

# How Household Characteristics Shape Program Access and Asset Accumulation

A Mixed Method Analysis of the Vision 2020  
Umurenge Programme in Rwanda

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## Abstract

This paper assesses how household context and characteristics shape the welfare trajectory and more specifically the accumulation of productive assets among beneficiaries of the Vision 2020 Umurenge Programme in Rwanda, the government's flagship social assistance program. The analysis is based on a unique data set combining panel household survey data with in-depth qualitative interviews of a subsample of male and female beneficiaries from the survey data collected between 2009 and 2015. By combining quantitative and qualitative information, the paper draws a more nuanced picture of how household characteristics—structural and temporal—contextualize opportunities for poor men and women and their households and shape how well

they can leverage access to the Vision 2020 Umurenge Programme to accumulate productive assets. The mixed method analysis reveals that household composition, gender power dynamics, disability, care responsibilities, marital arrangements, intrahousehold communication, and access to other social programs and institutions play a crucial role in access to the Vision 2020 Umurenge Programme and related asset accumulation. The findings suggest that households would benefit from a broader definition of the eligibility criteria and the availability of flexible and complementary programming, to reap the benefits of the income transfer received from the program.

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# How Household Characteristics Shape Program Access and Asset Accumulation: A Mixed Method Analysis of the Vision 2020 Umurenge Programme in Rwanda

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## **1. Introduction**

Over the past decades, social assistance programs have become an increasingly popular instrument for poverty reduction in low-income countries (Alderman and Yemtsov, 2014, Banerji and Gentili, 2013, Fiszbein and Schady, 2009, Fiszbein et al., 2014, Grosh et al., 2008, Hanlon et al., 2010, Marcours, 2013, Sabates-Wheeler and Devereux, 2013, World Bank, 2012). A large number of such programs – commonly operated as non-contributory cash transfers – aim to reduce both current and future poverty. The former is reached through an increase in consumption induced by the cash influx. The latter is facilitated by using the cash to invest in productive human or physical capital. These programs can also relax liquidity constraints and overall income variability and thus facilitate savings and investments in riskier, but higher return activities and assets (see e.g. Gehrke, 2017). The importance of assets for poverty reduction and long-term welfare is highlighted by an increasing body of work (Adato et al., 2006, Barrett and Swallow, 2006, Carter and Barrett, 2006, Carter et al., 2007, Carter and May, 2001, Jalan and Ravallion, 2002, Lybbert et al., 2004, Naschold, 2012, Naschold, 2013 and Winters et al., 2009).

To the best of our knowledge, there is still little rigorous evidence on how poverty-based income transfers<sup>1</sup> contribute to sustainable asset accumulation, particularly in Sub-Saharan Africa (Niño-Zarazúa et al. 2012, Davis et al., 2012, Garcia and Moore, 2012, Monchuk, 2013).<sup>2</sup> From some of the most widely studied poverty-based transfer programs in Sub-Saharan Africa - Ethiopia's Productive Safety Nets Programme (PSNP) and Malawi's Social Cash Transfer (SCT) - we know that investment effects can be quite varied. Gilligan et al. (2009), for example, showed that the PSNP has little effect on assets in the short run due to the low amount of the transfers received.<sup>3</sup> Following from this, Berhane et al. (2014) then show that the duration of support matters, i.e. participating in the program for five years relative to only one year raises livestock holding by 0.39 tropical livestock units (TLU).<sup>4</sup> Moreover, they also show that joint access to the PSNP and the Other Food Security Programme/Household Asset Building

Programme (OFSP/HABP) has larger effects than access to the PSNP alone. Joint access increases livestock holdings by 0.99 TLU (Berhane, et al., 2014). The SCT in Malawi seems to perform somewhat better than the PSNP in Ethiopia – though at a much smaller scale.<sup>5</sup> For the one-year pilot of the SCT, Boone et al. (2013) and Covarrubias et al. (2012) attest that the program promotes investment in agricultural assets, including crop implements and livestock.<sup>6</sup> While the studies in Ethiopia and Malawi only looked at the effects when households were still benefiting from the program, Stoeffler et al. (2016) assessed some longer term implications, i.e. if asset levels can be sustained beyond the program. Their study of a pilot income transfer program in Niger shows that 18 months after the end of the transfer the program still induced a sustained increase in livestock of 0.4 TLU on average. The authors argue that participation in savings groups, which was promoted by the program, plays an important role in facilitating the asset accumulation observed (Stoeffler, et al., 2016). Synthesizing the evidence from Ethiopia, Malawi and Niger suggests that poverty-based income transfers can have a positive effect on asset accumulation. Yet, the magnitude and sustainability of these effects depend on the size of the transfer and the duration. Furthermore, complementary programs encouraging savings and (agricultural) investments seem to increase the magnitude and sustainability of the effects.

In the studies mentioned above and in most of the literature on income transfers, the household is the unit of analysis and the majority of studies consider the household as a uniform entity, taking little account of differences in household types, and the different needs and capacities of household members. This stands in contrast to the literature on collective and non-unitary models of household behavior and an increasing body of work that argues that intra-household dynamics and gender, i.e. differences in men's and women's productive and reproductive roles, responsibilities and opportunities, have been neglected in the debate and that these greatly influence the results of income transfers and related asset accumulation (Guilbert and Pierotti, 2016, IEG, 2014, Johnson et al, 2016, Luttrell and Moser, 2004). Counter to the conventional wisdom, a systematic review of safety nets conducted by the World Bank's

Independent Evaluation Group (IEG) in 2014 concluded that women and female heads of households invest in livestock and agricultural tools as much as or more than men. However, the types of livestock or agricultural investment by women and men often differ (see e.g. Wheeler et al. (2012) for Ethiopia and Devereux and Ulrichs (2015) for Rwanda). Also, and particularly in relation to the reduction of future poverty, both Wheeler et al. (2012) and Devereux and Ulrichs (2015) show that the well-being and living standards of men and women are not defined by the same factors. In the Ethiopian case, for example, women defined well-being as the ability to feed their children, whereas for men well-being is most commonly associated with the accumulation of assets (Wheeler et al., 2012). Along this line, men and women are also exposed to different risks and face different constraints. Taking the case of the PSNP in Ethiopia as an example again, men often identify low wages as program-specific constraints to change, whereas women frequently mention conflicting time constraints as obstacles to overcome (Wheeler et al. 2012). Differences in needs and experiences offer one explanation of why the effects of poverty-based income transfers may lead to different results for men and women.

With this paper, we aim to advance the debate on how household characteristics and endowments contextualize access to and benefits from social assistance programs. We do so based on experiences from the Vision 2020 Umurenge Programme (VUP) in Rwanda. We are contributing to the existing literature and policy discourse in two ways. First, we use quantitative evidence from a statistically representative sample of VUP beneficiaries and a constructed comparison group to provide evidence of the effects of large-scale social protection programs in Sub-Saharan Africa – in this case from Rwanda in particular. Second, this paper uses qualitative data and information to take an in-depth look at a set of household characteristics, exploring how these shape the access to and gains from the VUP. This is a key aspect for policy relevance, since the VUP is currently launching the second generation, where

the program aims to put a stronger focus on the provision of more customized support taking into account different beneficiary profiles and needs.

