a temporary/ casual worker. The difference in the age of the head and him/her being literate is highly significant and indicates that LST recipient households have younger heads who are literate and have also received some form of technical skills. Correspondingly the number of school-going children is higher in LST recipient households and the difference in mean of the two groups is highly significant. The variable for the marital status of household heads shows that the difference between the two groups is not found to be significant LST households have a highly significant greater dependency ratio. Although the mean number of working-age household members is slightly higher in control households, the difference is not significant. Further, the mean household members having permanent labour is higher in LST recipient households and the difference is significant. This difference in the mean of observed characteristics of the two groups encourages the application of the PSM strategy.

5. Empirical Findings

The propensity scores (PS) deduced from the probit model are reported in Table 3. Except for household head gender and age, the coefficients of all other variables are found to be significantly different from zero. This indicates that demographic variables and other characteristics of the households are important factors for ascertaining the assignment. If the head is literate or the household has a higher dependency ratio then there is a higher probability of being a recipient of LST. The region of common support is between 0.004 and 0.993 showing that the PS are bound by these limits. The balancing property is satisfied, meaning that the propensity scores and independent variable characteristics in the determined blocks used for matching are similar.

For a more comprehensive analysis, this same exercise is performed for LST recipients and non-beneficiaries of BISP and the results are reported in column 2 of table 3. Except for household head gender, age, marital status; and at least one child going to school all the other variables are found to be significant to estimate the predicted probability.

For robustness, different matching methods are employed for determining the average treatment effect for treated (ATT). ATT is the difference between the mean outcomes of the two groups. The estimation results of the four methods are reported in Table 4. The results of all these four methods are found to be significant and show that being an LST recipient increases household income as compared to UCT recipients. The total household income of the treated group i.e. LST recipients is higher by PKR 9095. This gives evidence that LST increases household income compared to the comparison group. Although there is a difference in magnitude,

the remaining three matching methods also display an analogous relationship between receiving an LST and household income. These results conform to earlier literature on the impact of LST on household income.

Table 3: Probit estimation for PS

Variables	LST and UCT	LST and Non-beneficiaries
	Beneficiaries	
PMT	0.07** (0.03)	-0.36* (0.10)
Gender of head	-0.44 (0.47)	0.84 (0.75)
Dependency ratio	0.48** (0.21)	0.53*** (0.40)
Number of people in HH having permanent labour	0.89* (0.24)	1.92** (0.96)
Age of head	0.01 (0.02)	0.05 (0.03)
Head is literate	2.62* (0.44)	1.31* (0.54)
Head is married	-2.2* (0.64)	-0.55 (0.98)
At least one child goes to school	0.57*** (0.33)	0.07 (0.53)
The respondent is a casual labour	1.01* (0.34)	1.06** (0.49)
Constant	-1.85 (1.56)	0.24 (2.82)
Observations	253	150

Note: HH stands for a household. Standard errors are reported in parentheses. *, ** and *** show significance at 1, 5 and 10 per cent, respectively

Source: Author's estimates based on primary data

To get a more holistic understanding, the ATT is estimated for the mean outcomes of LST recipients and non-beneficiaries. This is reported in column 2 of Table 4. The results are significant for nearest neighbour matching and radius matching; however, they are insignificant for the remaining two methods. The ATT of the first method shows that LST recipients have an income level higher than that of non-beneficiaries by PKR 3624. Although this difference in the mean outcome is lower than that between LST and UCT beneficiaries, it is statistically significant.

Table 4: ATT

Matching Technique	ATT	
	LST and UCT Beneficiaries	LST and Non-beneficiaries
Nearest neighbour matching	9095.05** (3553.89)	3623.53** (1928.99)
Radius matching	5590.38* (1272.82)	3038.74** (943.36)
Kernel matching	5702.75* (1876.59)	3799.72 (3480.01)
Stratification matching	6277.21** (3295.73)	1597.92 (2400.76)

Note: Standard errors are reported in parentheses. *, ** and *** show the significance at 1, 5 and 10 %, respectively

Source: Author's estimates based on primary data

The covariate balance plot is given in Figure A2 in the appendix. To evaluate the quality of matches the extent of bias reduction is calculated. This is reported in Table A1 in the appendix. It is found that the bias is less than 5 per cent indicating that balance is achieved. The sensitivity analysis indicates the presence of hidden bias (Rosenbaum 2002). That means checking for the influence of any unobserved variable on the final results. A popular sensitivity test is the Mantel-Haenszel statistics which gives the value of gamma. Gamma indicates how large the hidden bias must be to change the outcome. The maximum value of gamma is set to be 1.5 with increments of 0.05. The upper and lower bounds do not include zero indicating unobserved variable bias insensitivity of results. This is reported in appendix table A2.

