# Unconditional Cash Transfers (UCT) in the Democratic Republic of Congo:

## A Comparative Baseline Study in an Artisanal Mining Zone in Maniema Province

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# EDITORIAL

**Unconditional Cash Transfers (UCT) in the Democratic Republic of Congo: A Comparative Baseline Study in an Artisanal Mining Zone in Maniema Province**

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**Front cover image:** Villagers, Maniema Province
Photo: Erik Gobbers

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**Eight World:** Unconditional monthly cash transfers to people in extreme poverty for two years with an evidence-based approach (www.eight.world).

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# 1. Introduction

Almost 31% of the population in Sub-Saharan Africa lives in severe multidimensional poverty, and 44% of the population lives on less than 1.90 USD per day (monetary poverty).[1] The Democratic Republic of Congo (DRC) is particularly affected by poverty, with 37% of its population identified as severely multidimensionally poor, and 77% of the population living on less than 1.90 USD per day. According to the World Bank, the DRC has the third largest population of poor in the world.[2] Moreover, the DRC ranks 175th of 189 countries in the 2020 UNDP Human Development Index.[3] Even though the DRC is one of the richest countries in the world in terms of mineral wealth (in 2011 DRC's untapped mineral reserves were estimated to be worth 24 trillion USD[4]), this wealth does not contribute to local development, and does not lift local artisanal and small-scale mining (ASM) communities out of poverty - for example, in Eastern Congo. The World bank estimated in 2008 that there were between 500,000 and 2,000,000 active artisanal miners in the DRC, and that about 8 to 10 million people would depend directly or indirectly for their livelihood on ASM.[5] In the provinces of North and South Kivu, estimates about people depending on ASM range from 1 to 1.75 million.[6] Governmental and non-governmental initiatives to formalize the artisanal mining sector seem to have only limited (positive) impact on the working and living conditions of artisanal miners in Eastern Congo. International Peace information Service (IPIS) estimated that the income of miner households with one breadwinner in artisanal 3T (tin, tantalum, tungsten) did not cover costs of basic needs in the mining areas of Itebero (North Kivu) and Nzibira (South Kivu).[7] Not surprisingly, child labour is a persistent socio-economic problem in the artisanal mining sector in Eastern DRC, even so in mining zones with 3T mines that are covered

[1] UNDP and OPHI. *Global Multidimensional Poverty Index 2021: Unmasking disparities by ethnicity, caste and gender*. Report by United Nations Development Programme (UNDP) and Oxford Poverty and Human Development Initiative (OPHI); Multidimensional poverty Index (MPI) measures each person's deprivations across 10 indicators in three dimensions (health, education, standard of living).

[2] See https://www.worldbank.org/en/country/drc/overview#1.

[3] United Nations Development Programme. *The next frontier. Human development and the Anthropocene*. UNDP, Human Development Report, 2020.

[4] See https://news.un.org/en/story/2011/10/390912-dr-congo-un-advises-prudent-use-abundant-resources-spur-development.

[5] World Bank. *Democratic Republic of Congo. Growth with Governance in the Mineral Sector*. Washington DC: World Bank Report, May 2008.

[6] S. Geenen and B. Radley. In the Face of Reform: What Future for ASM in the Eastern DRC? *Futures* 2014, 62: 58-66.

[7] G. de Brier, A. Jorns, M. Geray, and A. Jaillon. *The Miner's Revenue and Basic Needs Study*. Antwerp: IPIS Report, March 2020.

by traceability and due diligence programs such as *International Tin Supply Chain Initiative* (iTSCi).[8]

In recent years cash transfer programs have been rolled out in several countries across the world to fight poverty and to strengthen social protection, as a more straightforward alternative to interventions of the 'traditional' aid programs, the implementation of which is often complex and costly.[9] The concept of cash transfers is simple: a small amount of money is transferred directly to the population on a regular and long-term base, aiming to improve the socio-economic well-being of poor households. Cash transfers are supposed to have an impact on poverty in general, but also on education, health, child development, economic resilience, female empowerment, as well as mental well-being. There are two different approaches toward direct cash transfers: conditional (CCT) and unconditional cash transfers (UCT). CCTs are programs that transfer money to poor households on the condition that these households comply with agreements that pre-specify how the money should be spent (for example, households must use the cash to invest for the education of their children).[10] UCT programs transfer money directly to recipients who are free to decide how to spend the money, not constrained by pre-specified requirements.