The analysis in this paper is based on a three-wave household panel of VUP beneficiaries and a matched comparison group collected between 2009 and 2014 which formed the basis of a quantitative impact evaluation (Hartwig, 2014). To obtain a more nuanced picture, we complement the survey data with qualitative life-history interviews conducted in 2015 with a sub-set of beneficiaries from the panel data. Combining and comparing the quantitative and qualitative data suggests that gender, household composition and responsibilities, disabilities and dependency ratios, marital arrangements, intra-household communication and inheritance norms play crucial roles for access to and use of the VUP transfer. For example, households with both spouses present are more flexible in labor allocation and thus also more likely to access the public works opportunities offered compared to households with only one able bodied laborer, a common feature among female headed households. Domestic responsibilities, notably care for children or disabled or elderly household members, further limit labor supply and access to public works opportunities. The heterogeneity of effects for different households and household characteristics suggests that social protection programs need to offer enough flexibility or complementary programming in order to address the range of needs of the targeted households. A similar conclusion has also already been put forward by Banerji and Gentili (2013) arguing that it is important to build systems of social protection that work together as a portfolio to cover multiple risks and needs across the life cycle.

The remainder of this paper is structured as follows. Section 2 gives an overview of the program, its components and objectives. Section 3 presents a conceptual framework linking household characteristics to access to the income transfer and consequent asset accumulation, informed by the qualitative data. Section 4 describes the data and empirical approach to test some of the linkages described in the conceptual framework. The results are discussed in Section 5 and Section 6 concludes.

## **2. The Vision 2020 Umurenge Programme (VUP)**

In 2006 an estimated 56% of the population in Rwanda lived below the national poverty line.

In response to the high prevalence of poverty, the government launched the VUP in 2008 as one of three pillars of the country's Economic Development and Poverty Reduction Strategy (EDPRS). The VUP is a national program. However, the rollout of the program is phased. At the launch in 2008, the program operated in 30 geographical sectors (cohort 1 (pilot)), one sector from each district of the country. The program area consequently expanded by 30 sectors each year (see Figure A1 in the Appendix).<sup>7</sup> Currently, the VUP operates at national scale, covering close to a million people.

In its operational design, the VUP is most closely related to the PSNP in Ethiopia and has three components: Public works (PW), direct support (DS) and a complementary financial services (FS) component (see also Sabates-Wheeler and Devereux (2013) for further details and discussion). Hence, the VUP offers two different types of income transfers. The public works component was the first VUP component launched in July 2008. It is the largest program component and intends to provide poor households with at least one able bodied laborer above 18 years of age with limited term employment in public works projects for which participants receive a wage in return.<sup>8</sup> Wages are paid to beneficiary bank accounts in two-weekly intervals. The earnings are intended as a basis for saving and investment, to promote asset accumulation and to stop households from selling productive assets to survive (Ministry of Local Government of Rwanda, 2009). In contrast, since January 2009 households without labor capacity (particularly vulnerable elderly men and women and households with members with disabilities) benefit from an unconditional cash transfer (direct support). The transfer is paid on a monthly basis; the size of the transfer depends on the number of household members ranging from RF 7,500 for one person to RF 21,000 (between US\$10 and US\$27) for households with

five or more members. Households benefiting from either of these income transfers can also apply for individual or group loans from the financial services component, complemented by training on financial management, saving and credit, and the productive use of the transfer. All beneficiaries also receive information on health, education and cross-cutting issues such as gender equality.<sup>9</sup> However, during the early phase of the program for which we have data, these sensitization measures were not yet standardized with respect to the timing and content across locations and were implemented at the discretion of the local VUP managers.

Eligibility for either the public works or direct support components of the VUP is determined at the local level using a community-based household categorization process that ranks households according to levels of vulnerability, coupled with a determination of household labor endowment.<sup>10</sup> The different program components – i.e. the public works and the direct support components – are intended for vulnerable households, with the primary differentiating criteria between public works and direct support being the household's labor endowment. While access to direct support is only restricted by the eligibility criteria and households do not tend to refuse unconditional transfers, at least not in our setting, access to the public works program can be restricted by factors beyond the eligibility criteria (e.g. geography and access to transport). Furthermore, the initial design does not take into account that households with labor capacities might be unable to take up the offer to participate in public works as their ‘in principle’ free labor is needed to meet care obligations – an aspect which we will discuss in more detail.

### **3. Conceptual Framework**

The conceptual framework is to a large extent based on the information provided by beneficiaries during the life history interviews conducted. Figure 1 provides a graphic representation of the key characteristics identified by the interviewees and depicts how the

household endowments and contexts influence the access to and use of the VUP and other programs and how this in turn shapes asset accumulation. A number of factors come into play here such as geographic factors, i.e. accessibility and transport to the public works site (not shown here) or a number of household characteristics such as the total labor capacity of the household, alternative work opportunities and care requirements of the households.

The household characteristics contextualize welfare trajectories at two stages: First, they affect access to the program(s); second, they shape the utilization of the income transfer and other program support for productive and risk management purposes.

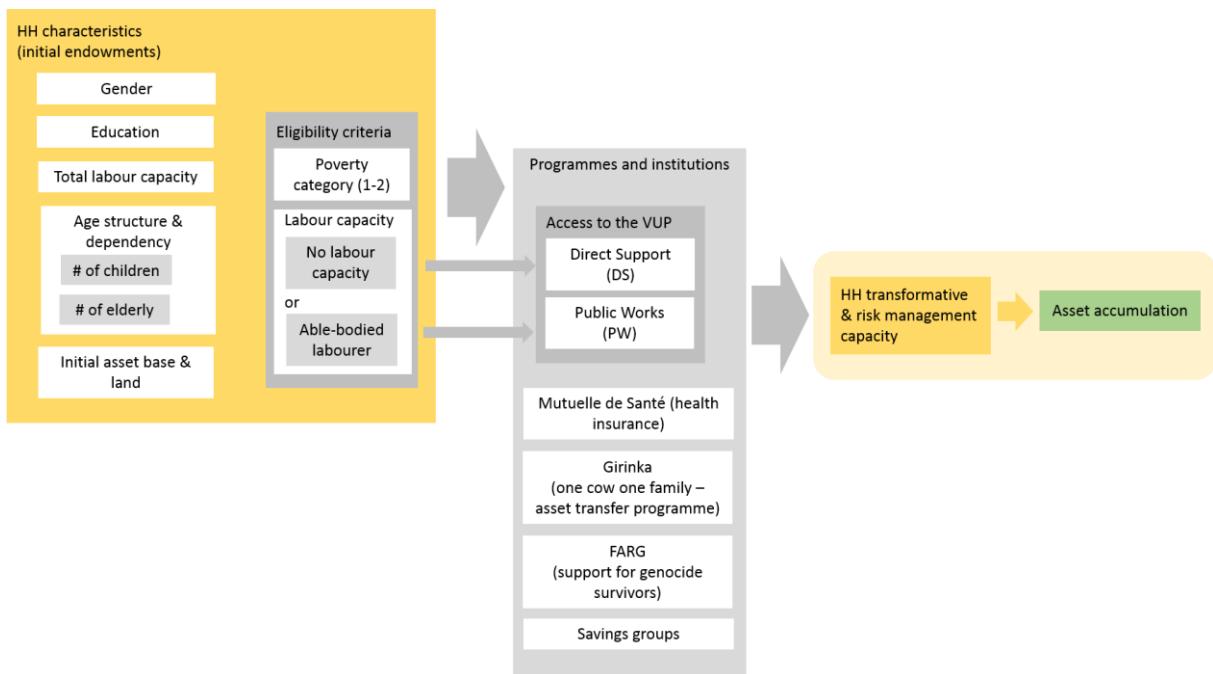
For stage 1, while access to the VUP is formally restricted by the eligibility criteria outlined above, households identified a number of additional characteristics which influenced their ability to access the VUP and also their use of other programs, notably other asset transfer programs and subsidized health insurance. These characteristics include: the sex of the household head or potential VUP beneficiary, their education level, the total labor capacity and care obligations within the household and initial endowments in assets and land. In all these aspects, we noted a strong interplay with the sex of the household head which emerges as another contextual factor related to gender dynamics across all the identified factors. In exploring each of these factors in the quantitative data, we find that typically education levels are low. Very few of the beneficiaries have received any form of formal education which in turn shapes economic opportunities. Low literacy levels are more pertinent among the female respondents; male respondents more frequently reported to be able to read and write. The qualitative data reveal a strong gender divide with respect to the control of resources (*“As the husband, I control the income”* (male, PW-M1)) and initial asset base with women reporting being historically traditionally excluded from inheritance and thus subject to lower land ownership compared to their male counterparts (*“My parents passed away a long time ago. The land they had was divided among my other siblings and I did not inherit anything, as I was a girl”* (female, DS-F1K)). More clearly, gendered divisions come to the forefront when