6. Summary and Concluding Remarks and Policy Implications

An increasingly popular policy tool, social assistance is provided by governments to help households cope with shock and cause social mobility. The novelty of this study is that it seeks to provide evidence for policy intervention regarding which is a better mode of helping the poor in the long term. Is transitory relief much better than permanent relief targeted for a few? For a resource constraint country, this is an important question to consider. Often the incumbent government may find it more favourable for themselves to stick with the second alternative i.e. UCT. This is because, with a fixed amount of funds available, the government can either give small amounts to many households or select a few households and give them the one-time lump sum transfer. The latter is less appealing as it might decrease the vote bank for the government and cause resentment amongst the households not currently receiving the LST. But with a little scaffolding, training and motivation the receivers of the LST may find it a better strategy. On the other hand, the periodic UCT requires higher fixed costs for the government such as disbursement costs and monitoring costs. For households too, there are periodic collection costs. Having said that, from the perspective of the recipient, the UCT is favoured. Studies (such as Bardhan, 1996), show that the discount factor for future consumption is higher for the poor especially so in the case of those households that are close to subsistence. This behaviour inhibits investment which may augment future consumption sufficiently to cause social mobility.

This study contributes to the literature by analyzing the changes in the income level due to being a recipient of only UCT against being a recipient of LST. The initial randomization of beneficiaries to treatment and control status has continued after ten years. This setup has not received any form of researcher

intervention and thus has enabled us to examine the effects of both forms of treatment. In line with some previous studies such as Balboni et al., (2020), this investigation confirms that LST can boost total household income as compared to those households that continue to receive only UCT. LST (which can be used to purchase productive assets), help create opportunity to accumulate a higher initial stock of wealth. This larger initial stock of wealth helps them achieve a higher future stream of income thus increasing chances of social mobility. This study complements the findings of Gertler et al., 2012 whereby those households that invest in productive assets can have a sustained increase in income. The results are also in line with the findings of Banerjee, et. al (2015) in which they conducted a large-scale RCT in six countries including Pakistan, to find that although some portion of the asset was decreased over the years, there is a significant gain in household consumption. The LST helps households move to a different trajectory thus breaking the poverty trap.

LST recipients in our study are on a different trajectory due to several possible reasons. The ones that are still currently running the business have a steady source of income which is absent for the recipients of only UCT or non-recipients of any assistance. But the foremost reason is also that this LST helped households in times of shock. Out of the 26% of businesses that are no longer operating, 8% reported that they sold off their assets to cope with shocks. This shielded them from adversity and prevented them from falling even below their previous level of welfare. This buffer was absent for people of the other two groups and they were thus less shock resilient. This conclusion supports the findings of Fafchamps et al., (1998), that in times of shocks, livestock sales act as a buffer to some extent. Recipients of UCT got quarterly transfers which were small and not sufficient. Reliance on solely UCT does not source social mobility (Afzal et al., 2019). When the LST program was initiated, there were several reports regarding the challenges. One of them was that although the transfer was intended for females, they were made to hand over the amount to the male member of the household.¹² Even though this was the case, these households fared better, in contrast, over the long run.

Although graduation from the program through breaking the shackles of poverty is not a short-term objective of the BISP program, the government needs to now consider this. To avoid continuous dependence on the program a strategy needs to be formulated. Another facet of the attempt to graduate people from the program is the likelihood of these beneficiaries turning to other programs to maintain their level of income (Borghans et al., 2014). So before designing policies

¹² Women join Waseela-e-Haq programme to help the man of the house. Express Tribune, July 2012.

to help people graduate from the program, it is imperative to have an all-encompassing data set which removes overlapping beneficiaries to avoid substitution between the programs.