Based on data from direct cash transfer programs around the world Hanlon et al. (2010) conclude that (1) recipients use the money efficiently, (2) cash transfers reduce immediate poverty effectively, and (3) cash transfers have the potential to reduce long-term poverty by facilitating both economic and social development.[11] Drawing on several impact studies Fiszbein and Schady (2009) summarize that CCTs have increased consumption levels among poor people; have protected households against the worst effects of unemployment and illness; have increased bargaining power of women; have increased school enrolment among the poorest children, as well as the number of visits to health providers. Evidence of the CCT impact on final outcomes in education and health (such as achievement and cognitive development, child height for age) is less conclusive.[12] The impact of UCTs on the socio-economic and mental well-

[8] PRG/IPIS/SFR/Ulula. *Evaluating Due Diligence Programs for Conflict Minerals: A Matched Analysis of 3T Mines*. Los Angeles and Antwerp, 2020; iTSCi is a private initiative of the International Tin Association (ITA).

[9] F. Bastagli et al. *Cash Transfers: What does the evidence say?* London: Overseas Development Institute, July 2016.

[10] A. Fiszbein and N. Schady. *Conditional Cash Transfers. Reducing Present and Future Poverty*. Washington DC: World Bank Policy Report, 2009.

[11] J. Hanlon, A. Barrientos, and D. Hulme. *Just Give Money to the Poor. The Development Revolution from the Global South*. Sterling, VA: Kumarian Press, 2010.

[12] A. Fiszbein and N. Schady. *Conditional Cash Transfers. Reducing Present and Future Poverty*. Washington DC: World Bank Policy Report, 2009.

being has been evaluated in empirical studies, among others several studies in Sub-Saharan countries. Government UCT programs in Zambia increased consumption, food security and material well-being of rural households, as well as schooling of the children; they also strengthened people's economic capacity.[13] A study evaluating a large-scale UCT program in Kenya showed that cash transfers can improve mental health (e.g., reducing depressive syndromes) of young people in poor households.[14] A recent World Bank paper is more nuanced about the long-term success of UCTs: while comparing UCTs with CCTs, the authors conclude that in the long term, short-term effects of UCTs may not be always sustained (except for lasting improvement in health and nutrition of children in beneficiary households).[15]

The Belgian organization Eight World vzw started in 2017 a pilot project with UCT in rural Uganda, more specifically in the village of Busibi. In the meantime, three more Ugandan villages have been added to the UCT program. Preliminary results from a study comparing data collected in Busibi and a control village, demonstrate that:

- inhabitants of Busibi have started to climb out of extreme poverty and are starting to save money,
- women's independency has increased,
- entrepreneurship has increased in terms of starting new businesses,
- children are attending school,
- villagers invest in better housing,
- the inhabitants' food consumption and health have improved.[16]

[13] L. Natali. 2017. *The Transformative Impacts of Unconditional Cash Transfers: Evidence from two government programs in Zambia.* Florence, Italy: UNICEF Office of Research - Innocenti Research Brief 2017-20.

[14] K. Kilburn, H. Thirumurthy, C.T. Halpern, A. Pettifor, and S. Handa. Effects of a Large-Scale Unconditional Cash Transfer Program on Mental Health Outcomes of Young People in Kenya. *J. Adolesc. Health* 2016, 58 (2): 223-229.

[15] E. Artuc *et al. Toward Successful Development Policies. Insights from Research in Development Economics*. Washington DC: World Bank Policy Research Working Paper 9133, January 2020.

[16] F. Grisolia, N. Holvoet, and S. Dewachter. *Busibi UCT. Preliminary Analysis on Key Outcomes*. Antwerp: Institute for Development Policy/University of Antwerp, 2021 (https://www.eight.world/busibi).