concerning access to the VUP directly. Here gendered reproductive roles are particularly important in the context of women's domestic duties. Representative statements of female heads were: "*I started in 2013 and ended in January 2014. The public works site had moved far away for someone with family responsibilities like me, so I had to stop. I have always been the one working and looking after my children so I could not afford to work far from my home*" (Female, PW-F12N). Thus, households might not be able to participate in public works if their labor capacity is insufficient to fulfill the public works requirements and domestic responsibilities (for caring and home production) at the same time. This is particularly the case for female headed households or households where women's reproductive roles are not offset by others within the household.

Looking at stage 2, once access to the income transfer could be secured, the resulting welfare improvements are also not uniformly distributed. The quantitative data clearly reveal that asset accumulation depends on the size and duration of the transfer, evidence consistent with the literature from studies in Ethiopia, Malawi and Niger (see Beegle et al., 2017; Berhane et al, 2014; Stoeffler et al. 2016). Looking into household composition and recognizing that households are not homogenous entities, our study explores how this heterogeneity affects welfare dynamics and improvements in material well-being. Increased investments in durable assets and livestock are influenced by the risk management capacity of the household, i.e. the extent with which the household members can protect their assets and turn the income transfer into productive investments, which is in turn influenced by the household characteristics. Consistent with the existing literature, households with high dependency ratios are less likely to invest in business opportunities such as off-farm enterprises which require additional labor. Furthermore, households with many children are likely to prioritize investments in education i.e. human capital over durable assets. Households with low education levels are limited in work opportunities and also less likely to undertake productive investments (Blattman et al., 2014). Finally, the initial level of assets will affect the extent of asset accumulation as the theories of

endowment dependency predict where asset accumulation primarily depends on initial endowments, with obvious implications for distributional outcomes (Barham et al., 2000). Households which cannot meet their basic needs out of the income generated are likely to spend the transfer on consumption rather than asset accumulation (“*The money, I used to buy food and clothes*” (female, PW-NY1); “*I bought clothes and farming materials. It was what I needed most that time.*” (female, PW-RU1)). Likewise, households without access to land are likely to refrain from agricultural and livestock investments (“*I don’t have land for fodder, so I could only keep a pig close to the house.*”(female, PW-F12N)). Hence, asset accumulation is only expected once a minimum base of consumption and housing assets is satisfied. In addition to household characteristics shaping the well-being of households, we noticed that households benefiting from the VUP also used complementary programs such as health insurance (*Mutuelle de Santé*), asset transfer programs and savings groups, which enhanced their risk management potential. Exemplary responses included: “*Now we have a savings group and we contribute RF 1,200 per month per person. In June we collect all the money and bring it to pay the Mutuelle*” (male, PW-CS1) “*In the saving group we have a separate sub-group of saving for emergencies. Now, I have RF 5,000 there. If I ever have any emergency, I will go to the group and they will give me my share and I will deal with the emergency*” (female, PW-F7M).

**Figure 1:** Linking household characteristics to access and asset accumulation



Source: Authors' illustration.

Household characteristics shaping access to and utilization of the poverty-based income transfer may overlap and are often mutually re-enforcing. This further implies that households are not a uniform entity and the impact of the income transfer might be very heterogeneous, depending on the household characteristics. We will look at differences in a more structured way using household survey data. In the following section we outline the quantitative and qualitative data collected and empirical approach used in more detail.

## 4. Data and Empirical Approach

### 4.1 Data

The study uses three rounds of quantitative household survey data collected in 2009, 2011 and 2014 and qualitative data from life history interviews conducted in 2015 with male and female VUP beneficiaries selected as a sub-sample from the panel data. The household survey is nationally representative and comprises of a random sample of VUP beneficiary and matched

non-beneficiary households. In this study we concentrate on households from the third extension of the VUP, i.e. on the subsample of households located in 30 sectors where the VUP was introduced in July 2010 (financial year 2010/11).<sup>11</sup> Given, the timing of the first survey, which was conducted in November and December 2009, in the sectors where the VUP was launched prior, no baseline data are available. Limiting the sample to cohort 3 sectors comes at the expense of better external validity but allows for a better identification strategy and more robust internal validity. With the second survey conducted in November and December 2011 and the last round conducted in February 2014, we are able to consider short- to medium-term effects, 15, respectively, 30 months after the VUP was launched.

The three household surveys include a set of modules. The household survey in 2009 collected information limited to the demographic composition of the household, labor force availability, income from the main economic activity and public programs, the main expenditure types and investments, housing characteristics and household assets, access to infrastructure and services, and the *Ubudehe* poverty category assigned to the household. In 2011 the survey tools were amended and information on income and expenditures were no longer collected. Furthermore, the information on household assets was limited to aggregate land- and livestock holdings only. The survey in 2014 included the same information as the 2009 survey, except for the income and expenditure modules. It further covered information on child care, off-farm business activities, shocks and coping, and access and use of financial services and community sensitization activities.

As discussed further below, the empirical strategy and outcome of interest is largely driven by the structure of the data. Notably, we focus on asset accumulation, particularly in the form of livestock holding over time as a welfare measure, as this is the only information which has been consistently collected throughout.

Complementing the household survey, we conducted semi-structured life-history interviews with a sub-set of male and female VUP beneficiaries in 2015. The sample of beneficiaries for the qualitative work was selected purposefully from the household survey based on beneficiary status and observed welfare improvements, proxied by livestock accumulation, over time (see Table 1 for the distribution). The sample drew from particular points in the distribution to assess trajectories of welfare improvement or stagnation. The life-history interviews allow for more detailed insights into the welfare trajectory of beneficiary households – the process, obstacles and opportunities.

**Table 1:** Sample of beneficiary life-history interviews

Beneficiary type	Female	Male	Total
Public works	8	17	25
<i>of which also benefited from financial services loan</i>	6	6	
Direct support	13	4	17
<i>of which also benefited from financial services loan</i>	1	1	
Financial services loan	5	5	
N	21	26	47

Source: Own data collected in 2015.