One important point to consider before the implementation of any development intervention is that the framework of the program its ideas and values is clearly understood by the implementation agents to get the desired results from it (Kabeer et al., 2012). In the intervention made in villages of Pakistan (Sindh) by CGAP¹³, the participants of the study were given goats and hens to help them generate a steady source of income. However, within a few months, the livestock and poultry died. One of the causes is the absence of the required guidance about how to take care of them. Another important result of the study was that for any intervention to succeed it was dependent on the presence of an “active labour pool” in the household who would make the right choices to use the transfer effectively.

The objective of this paper is not to criticize the program nor to give recommendations on how to recover the loans. The paper agrees with the existing rich literature that records that the success rate in small businesses is slight. Therefore, we do not try to extricate the impact of LST from the impact due to the natural demise of the businesses. The main limitation of this study is its geographical constraints as it is focused on one particular district of the country. Hence the generalization of the results should be done with caution. In future research, a larger sample size taken from all the provinces of the country, with additional details on other economic and psychological dimensions besides income will provide a more holistic understanding of the long-term impacts.

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¹³ Consultative Group to Assist the Poor

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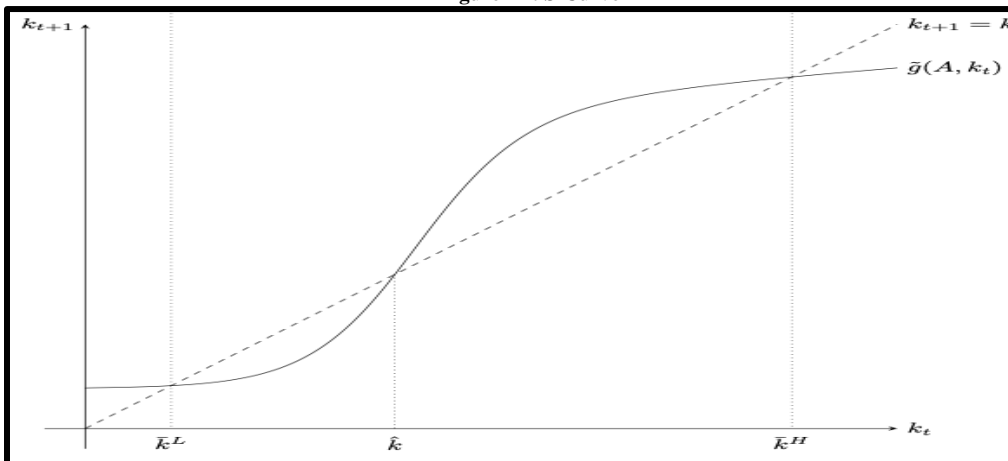
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Appendix

Figure A1: S-Curve



Source: Parry, Burgess, and Bandiera, (2020)

Table A1: Evaluating quality of matches

Variable	Sample	Treated mean	Control mean	Percentage bias	p> t
PMT score	Unmatched	10.02	8.34	38.7	0.02
	Matched	8.88	8.80	1.8	0.96
Gender of household head	Unmatched	0.24	0.37	-29.3	0.07
	Matched	0.21	0.29	-18.2	0.52
Dependency ratio	Unmatched	1.20	0.79	48.1	0.00
	Matched	1.07	1.11	-5.6	0.84
Permanent Labor	Unmatched	0.22	0.04	38.3	0.01
	Matched	0.13	0.20	-17.7	0.72
Age of Head	Unmatched	47.80	50.69	-33.2	0.08
	Matched	48.1	51.12	-35.0	0.32
Respondent is casual labor	Unmatched	0.36	0.13	54.2	0.00
	Matched	0.17	0.17	0.0	1.0

Table A2: Sensitivity Analysis

Gamma	Q_mh+	Q_mh-	p_mh+	p_mh-
1	-0.14	-0.14	0.56	0.56
1.05	-0.14	-0.14	0.56	0.56
1.1	-0.14	-0.14	0.56	0.56
1.15	-0.14	-0.14	0.56	0.56
1.2	-0.14	-0.14	0.56	0.56
1.25	-0.14	-0.14	0.56	0.56
1.3	-0.14	-0.14	0.56	0.56
1.35	-0.14	-0.14	0.56	0.56
1.4	-0.14	-0.14	0.56	0.56
1.45	-0.14	-0.14	0.56	0.56
1.5	-0.14	-0.14	0.56	0.56

Figure A2: Covariate balance plot