# 2. UCT Project in the DRC

Building on the experience gained with the Uganda project, Eight World decided to start a pilot UCT project in an artisanal mining zone in eastern Democratic Republic of Congo (DRC), more specifically in the province of Maniema. To measure the effects of the intervention on the well-being of the beneficiaries, IPIS will conduct a UCT impact study in close collaboration with Eight World. Two villages were selected in the territory of Pangi: the "UCT village" and a "control village". These villages are located near the commercial centre of Kalima (at approximately 105 km from the provincial capital Kindu), in a 3T mining zone that is owned by the state-owned mining company *Société Aurifère du Kivu et du Maniema* (SAKIMA).[17] Several 3T mines in this zone are covered by the iTSCi traceability and due diligence program and were certified in the past as "*green*" by joint validations teams (for example, the mining sites of Kimbala, Yuma, Salokwango, Nakenge, Yubuli, Bunza, Bengo and Kiyoo).[18]

To transfer cash directly to individual beneficiaries, Eight World established a mobile money system in collaboration with the Congolese mobile phone provider M-PESA/Vodacom. Each adult (18 years and older) living in the UCT village has received a mobile phone with a sim card and will receive via his/her phone 20 USD per month during a period of two years. In addition, each child living in the UCT village will receive monthly 10 USD during the same period. The money for the child is transferred to the mobile phone of the mother, or, when the mother is absent, to another female caretaker (e.g. the grandmother or aunt). In case there is no female caretaker, the money goes to the male caretaker.

[17] SAKIMA ceased industrial mining activities and allows now ASM on its concessions.

[18] Since 2012, mining sites should be validated as 'green' by a joint validation team including representatives of the Congolese government, local civil society organizations, international organizations in charge of traceability of minerals, and United Nations agencies. "Green" means that the absence of armed actors in the site has been confirmed, and that the site has been assessed for a range of other risks defined in the OECD Due Diligence Guidance (including child labor). Officially, only minerals from "green" sites can be exported.

# 3. Methodology

## 3.1. Controlled impact study

We opted for a controlled study to evaluate the impact of UCT on the socio-economic well-being of UCT recipients. A controlled study approach allows us to evaluate the potential effect of an intervention (UCT) in the group of people receiving cash transfers (inhabitants of the UCT village), by monitoring specific socio-economic indicators over time in comparison with the group of people not receiving UCT (the inhabitants of the control village). The control group should be as similar as the *treated* group (the population of the UCT village, receiving cash transfers), and key differences between these groups need to be considered before evaluation of UCT. A comparison with a control group aims also to better isolate the results of the intervention by identifying changes that may occur over time on a larger scale and irrespective of the UCT program.

To assess the net impact of UCT on the well-being of recipients, a baseline survey was conducted in the UCT village and the control village to measure a broad range of socio-economic indicators, two weeks before the start of the intervention (i.e., before the first cash transfer was performed in the UCT village). Every single adult resident in the UCT village and the control village are included in this baseline survey. Follow-up surveys will be conducted after one and after two years.

## 3.2. Survey questionnaire

The questionnaire was designed to measure several indicators of individual socio-economic well-being. The Organization for Economic Co-operation and Development (OECD) identifies three dimensions of well-being namely, (1) quality of life, (2) material living conditions, and (3) sustainability over time. *Material living conditions* include income and wealth (consumption possibilities), jobs and housing. *Quality of life* includes health, work and life balance, education, social connections, civic engagement, environmental quality, personal security, and subjective well-being.[19] The questionnaire that was developed to monitor the impact of UCT on people's well-being considers most of the aspects discussed by OECD (2011) using open and closed-ended questions.

[19] OECD. *How is life? Measuring Well-being*. OECD Publishing, 2011.

## 3.3. Statistical analysis

We performed frequency analysis on the answers of the participants for each survey item related to a range of socio-economic indicators. We used a Chi-square test of independence on frequency counts to examine the relationship between categorical indicators such as education and gender, education and access to medication, health and gender, health and education, and health and employment. By convention, we refer to relationships between different variables as statistically significant when the *p*-value resulting from statistical tests is below the pre-determined threshold of 0.05. We also performed a Multivariate Correspondence Analysis (MCA) to summarize, in reduced dimensional space, the association (or patterns of relationships) between several qualitative variables. This method aimed to visually determine whether the statistical profile of the population of the control village and the UCT village are comparable relative to key indicators, including gender, education, employment/work activities, health, keeping livestock (beef and poultry) and collective participation (CSO and civic engagement). All analysis were performed using R (version 4.0.2).