#### 4.2 Empirical strategy

The empirical analysis consists of two parts. In line with the conceptual framework we first look at access to the income transfer. Specifically, we investigate the characteristics of the households participating in public works more systematically. We use a probit model to identify the determinants of participation in the public works component in each survey year. The econometric specification used has the following functional form:

$$\Pr(P_{it} = 1) = F(\alpha + X_{it}' \beta + \varepsilon_{it}) \quad (1)$$

$P_{it}$  represents the probability that household  $i$  participated in public works in year  $t$ . The vector  $X$  comprises of covariates controlling for characteristics of the household head, i.e. age, sex, and the level of education; the demographic composition of the household, i.e. the share of children, working-age adults and elderly, and the share of members with a disability; and household wealth and assets measured by the land holding and housing characteristics. We also control for the reported poverty status of the household in some specifications. However, there is a strong discrepancy between the reported poverty status and the poverty status recorded in different administrative databases at the sectoral and national level. Since the discrepancy between the different administrative sources cannot be resolved in the absence of a centralized system, we are putting less emphasis on this, even though it is one of the formal criteria for eligibility. The choice of covariates entering the specification is also informed and validated by the qualitative evidence we obtained from the life-history interviews. We use the qualitative data when discussing the results to illustrate and provide more nuanced insights into the estimation results.

In a second step, we estimate the effect of the income transfer, either through public works or direct support, of household  $i$  on the outcome of interest, livestock holding,  $y_i$ . We use a difference-in-difference estimator to measure differences in beneficiaries and non-beneficiaries between 2009, 2011 and 2014. Beneficiaries hereby constitute households that have benefited from the VUP at the time of the survey. We look at the overall effect irrespective of the type of support as well as the effect for direct support and public works beneficiaries specifically. The comparison group comprises of households that are formerly eligible but have not benefited from the VUP at any point in time. We estimate the average treatment effect on the treated (TOT) as within estimator based on the following model:

$$Y_{it} = \alpha_i + \theta^D \cdot 1(t = 2011, 2014) + \mu^D \cdot \text{treated} \times 1(t = 2011, 2014) + C'_{it} \delta^D + \varepsilon_{it}^D. \quad (2)$$

$\alpha_i$  are household fixed effects,  $C'_{it}$  is a vector of household characteristics in 2009, 2011 and 2014, accounting for the change in observable characteristics over time.  $\hat{\mu}^D$  gives an estimate of the TOT. In our sample we actually only have a small number of beneficiaries. It might therefore be more appropriate to estimate the intent to treat (ITT). However, given that the eligibility depends on the poverty category of the household which cannot be identified given the discrepancy in the different databases we refrain from doing so. The standard errors are clustered at the village level. By definition, the difference-in-difference strategy controls for group fixed effects as well as common trends between beneficiaries and non-beneficiaries. We disaggregate the analysis by beneficiary type and household headship. Due to the small sample size of beneficiaries in each group we cannot differentiate it further. We complement this part of the analysis with the information from the in-depth interviews conducted with beneficiaries drawing a more nuanced picture on the links between households' initial endowments, the opportunities and obstacles faced for accessing VUP, for using the cash transfers for investment, and the resulting asset accumulation.

**Table 2:** Descriptive statistics

Variable	All (N=618)	DS Beneficiary (N=108)	PW Beneficiary (N=186)	Non-Beneficiary (N=344)
<b>Panel A: 2009</b>				
Head is male (=1)	0.58	0.37	0.60	0.63
Age of head (yrs.)	48.32	58.47	43.57	48.16
No schooling (=1)	0.52	0.64	0.48	0.50
Primary started (=1)	0.05	0.06	0.06	0.05
Primary completed (=1)	0.37	0.24	0.40	0.40
Secondary or more (=1)	0.05	0.06	0.05	0.05
Disabled (=1)	0.48	0.70	0.38	0.48
# of HH members	4.71	3.43	4.89	4.95
Share of adults (18-65 yrs.)	0.47	0.37	0.47	0.49
Share of children (0-5 yrs.)	0.16	0.11	0.19	0.16
Share of children (6-18 yrs.)	0.30	0.27	0.31	0.30
Share of elders (65+ yrs.)	0.09	0.26	0.03	0.07
Landholding 0-0.25 ha (=1)	0.50	0.69	0.58	0.43
Landholding 0.25-1 ha (=1)	0.31	0.21	0.28	0.35
Landholding >1 ha (=1)	0.18	0.10	0.15	0.22
Index of housing structure	-0.16	0.04	-0.08	-0.27
Ubudehe 1 (=1)	0.13	0.29	0.17	0.08
Ubudehe 2 (=1)	0.36	0.51	0.42	0.29
Ubudehe 3 (=1)	0.35	0.16	0.30	0.42
Ubudehe 4 or higher (=1)	0.16	0.05	0.10	0.22
Owns goat (=1)	0.35	0.30	0.30	0.38
Owns rabbit (=1)	0.17	0.09	0.18	0.19
Owns pig (=1)	0.12	0.03	0.10	0.15
Owns chicken (=1)	0.20	0.07	0.18	0.24
Owns sheep (=1)	0.09	0.03	0.09	0.10
Owns cow (=1)	0.28	0.09	0.19	0.38
Livestock (TLU)	0.77	0.26	0.53	1.03
<b>Panel B: 2011</b>				
Head is male (=1)	0.57	0.33	0.60	0.63
Age of head (yrs.)	49.93	61.53	45.55	49.23
No schooling (=1)	0.49	0.70	0.48	0.44
Primary started (=1)	0.07	0.07	0.08	0.06
Primary completed (=1)	0.36	0.19	0.39	0.39
Secondary or more (=1)	0.08	0.04	0.05	0.10
Disabled (=1)	0.41	0.62	0.38	0.37
# of HH members	4.64	3.35	4.89	4.85
Share of adults (18-65 yrs.)	0.48	0.37	0.49	0.50
Share of children (0-5 yrs.)	0.13	0.10	0.16	0.13
Share of children (6-18 yrs.)	0.32	0.30	0.34	0.31
Share of elders (65+ yrs.)	0.09	0.25	0.03	0.07

Table continues next page.

**Table 2:**continued

Variable	All (N=618)	DS Beneficiary (N=108)	PW Beneficiary (N=186)	Non-Beneficiary (N=344)
Landholding 0-0.25 ha (=1)	0.56	0.72	0.61	0.50
Landholding 0.25-1 ha (=1)	0.32	0.23	0.30	0.35
Landholding >1 ha (=1)	0.11	0.05	0.09	0.15
Index of housing structure	0.21	0.29	0.41	0.08
Ubudehe 1 (=1)	0.25	0.44	0.33	0.17
Ubudehe 2 (=1)	0.35	0.35	0.36	0.33
Ubudehe 3 (=1)	0.34	0.19	0.26	0.42
Ubudehe 4 or higher (=1)	0.06	0.03	0.06	0.08
Owns goat (=1)	0.40	0.41	0.39	0.40
Owns rabbit (=1)	0.09	0.06	0.10	0.09
Owns pig (=1)	0.17	0.11	0.17	0.18
Owns chicken (=1)	0.21	0.13	0.16	0.25
Owns sheep (=1)	0.09	0.10	0.09	0.08
Owns cow (=1)	0.36	0.14	0.30	0.44
Livestock (TLU)	0.80	0.35	0.65	1.00
<b>Panel C: 2014</b>				
Head is male (=1)	0.57	0.34	0.58	0.63
Age of head (yrs.)	52.47	61.92	48.52	51.92
No schooling (=1)	0.44	0.64	0.42	0.38
Primary started (=1)	0.24	0.13	0.26	0.26
Primary completed (=1)	0.27	0.20	0.27	0.29
Secondary or more (=1)	0.05	0.03	0.04	0.06
Disabled (=1)	0.27	0.49	0.22	0.24
# of HH members	4.59	3.06	4.92	4.83
Share of adults (18-65 yrs.)	0.39	0.33	0.49	0.48
Share of children (0-5 yrs.)	0.10	0.05	0.12	0.10
Share of children (6-18 yrs.)	0.29	0.24	0.32	0.30
Share of elders (65+ yrs.)	0.11	0.30	0.05	0.09
Landholding 0-0.25 ha (=1)	0.58	0.65	0.57	0.56
Landholding 0.25-1 ha (=1)	0.30	0.27	0.30	0.31
Landholding >1 ha (=1)	0.12	0.08	0.13	0.13
Index of housing structure	-0.12	-0.12	-0.07	-0.15
Ubudehe 1 (=1)	0.23	0.53	0.25	0.14
Ubudehe 2 (=1)	0.38	0.31	0.45	0.36
Ubudehe 3 (=1)	0.33	0.12	0.25	0.44
Ubudehe 4 or higher (=1)	0.06	0.00	0.01	0.01
Owns goat (=1)	0.26	0.29	0.03	0.26
Owns rabbit (=1)	0.04	0.03	0.03	0.05
Owns pig (=1)	0.12	0.13	0.13	0.11
Owns chicken (=1)	0.11	0.06	0.10	0.12
Owns sheep (=1)	0.05	0.06	0.05	0.05
Owns cow (=1)	0.28	0.17	0.24	0.32
Livestock (TLU)	0.56	0.37	0.54	0.62