## 3.4. Selection of the "UCT" and "control" village

To select the appropriate village for rolling out the UCT program and a comparable control village, a local IPIS researcher (based in Kindu) visited and characterized several villages in a 3T mining zone in the territory of Pangi in Maniema province. The visited villages are located along or near the national road RN32, connecting Kindu with Kalima, or the provincial road RP503, connecting Kalima with the mineral trading center of Mukombe. The area was selected because it is not affected by armed conflicts and has enjoyed relative peace for many years now. Pre-specified conditions for the villages were:

- a population of 150 adults or less,
- proximity to artisanal mines,
- a mixed population of miners and farmers.

The main characteristics of the UCT village and the control village are described in Table 1:

Table 1: General characteristics of UCT and control village

| Characteristics | UCT village | Control village |
|---|---|---|
| ***Population (total)*** | 277 | 114 |
| ***Proportion children*** | 57.8% | 55.3% |
| ***Accessibility*** | Located on the main road | Located on the main road |
| ***Nearest urban center*** | Kalima | Kalima |
| ***Proximity of 3T mines*** | Yes | Yes |
| ***Professional activities*** | Mining/agriculture | Mining/agriculture |
| ***Commercial activities*** | Sales agricultural products | Sales agricultural products |
| ***Electricity*** | Yes | Yes |
| ***School*** | Yes | No (but school in nearby village) |
| ***Price food products:*** | | |
| - ***salt***<br>- ***sugar***<br>- ***manioc flour***<br>- ***rice***<br>- ***palm oil*** | 1500 Fc/unit<br>1000 Fc/unit<br>200 Fc/unit<br>800 Fc/unit<br>1200 Fc/unit | 2000 Fc/unit<br>3000 Fc/unit<br>300 Fc/unit<br>1500 Fc/unit<br>1500 Fc/unit |

The characteristics of both villages are relatively similar although the prices of food products seem higher in the control village.

# 4. Results

## 4.1. Demographics

Table 2 shows the total population and number of households (HHs) in the UCT village and the control village:

Table 2: Total population and number of households

| | UCT village | Control village |
|---|---|---|
| ***Total population*** | 277 | 114 |
| ***Number of adults*** | 117 (42.2%) | 51 (44.7%)* |
| ***Number of children (< 18 y)*** | 160 (57.8%) | 63 (55.3%) |
| ***Number of households*** | 64 | 18 |

*One adult was not present in the village when the baseline survey was done. Proportions are calculated based on 50 adults.

The total population in the UCT village is more than double the population in the control village, but the ratio adults/children is similar in both villages. Demographic data of the populations in both villages is reported as follows:

- At the **individual level (adults)**, we studied age, gender, marital status, number of head of HH, period of residence in the village, education level, and employment (Table 3);
- At the **individual level (gender-disaggregated)**, we studied education level, and employment (Table 4);
- At the **household level**, we studied number of adults, number and schooling of children, average age of adults, presence of miner(s), and highest level of education (Table 5).

### 4.1.1. At the individual level

Table 3: General demographics of surveyed populations

| | UCT village (N = 117) | Control village (N = 50) |
|---|---|---|
| ***Average age (year)*** | 35.7 | 34.8 |
| ***Gender (count/%)*** | | |
| - ***male adults*** | 53 (45.3%) | 22 (44.0%) |
| - ***female adults*** | 64 (54.7%) | 28 (56.0%) |
| ***Marital status*** | | |
| - ***married*** | 91 (77.8%) | 37 (74.0%) |
| - ***not married*** | 6 (5.1%) | 6 (12.0%) |
| - ***divorced*** | 9 (7.7%) | 2 (4.0%) |
| - ***widow(er)*** | 11 (9.4%) | 5 (10.0%) |
| ***Number of HH heads*** | 64 (54.7%) | 18 (35.3%)* |

| | | |
|---|---|---|
| ***In the village his/her entire life (yes)*** | 94 (80.3%) | 45 (90.0%) |
| ***Education*** | | |
| - ***none*** | 17 (14.5%) | 14 (28.0%) |
| - ***primary*** | 41 (35.0%) | 18 (36.0%) |
| - ***secondary*** | 49 (41.9%) | 18 (36.0%) |
| - ***tertiary*** | 10 (8.5%) | - |
| ***Employed (yes)*** | 115 (98.3%) | 43 (86.0%) |

*Proportion calculated

Average age of adults and male to female ratio are similar in the UCT village as the control village (Table 3). As aforementioned the adult-child ratio is also similar - children make up 57.8% of the population in the UCT village and 55.3% of the population in the control village. The percentage of married adults is similar, whereas the proportion of unmarried adults is much higher in the control village than the UCT village (12.0% versus 5.1%). The proportion of heads of HHs, is much higher in the UCT village. The latter can be explained by a larger number of HHs with more than two adults: 38.9% of the HHs in the control village consists of more than two adults, compared to 10.9% in the UCT village. Conversely, the UCT village has proportionally more HHs with one adult than the control village (32.8% versus 11.1%).

Most habitants have lived their entire life in the same village, though the proportion is higher in the control village (90.0%) than in the UCT village (80.3%). People who did not live their entire life in the control village come from another sector in the same territory (5 adults), whereas those who did not live their whole life in the UCT village arrived from another village (3 adults), *groupement* (6 adults), sector (8 adults), territory (4 adults), or province (1 adult).[20]

The proportion of low-educated (i.e., no education or only primary school) villagers is higher in the control village (64.0%) than in the UCT village (49.5%), with the percentage of people without any education, almost double as high. Conversely, the employment rate is higher in the UCT village (98.3% against 86.0% in the control village).

[20] In the DRC provinces are administratively subdivided in territories (*territoires*), territories in chiefdoms (*chefferies)* or sectors (*secteurs)*, chiefdoms/sectors in *groupements,* and *groupements* are composed of villages.

Table 4: Gender-disaggregated demographics

| | UCT village | | Control village | |
|---|---|---|---|---|
| | **Male (*n* = 53)** | **Female (*n* = 64)** | **Male (*n* = 22)** | **Female (*n* = 28)** |
| ***Education:*** | | | | |
| - ***none*** | 2 (3.8%) | 15 (23.4%) | 2 (9.1%) | 12 (42.8%) |
| - ***primary*** | 12 (22.6%) | 29 (45.3%) | 9 (40.9%) | 9 (32.1%) |
| - ***secondary*** | 29 (54.7%) | 20 (31.2%) | 11 (50.0%) | 7 (25.0%) |
| - ***tertiary*** | 10 (18.8%) | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) |
| ***Employment (yes)*** | 51 (96.2%) | 64 (100.0%) | 21 (95.5%) | 22 (78.5%) |

The data confirm gender inequality evidence from the literature [21] (Table 4): in the UCT village, 26.4% of males received no education at all or attended only primary school, compared to 68.7% of female habitants; in the control village 50% of males received no education or attended only primary school, compared to almost 75% of women (Figure 1). A Chi-squared test of independence indicates a statistically significant relationship between gender and education in both the UCT village (X-squared = 27.855, df = 3, $p < .001$) and the control village (X-squared = 7.4186, df = 2, $p = .02$).