Source: VUP household survey, 2009, 2011, 2014.

Table 2 shows the descriptive statistics of our sample at each point in time. The combined household survey comprises of 9,228 observations from five VUP cohorts. For the analysis in this paper we focus on households in cohort 3 so that we can exploit baseline properties. Our sample thus amounts to 1,947 individual observations. Within this we have complete information from all three survey rounds for 615 out of a total of 618 households surveyed at baseline. The rate of attrition is less than 1 percent. Hence, systematic attrition is not a concern for our analysis. In later survey rounds households have been added to increase the sample size but we are not considering these households here since we do not have baseline information on them.

The descriptive statistics show that compared to other contexts the share of female headed households in the study location and in our sample is quite large with 40 percent of all reported heads of household being female.<sup>12</sup> The average age of household heads in our population was 48 years old at baseline. Heads of direct support households are older – 58 years at baseline – whereas heads of public works households are younger – 41 years at baseline.

Finally, the descriptive statistics also show that the sample size of the direct support and public works beneficiaries is very small, i.e. just over 12 percent of the sample population.<sup>13</sup> Overall the education level in the sample population is low with over half of the household heads never attending school. For direct support households it is even more than three-quarters of the heads of households. Disability in our study refers to physical disabilities or chronic inhibition such as continuous or debilitating pain or mental illness. The proportion of heads of households with a disability is also quite high in our context reaching almost 50 percent. Again, the shares are higher for direct support households, reflecting the eligibility criteria applied by the program. Within the education levels and reported disability status we see some changes over time. This is partly due to misreporting but also due to compositional changes and changes of the household head, particularly in direct support households where the household head died. The average household in our sample has 5 members; direct support households are however

much smaller with only 2.5 members on average, typically comprising of one working age adult together with an elderly person and a school age child or an elderly member and a school age child who helps the elderly person with daily household chores. Public works households are larger and typically comprise at least 2 working age adults. With respect to wealth, the average household in our population has less than 0.25 ha of land. Large land holdings are rather uncommon in direct support households. Most of the households are classified in Ubudehe categories one, two or three, thus forming part of the more vulnerable populations in Rwanda. Participation of the ‘ultra-poor’, i.e. households from Ubudehe category one is rarer among public works households. Conversely, 30 percent of households participating in public works were categorized in Ubudehe category 3, and thus above the formal eligibility threshold for the program.

With respect to our outcome indicator, the most common types of livestock owned by households are goats, cows and chickens. Direct support households typically have little livestock and mostly small ruminants whereas livestock holdings of public works households are much higher and also include cows. Though at baseline their average livestock holdings in tropical livestock units (TLU) are still below those of non-beneficiary households. The average livestock holdings are subject to change over time. While direct support households seem to double their livestock compared to the baseline period and the comparison group, there is little improvement in public works households. By contrast, non-beneficiaries are actually losing livestock over time and in 2014 have lower average livestock holdings than at baseline.

## 5. Results

Table 3 shows the results of the analysis on access to the income transfers consistent with Equation (1) above. Following on from this, Table 4 shows the difference-in-difference results estimating the effect of the income transfer on livestock accumulation.

## **5.1 Program access and support**

Table 3 shows the results of probit estimations of a number of household characteristics at baseline on program participation either in 2011 and/or 2014 respectively. In column 1 and 2 we show the results for participation in the VUP in general, irrespective of the type of the income transfer received, i.e. VUP direct support unconditional monthly transfers or VUP public works wages. In columns 3 to 6 we look at each type of VUP income transfer in more detail. We report both coefficients and marginal effects in each column.

The estimation results (column (1) and (2)) show that overall, male headed households are less likely to participate in VUP. While there is a statistically significant difference between male and female headed households the difference in the magnitude is rather small at 6 percentage points. Other characteristics of the household headship such as age, education level or the disability status do not significantly influence participation in the VUP. However, we find that the composition of the household significantly influences participation. While the household size in absolute terms does not matter statistically, the relative composition does. Households with more adult members (and thus likely also more labor capacity) are 12 percentage points less likely to be VUP beneficiaries. In contrast households with a higher share of members with disabilities or chronic illness which may have less labor capacity are more likely to benefit from the VUP (9 percentage points). From the descriptive statistics we know that we have quite a large number of female headed households in our sample (42

**Table 3:** Determinants of VUP participation (2011 and/or 2014)

	VUP Beneficiary		DS Beneficiary		PW Beneficiary							
	(1) Coef.	ME	(2) Coef.	ME	(3) Coef.	ME	(4) Coef.	ME	(5) Coef.	ME	(6) Coef.	ME
<i>Characteristics of the HH head</i>												
Head is male (=1)	-0.323*	-0.065	-0.284*	-0.056	-0.825***	-0.064	-0.772***	-0.068	-0.139	-0.017	-0.123	-0.015
	(0.152)		(0.154)		(0.255)		(0.287)		(0.193)		(0.192)	
Age of head (yrs.)	-0.006	-0.001	-0.008	-0.002	-0.017	-0.001	-0.018	-0.002	-0.012	-0.001	-0.012	-0.001
	(0.007)		(0.007)		(0.010)		(0.010)		(0.010)		(0.010)	
No Schooling	Ref.		Ref.		Ref.		Ref.		Ref.		Ref.	
Primary started (=1)	0.137	0.028	0.192	0.038					0.271	0.033	0.315	0.038
	(0.321)		(0.332)						(0.317)		(0.319)	
Primary completed (=1)	0.059	0.012	0.123	0.024	0.145	0.011	0.190	0.017	-0.051	-0.006	0.007	0.001
	(0.157)		(0.158)		(0.250)		(0.264)		(0.181)		(0.178)	
Secondary or more (=1)	-0.034	-0.007	0.020	0.004	0.299	0.023	0.267	0.023	-0.139	-0.017	-0.039	-0.005
	(0.331)		(0.353)		(0.567)		(0.622)		(0.362)		(0.374)	
Disabled (=1)	-0.004	-0.001	-0.044	-0.009	0.349	0.027	0.296	0.026	-0.147	-0.018	-0.177	-0.021
	(0.141)		(0.141)		(0.254)		(0.259)		(0.164)		(0.162)	
<i>HH composition</i>												
# of HH members	-0.068	-0.014	-0.052	-0.010	-0.166*	-0.013	-0.158*	-0.014	0.039	0.005	0.054	0.006
	(0.043)		(0.044)		(0.087)		(0.094)		(0.046)		(0.046)	
Share of adults (18-65 yrs.)	-0.624*	-0.126	-0.589*	-0.116	-0.365	-0.028	-0.375	-0.033	0.124	0.015	0.141	0.017
	(0.369)		(0.348)		(0.260)		(0.247)		(0.236)		(0.230)	
Share of elders (65+ yrs.)	0.347	0.070	0.336	0.066	1.397***	0.108	1.407***	0.124	-3.227*	-0.394	-3.333*	-0.401
	(0.492)		(0.480)		(0.528)		(0.531)		(1.604)		(1.628)	
Share of disabled (=1)	0.463*	0.094	0.451*	0.089	0.985***	0.076	0.983***	0.086	-0.352	-0.043	-0.393	-0.047
	(0.216)		(0.216)		(0.294)		(0.305)		(0.405)		(0.394)	

Table continues next page.