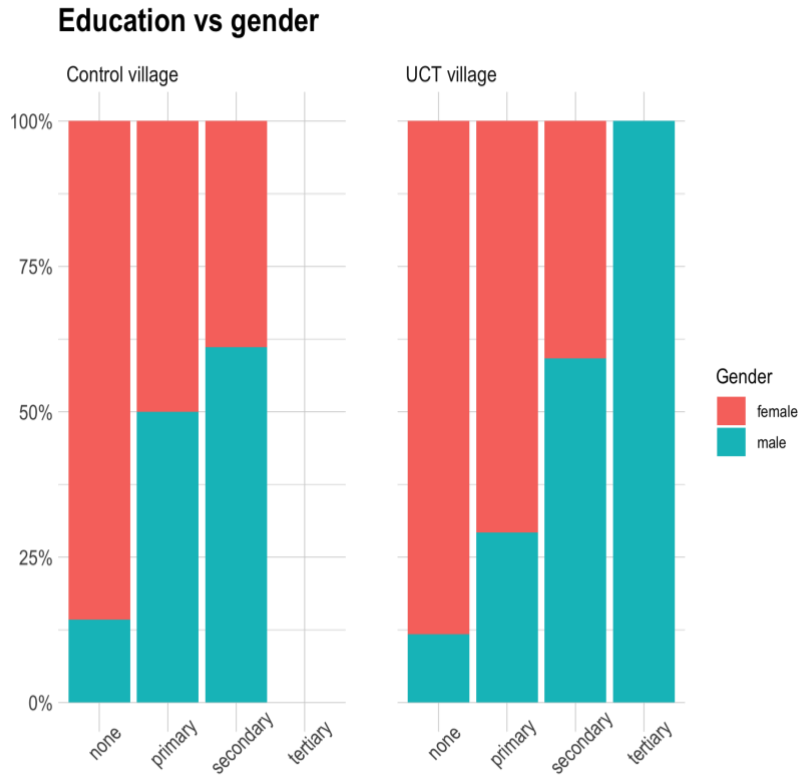


*Figure 1. Relationship between gender and education*

[21] See UNDP Gender Inequality Index (GII) (2015-2019) (http://hdr.undp.org/en/content/gender-inequality-index-gii)

Proportions of low-educated males and females are larger in the control village than in the UCT village (resp. 50% versus 26.4% for males, and about 75% versus 68.7% for females). In the UCT village only, 10 males have received higher education beyond secondary school. The lower education level in the control village does not seem to affect male employment (96.2% and 95.5% of men have a job in the UCT village and the control village, respectively). However, a difference in female employment is observed with 100% of females working in the UCT village, compared to 78.5% in the control village.

### 4.1.2. At the HH level

Table 5: Demographics per HH

| | UCT village (N = 64) | Control village (N = 18) |
|---|---|---|
| ***Average number of adults/HH*** | 1.8 | 2.8 |
| ***Average number of children/HH*** | 2.5 | 3.5 |
| ***Highest education/HH (sec., tert.)*** | 44 (68.7%) | 12 (66.7%) |
| ***Presence of employed member(s) (yes)*** | 64 (100.0%) | 18 (100.0%) |

The average number of adults and average number of children per HH is lower in the UCT village. The proportion of HHs with at least one adult member who received secondary or tertiary education, is similar in both villages, although 10 HHs in the UCT village include one member who has reached the tertiary level of education (and none in the control village). In both villages, all HHs have at least one member who is employed.

## 4.2. Children

At the start of the UCT project there were 160 children in the UCT village and 63 children in control village. The data about the education of the children is disaggregated by sex and age in Table 6.

Table 6: Children age categories and education

| | UCT village (N = 160) | | Control village (N = 63) | |
|---|---|---|---|---|
| | **Male** | **Female** | **Male** | **Female** |
| ***Age: < 6 y*** | 34 (21.2%) | 33 (20.6%) | 12 (19.0%) | 15 (23.8%) |
| ***Age: 6 – 12 y**** | 35 (21.9%) | 35 (21.9%) | 16 (25.4%) | 16 (25.4%) |
| ***School (6 – 12 y)*** | 35 (21.9%) | 34 (21.2%) | 16 (25.4%) | 15 (24%) |
| ***Age: 13 – 17 y***** | 18 (11.2%) | 5 (3.1%) | 2 (3.1%) | 2 (3.1%) |
| ***School (13 – 17 y)*** | 18 (11.2%) | 3 (1.9%) | 2 (3.1%) | 2 (3.1%) |

*including 12 y; **including 17 y

In both villages the population of children is relatively young: 85.6% of children (137/160) in the UCT village and 93.6% of children (59/63) in the control village, are 12 years of age or younger.

### 4.2.1. Education

Contrary to secondary school education, primary school education in the DRC is compulsory. On average children start primary school at the age of 6 years. Public primary education is free of charge (which means that parents do not have to pay school fees), but secondary school is not (in rural areas of Maniema province parents must pay 5000 Fc/child). Additional costs are related to school uniforms, pens, notebooks, etc. in both primary and secondary school.

58.1% of children (93 out of 160 children) in the UCT village and 57.1% of children (36 out of 63 children) in the control village reached the school age (6 – 17 years). School attendance rate is high in both villages:

- Every boy in the 6-17 years age group, attend school in the UCT village and in the control village.
- 92.5% (37 out of 40 girls) and 94.4% (17 out of 18 girls) of girls in the 6-17 years age group, attend school in resp. the UCT village and in the control village.

Summarizing, only a small number of children (girls) at school age do not receive education. It is also noteworthy that most children at school age are in the age group of 6 – 12 years (75.2% and 88.9% in resp. the UCT village and the control village).

### 4.2.2. Child labour

Only four girls at the school age (three in the UCT village and one in the control village) are not attending school but work in agriculture. Two sisters in the age group of 13-17 years, are members of a single-parent (mother) household. The two other girls belong to large or medium-sized HHs (HHs with resp. 12 and 4 children).

Many children combine school and work: 50.0% (45 out of 90 children) and 65.7% (23 out of 36 children) of children attending school in the UCT village and the control village, respectively. They mainly work in agriculture or in the mine. In some households, children combine work in the mine with work in agriculture, or with another job (Table 7). The high proportion of children combining school and work can be explained by the fact that children often must work to help paying schooling costs (see point 4.2.1.).

Table 7: Child labour

| | UCT village (N = 160) | Control village (N = 63) |
|---|---|---|
| ***Combine school/work*** | 45 (28.1%) | 23 (36.5%) |
| ***Children working in mine**** | 18 (11.2%) | 5 (7.9%) |
| ***Children working in agriculture**** | 41 (25.6%) | 22 (34.9%) |
| ***Children doing other job**** | 8 (5.0%) | 2 (3.1%) |

*Some children combine different types of work: consequently, the same child can appear in the statistics of "working in mine", "working in agriculture" or "doing other job".

In the UCT village as well as in the control village, children who work are mainly involved in agriculture, which is in line with the primary occupation of their parents (Table 8).

Analysing the data at the household level reveals that:

- Children combine school and work in 32.8% of HHs in the UCT village, compared to 61.1% in the control village;
- Children (< 18 years) work in the mine in 20.3% of HHs in the UCT village, compared to 27.8% in the control village;
- Children less than 15 years old work in the mine in 18.7% of HHs in the UCT village, compared to 27.8% in the control village;
- Children (< 18 years) work in agriculture in 34.4% of HHs in the UCT village, compared to 61.1% in the control village.

Differences between the UCT village and the control village can be partially explained by the fact that the percentage of HHs without children is higher in the UCT village than in the control village (21.8% versus 16.7%), as well as the percentage of HHs with only children of less than 6 years old (18.7% versus 11.1%). However, the proportion of HHs with children at school age without any reported child labour, is more than twice as high in the UCT village than in the control village (26.5% versus 11.1%).

## 4.3. Employment

The employment rate is high in both villages (about 98% and 86% in the UCT village and the control village, respectively) and the reasons for unemployment are age, medical condition and studying. Both in the UCT village and the control village, the main professional activities are artisanal mining and agriculture, with farming as the dominant occupation in both villages (Table 8).

Table 8: Employment – principal occupation

| | UCT village (N = 117) | Control village (N = 50) |
|---|---|---|
| ***Mining*** | 38 (32.5%) | 13 (26.0%) |
| ***Agriculture*** | 74 (63.2%) | 25 (50.0%) |
| ***Other*** | | |
| - ***Teacher*** | 0 (0.0%) | 3 (6.0%) |
| - ***State agent*** | 1 (0.8%) | 0 (0.0%) |
| - ***Local authority*** | 2 (1.7%) | 1 (2.0%) |
| - ***Itinerant vendor*** | 0 (0.0%) | 1 (2.0%) |
| ***Combining mining with other job*** | 35 (29.9%) | 10 (20.0%) |
| ***Own business*** | 16 (13.6%) | 7 (14.0%) |

The proportion of people with a job, mentioning '*mining*' as their principal occupation, is similar in both villages (33.0% in the UCT village and 30.2% in the control village). The proportion of people with a job, mentioning '*farming*' as their principal occupation, is slightly higher in the UCT village (64.3%) compared to the control village (58.1%). Most of the miners combine mining with another job (mainly farming): 92% and 80% of miners in the UCT village and the control village respectively confirmed having a second job (farming is the second occupation in about 97% of the cases in the UCT village, and in 78% in the control village). Combining artisanal mining with farming is quite common in rural eastern DRC, depending on the season (e.g., in the harvest period the emphasis shifts towards farming).

Analysis of employment at the HH level confirms that agriculture is the dominant occupational activity in both villages (Table 9).

Table 9: Employment at HH level

| | UCT village (N = 64) | Control village (N = 18) |
|---|---|---|
| ***Presence of miner (s) (yes)*** | 35 (54.7%) | 12 (66.7%) |
| ***Presence of farmer(s) (yes)*** | 60 (93.7%) | 16 (88.9%) |

The proportion of HHs with at least one miner is lower in the UCT village than in the control village, whereas proportions of HHs with at least one farmer, are comparable. It is noteworthy that most of the HHs cultivate corn, manioc, vegetables, rice, tomatoes, and/or bananas for their own consumption (98.4% and 88.9% of HHs in resp. the UCT village and the control village).