**Table 3:** continued

	VUP Beneficiary		DS Beneficiary				PW Beneficiary					
	(1)		(2)		(3)		(4)		(5)			
	Coef.	ME	Coef.	ME	Coef.	ME	Coef.	ME	Coef.	ME		
Share of children (0-5 yrs.)	-0.217 (0.598)	-0.044	-0.352 (0.599)	-0.069	0.270 (0.838)	0.021	0.047 (0.920)	0.004	-0.380 (0.637)	-0.046 (0.628)	-0.506 (0.628)	-0.061
Share of children (6-18 yrs.)	0.078 (0.472)	0.016	0.014 (0.457)	0.003	1.026* (0.537)	0.080	1.051* (0.558)	0.092	0.097 (0.505)	0.012 (0.475)	-0.026 (0.475)	-0.003
<i>Other characteristics</i>												
Landholding >1 ha (=1)	Ref.		Ref.		Ref.		Ref.		Ref.		Ref.	
Landholding 0-0.25 ha (=1)	0.236 (0.202)	0.048	0.002 (0.215)	0.000	0.009 (0.371)	0.001	-0.264 (0.434)	-0.023	0.126 (0.227)	0.015	-0.079 (0.242)	-0.010
Landholding 0.25-1 ha (=1)	-0.159 (0.222)	-0.032	-0.284 (0.232)	-0.056	-0.299 (0.412)	-0.023	-0.445 (0.468)	-0.039	-0.119 (0.250)	-0.015	-0.246 (0.259)	-0.030
Index of housing structure	0.178* (0.093)	0.036	0.148 (0.093)	0.029	0.163 (0.128)	0.013	0.117 (0.130)	0.010	0.195* (0.114)	0.024	0.186 (0.114)	0.022
Ubudehe 1 (=1)		Ref.					Ref.				Ref.	
Ubudehe 2 (=1)		-0.273 (0.188)	-0.054				-0.231 (0.253)	-0.020			-0.195 (0.254)	-0.024
Ubudehe 3 (=1)		-0.552* (0.217)	-0.109				-0.746* (0.345)	-0.066			-0.339 (0.279)	-0.041
Ubudehe 4 or higher (=1)		-0.861*** (0.305)	-0.170								-0.679* (0.363)	-0.082
Constant	-0.224 (0.577)		0.297 (0.566)		-0.744 (0.697)		-0.137 (0.747)		-0.946 (0.606)		-0.534 (0.595)	
N	615		615		583		490		615		615	
Pseudo-R2	0.108		0.127		0.331		0.331		0.085		0.096	

Notes: Robust, clustered standard errors in parenthesis. \* p<0.10; \*\* p<0.05; \*\*\* p<0.01.

Source: VUP household survey, 2009, 2011, 2014.

percent). Female headed households are mostly consistent of separated, divorced or widowed women. The average household size of female headed households is 3.9 members typically comprising of an adult, an elderly person and 1 to 2 children. In contrast male headed households have an average size of 5.3 members with in most cases two working age adults present. Thus, on average dependency ratios in female headed households are higher and labor capacity lower compared to the average male headed household. Taking this into account, the results overall do suggest that the VUP is not systematically discriminating against female headed households but rather supporting them. With respect to other household assets, we find little influence of land holdings and housing on participation in the VUP. The effect of housing is eliminated once the poverty categories are taken into account. With respect to the latter, the results do suggest that the VUP is well targeted. In line with the eligibility criteria, households above the poorest two categories are less likely to participate. As already indicated in Section 3, we do not want to emphasize this result as this considers self-reported poverty status, which is likely to be biased towards fulfilling the eligibility criteria, and given the existing discrepancy between the self-reported status and the administrative records in absence of a centralized system.

Looking at participation in VUP direct support unconditional transfers and VUP public works wage labor specifically, we see that most of the findings on the determinants of VUP participation overall described above are driven by the direct support beneficiaries (Table 3, columns (3) and (4)). In line with our discussion before and the higher dependency ratios and their often lower labor capacity, female headed households more likely to benefit from direct support. While household size in absolute values was not significant in the overall specification, the results for direct support show that larger households are less likely to benefit from direct support. However, the effect size is small – an additional household member reduces the likelihood of VUP participation by one percentage point. Considering relative shares, we see that the higher the share of children of schooling age, but particularly the higher the share of

elderly and household members with disabilities and chronic illness the more likely the household is to benefit from direct support in line with the objective of the component to provide a social protection floor. The magnitudes here are sizeable between 8 to 12 percentage points.

The determinants for participation in public works are less clear. We find no differential effect in participation with respect to household headship, meaning that male and female headed households are equally likely to participate on average. However, we find again that more elderly members in the household relative to the total number of household members reduces the likelihood of the household to participate in public works, which is closely related to the labor capacity requirement to participate in public works. The qualitative interviews conducted draw a more nuanced picture on factors influencing participation in public works. Respondents mentioned for example the distance to the public works site as major obstacle for participation. If women are unable to participate due to their reproductive responsibilities,<sup>14</sup> even if they are able bodied and therefore considered to have labor capacity, some women ‘share’ with or ‘contract’ other workers to work in their place in order to not lose the entitlement.

In contrast to the findings from the quantitative analysis, the data from the in-depth interviews indicate a high degree of similarity across the female headed households in terms of accessing public works and the factors decisive for participation (see Luttrell and Moser, 2004 for further discussion on the shortcomings of public works for women and the neglect of reproductive roles in their design<sup>15</sup>). The level of uniformity in responses is striking. In female headed households there is often no room for income diversification so the decision is one of participating in public works or doing other work but there is often no possibility to combine the two, for example, wage farming and also working on public works projects. Typical descriptions are: “*My husband left me with a child and a pregnancy. As I was weak and busy taking care of the child with a disability, I became poor and life was really hard. I was surviving by farming both on my own land and for wages. My children are in school and the one who*

*should be helping me has a disability. Domestic responsibilities don't give me much flexibility for working in other income generating activities but the children are mine and I have to look after them. I worked in public works from 2013 and we ended in January 2014. The site we were working was very far for someone with family responsibilities like me, so I had to stop. I could not afford to work far from home. The challenge was the accessibility of the public works site as it was also far for many women in the community and they had to stop the work. I finally looked for someone to replace me and would share the pay" (female, PW-CS2).<sup>16</sup>*

In contrast, in male headed households labor constraints are much lower allowing for more flexibility in combining different income generating activities in addition to domestic duties which remain women's responsibility. "*I live with 5 people in my house – my wife and three of my children. I look for food for the family and clothes; they also help, we farm together. My wife is in charge of the household activities. We do wage farming and rent land that we farm on. Wage farming is not so constant.*" (male, PW-CS1). "*I live with my wife and child. I work in slaughtering cattle and bring money to support my family. My wife takes care of the household duties. We did not face any challenges in public works. It was for a short time and we got paid for the period we worked. Public works was helpful - we were working for 15 days and we were working only for three hours. That money would be added to the other money we were using for business.*" (male, PW-CS3).

The in-depth qualitative interviews suggest that labor constraints in female headed households are much more binding. The decision to participate in public works is associated with higher opportunity costs and thus access to public works is not as readily available to these female headed households as compared to male headed households with more labor capacity. This also affords these households a higher degree of flexibility to access public works wages as additional income gain, rather than an either-or decision. Access to public works and whether public works wages represent an income substitute (as observed among many female headed households) or rather act as income complement (as observed among many male headed

households) critically influences potential welfare gains. Sustainable welfare improvement can only be expected if income levels can be raised. If income is only substituted but does not lead to an increase in resources allowing households to enter a higher permanent income path, sustainable welfare improvements cannot be expected. We will investigate this in the following section by looking at the effect of the VUP on the accumulation of productive assets, more precisely at livestock holdings over time as one indicator for potential lasting welfare improvements.

## ***5.2 Accumulation of productive assets***

Table 4 below presents the results of the quantitative difference-in-difference estimations in line with Equation (2) above. In columns (1) to (3) we report the effects of benefiting from the VUP in 2011; columns (4) to (6) show the results for households benefiting in 2014 only and columns (7) to (9) show the results if households have been benefiting in both periods consecutively. While the former columns give an estimate of the short-term effect of the program, i.e. when households have only been benefiting for one period, the latter give an indication of the effects if support is sustained over a medium-term, i.e. a period longer than 12 months. Looking at the early estimates, i.e. the effect of the VUP in the first year of implementation, we find a small positive yet statistically insignificant effect. Disaggregating the estimates by beneficiary type results in estimates of similar magnitude yet both statistically insignificant. Estimating the effect for households benefiting from the VUP in

**Table 4:** Difference-in-difference estimates of effect of VUP on livestock accumulation (2009-2014)

	2011			2014			2011 & 2014		
	VUP Beneficiary	DS Beneficiary	PW Beneficiary	VUP Beneficiary	DS Beneficiary	PW Beneficiary	VUP Beneficiary	DS Beneficiary	PW Beneficiary
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>Mean at baseline</i>									
2011 (=1)	0.036	0.042	0.041						
	(0.072)	(0.072)	(0.073)						
Beneficiary in 2011 (=1)	-0.230***	-0.251*	-0.198*						
	(0.080)	(0.107)	(0.085)						
2011*Beneficiary	0.120	0.102	0.128						
	(0.089)	(0.094)	(0.114)						
2014 (=1)				-0.321***	-0.318***	-0.325***			
				(0.076)	(0.078)	(0.078)			
Beneficiary in 2014 (=1)				-0.351***	-0.375***	-0.307***			
				(0.079)	(0.085)	(0.094)			
2014*Beneficiary				0.398***	0.450***	0.296			
				(0.105)	(0.140)	(0.222)			
Beneficiary (2011 & 2014)							0.521***	0.564***	0.27*
							(0.122)	(0.200)	(0.160)
<i>Controls</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
N	1,228	1,027	1,086	1,231	976	1,095	1,845	1,806	1,840
Pseudo-R2	0.213	0.210	0.200	0.189	0.196	0.198	0.190	0.187	0.185

*Notes:* Robust, clustered standard errors in parenthesis. \* p<0.10; \*\* p<0.05; \*\*\* p<0.01. In all specifications we control for the characteristics of the household head, i.e. headship, age, education level; the household composition, and wealth proxied by a housing index and land holdings.

*Source:* VUP household survey, 2009, 2011, 2014.

2014 we find positive and sizeable effects for VUP beneficiaries. These are however uniformly driven by the direct support beneficiaries. The average increase for direct support beneficiaries amounts to 0.45 tropical livestock units (TLU), which is equivalent to an increase by one goat on average. For public works beneficiaries the effect size is almost halved and also no longer statistically significant. One potential explanation for the lower asset accumulation of public works households compared to direct support households is that the former receive lower average transfers compared to direct support households. In our study population in 2014: the average income transfer through the VUP in the 12 months prior to the survey for direct support households amounts to RF 160,000 (ca. US\$280) compared to only RF 55,000 (US\$100). Assuming that basic needs are satisfied, direct support households seem to have a larger and much more regular income stream compared to public works households where the above reported wages are at large earned over a period between 1 to 3 months only. They are thus rather perceived as windfall gains, and are also less likely to promote sustainable asset accumulation.<sup>17</sup> If we look at the households that have benefited from the VUP over several periods, we do find positive and statistically significant effects for both direct support and public works households. The direct support effects are much stronger and about twice the size of the public works effects.

The quantitative analysis supports the qualitative findings and suggests that regular, continued transfers can have a large and positive effect on a household's and its members' welfare, here measured by livestock accumulation. Taking a more detailed look at individual accumulation patterns however, we noted that these average effects are subject to a considerable degree of heterogeneity. Our quantitative sample of beneficiary households does not allow us to disaggregate these effects further as the sample size is already quite low. However, the in-depth qualitative interviews with beneficiary households allow us to better understand why and how some households have managed to accumulate assets as a result of VUP support while

others have failed to do so. While the types of investment undertaken by households do vary, a number of common features are shared by households in all the interviews conducted. First, households that have successfully accumulated assets already possess a minimum level of housing and assets from which they accumulate further. “*I used the money to build a latrine and I also bought iron sheets to cover my house. It is good to have a good latrine instead of going to the bushes. After, I bought a goat*” (female, PW-F1K). For women the command over basic housing and land is particularly challenging due to past inheritance practices. Many of these women had been forced to move back to their family of origin if their husband abandoned them. “*My parents passed away a long time ago. The land they had was divided among my other siblings and I did not inherit anything as I was a girl*” (female, PW-F1K). “*I was not lucky with husbands. With the second one too, it did not work out and I left again and returned home. The house I have now is my own and it was provided to me by the government but as you can see I improved it a lot. We used to sleep outside but I have been able to build a latrine and bought iron sheets for my house. I also built a kitchen.*” (female, DS-CS5). Second, even if the basic asset level has been assured, cooperation at the household level also seems to be crucial for success. Households that have been unsuccessful in livestock accumulation also report intra-household conflict and a lack of cooperation in contrast to more successful households where labor capacities are allocated much more flexibly. “*My husband does not help, even in cooking. He does what he wants. He is not supportive and we constantly quarrel and argue. [...] I stopped public works and went to do more wage farming. Working as one person in the family is hard*” (female, PW-CS7). Finally, households that failed to accumulate assets were inhibited by limited capacity to deal with day-to-day risks, most commonly illnesses where they are faced with overcoming short-term liquidity constraints. “*Only last month, I lost the bicycle. I had to sell it to get treatment, as I was severely sick*” (male, DS-F14N).

The qualitative evidence provides valuable insights into the heterogeneity of the effects at the household level and the potential obstacles that need to be overcome in order to reap the benefits of the poverty-based income transfer in a sustainable manner.

## **6. Conclusion**

This study assessed the effect of the Vision 2020 Umurenge Programme on productive asset accumulation as a measure of household well-being. The study combines quantitative and qualitative data to draw a more nuanced picture of the differences in household endowments and needs and how these shape welfare trajectories and thus also influence the role and success of social protection programs. A first conclusion points to the importance of timely, adequate benefits to be able to allow households to accumulate and maintain assets over time and provide households with risk management support. This is balanced with a recognition that for households with high care responsibilities and limited labor supply, income transfers may be a medium-term necessity during which graduation is unlikely. The main conclusion to be drawn in this study is that household context plays a strong role in the households' and their members' ability to access and benefit from social protection programs.

From a policy perspective, our results suggest that social protection programs and systems need to provide sufficient flexibility and complementary programming to avoid the systematic exclusion of vulnerable groups or segments. Considering households as uniform entities, as is currently done in many social protection programs that target the household level and provide largely uniform benefits to households, can lead to unintended exclusion and undermine program goals. Poverty-based income transfers based on wage work might systematically discriminate against smaller, often female headed households with lower labor capacity, a higher incidence of disability and heavier reproductive and care duties. In the context

of our analysis, demands were stronger in caring for the elderly or disabled than for children. These findings suggest that it is important to develop a more differentiated approach to social assistance programs than is common practice today, notably to address the needs of households with responsibilities that affect their labor supply and to recognize the role that gender dynamics and initial asset endowments play in contextualizing households' ability to take advantage of available programs, particularly public works employment. One option to address the abovementioned constraints would be to expand the use of unconditional transfers or give households sufficient flexibility in access and support in care duties to facilitate women's participation. Another option currently being explored in the Rwandan context is to provide flexibility in public works employment through modalities designed to better meet the needs of household members whose labor is constrained by caring responsibilities.

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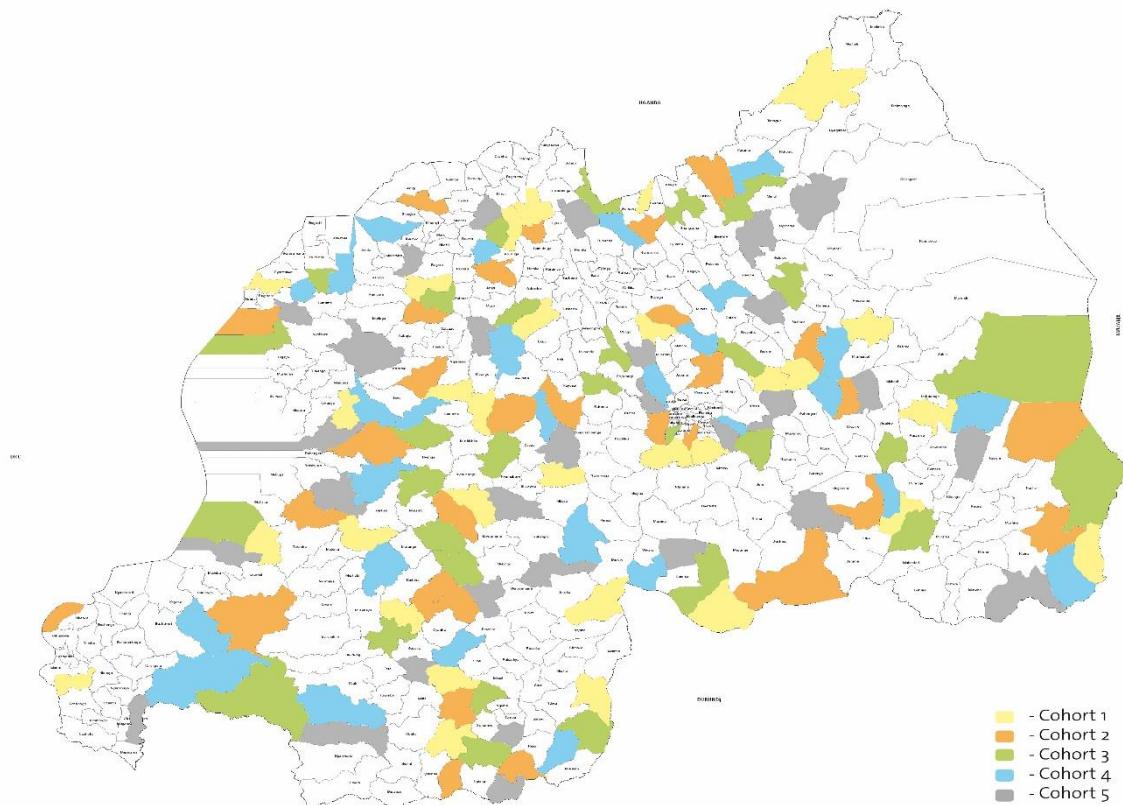
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## Appendix

**Figure A1:** VUP coverage by sector (study period only)



Source: Authors' illustration.

<sup>1</sup> We use this term throughout the paper following the classification by Niño-Zarazúa et al. (2012).

<sup>2</sup> The majority of the empirical evidence on cash transfer and social protection programs is still based on the experiences in Latin America and Southeast Asia (see e.g. Attanasio and Mesnard, 2006, Datt and Ravallion, 1994, Gertler, 2004; Rawlings, 2005, Schultz, 2004, Skoufias et al., 2001 for early evidence; Banerjee et al., 2016 and Gertler et al., 2012 provide more recent empirical evidence).

<sup>3</sup> Andersson et al. (2011) noted improvements in forest assets but equally no improvements in livestock in the short run.

<sup>4</sup> Tropical livestock units (TLU) are livestock numbers converted to a common unit. 0.39 is equivalent to two pigs or almost four goats.

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<sup>5</sup> The studies by Boone et al. (2013) and Covarubias et al. (2012) are based on longitudinal data of the Mchinji district pilot from 2007 to 2008.

<sup>6</sup> Unlike the work in Ethiopia, the studies on the SCT pilot in Malawi assessed asset and livestock ownership only in terms of a binary outcome, i.e if the household owns a certain asset or not. It therefore does not allow to look at changes in value terms or at the margin. Hence, results have to be treated with care and cannot be directly compared to the findings in Ethiopia.

<sup>7</sup> Program sectors are selected based on their infrastructure and food security characteristics. The criteria include the level of food security, distance to the nearest water source, health center, school, and the settlement pattern, i.e. the level of dispersion of the village settlement and the dominant dwelling type.

<sup>8</sup> Daily wage rates increased over time from an average of RF 700 to RF 1,000 (US\$1.4 to US\$2) on average during the period for which we have data.

<sup>9</sup> The financial services component, the so called Ubudehe Credit Scheme, was launched in 2010 only with the objective to further spur productive investment.

<sup>10</sup> At the time of program implementation, households were classified into 6 poverty categories, so-called Ubudehe categories, using a community participatory approach. Households that were classified in Ubudehe categories 1 and 2, the lowest poverty categories, were considered eligible for program support. In 2015, the Ubudehe classifications and approach were amended, with households now classed into 4 categories. Under the new classification, households in the lowest two categories are still considered eligible for support.

<sup>11</sup> These sectors are also referred to as cohort 3 sectors. See Figure A1 in the Appendix for their precise location.

<sup>12</sup> To determine headship, the households surveyed were asked to identify the head of the household and the sex of the head of the household. Joint heads of household was not an option, so the head of household usually follows gendered power dynamics, unless a male head of household is absent.

<sup>13</sup> For a more detailed discussion on the sample size and power, see Hartwig (2014).

<sup>14</sup> Here, reproductive roles include tasks such as household-related farming or gathering water or fuel, beyond those just inside the house.

<sup>15</sup> In Rwanda, a number of civil society organizations and NGOs are now providing mobile creches to make PW more accessible for women.

<sup>16</sup> Difficulties in accessing public works sites have also been raised in reports by UNRISD (2012).

<sup>17</sup> Beegle et al. (2017) reach similar conclusions in the case of the Malawi Social Action Fund (MASAF) public works program.