Analysis of gender-disaggregated data regarding employment, reveals that a clear gender division of labour exists in both villages, with most males working in the mine, and most females employed in agriculture (Table 10). In the control village, none of the female habitants work in the mine.

Table 10: Gender-disaggregated employment

| | UCT village | | Control village | |
|---|---|---|---|---|
| **Employment** | **Male (*n* = 53)** | **Female (*n* = 64)** | **Male (*n* = 22)** | **Female (*n* = 28)** |
| ***Mining*** | 37 (69.8%) | 1 (1.5%) | 13 (59.1%) | 0 (0.0%) |
| ***Agriculture*** | 12 (22.6%) | 62 (96.9%) | 5 (22.7%) | 20 (71.4%) |

### 4.3.1. Artisanal mining

Miners in the UCT village and the control village work on average four days per week (Table 10). Interestingly, only a small minority of the miners possess a miner's card[22], and a majority does not use protective equipment while working in the mine (those who confirmed using protective gear, referred only to '*boots*').

[22] According to the Congolese Mining Code (Law n° 18/001 of 9 Mars 2018) artisanal miners must hold a licence (*carte d'exploitant artisanal*).

Table 11: Artisanal miners

| | UCT village (*n* = 38) | Control village (*n* = 13) |
|---|---|---|
| **Average number of days/week** | 4.4 | 4.2 |
| ***Miner's card (yes)*** | 5 (13.1%) | 1 (7.7%) |
| ***Protective equipment (y)*** | 12 (31.5%) | 6 (46.1%) |

### 4.3.2. Private business

We asked each adult if she/he runs a business (shop, restaurant, or other form of private business): 13.6% and 14.0% of respondents in the UCT village and the control village confirmed having a business (Table 8).

Assuming that it is possible that several members of the same HH participate in the same business, we analysed this variable also at the HH level: at least one person is involved in a business in 18.7% of HHs in the UCT village and in 38.9% of the control village's HHs. In only 3 HHs in the UCT village, more than one HH member reported having a business. In the control village, all businesses are agriculture-related (*'agricultural business'*, *'food/agricultural products shop'*), whereas in the UCT village the business landscape is more diverse, with agriculture-related businesses (56.2% among the respondents who confirmed running a business), shops for household goods (18.7%), *'pharmacy'* (12.5%), mobile phone vendor (6.2%), and supplier of timber (6.2%). Two HHs in the UCT village combine two different businesses.

Both villages are comparable in terms of the proportion of inhabitants that is involved in a private business but differ substantially with respect to the proportion of HHs running businesses (in control village more than double compared to the UCT village).

Respondents without a private business were asked why they did not start their own business. Not surprisingly, in the UCT village as well as in the control village the dominant reason is *'lack of means'* (70.3% in the UCT village and 60.4% in the control village). Other reasons given by respondents who did not start a business are: *'lack of ideas'*, *'lack of skills'*, and *'fear to fail'*. Five people in the UCT village (4.3%) and one in the control village (2.0%) started a business but failed.

## 4.4. Socio-economic well-being

### 4.4.1. Housing and electricity

Most people live in a permanent house (97.4% in the UCT village and 98.0% in the control village), and most heads of HH confirmed that they own the house which they live in (92.2% in the UCT village and 88.9% in the control village). In the control village, most habitants live in a brick house (98.0%, or 49 out of 50), whereas in the UCT village, 50.4% (59 out of 117) confirmed to live in a brick house, 48.7% (57) in a house built of mud walls, and one person in a house built of straw or reed. In control village most people live in a house with a thatched roof (92.0%, or 46 out of 50), 8.0% (4) live in a house with a roof of corrugated sheets, which is comparable with the situation in the UCT village where 86.3% (101 out of 117) of the villagers live in houses with a thatched roof and 11.9% *(*14) in a house with a roof of corrugated sheets.

About 47.0% (55 out of 117) of habitants in the UCT village, and 38.0% (19 out of 50) in the control village reported that they have access to electricity. Analysis at the HH level shows there is no real difference between the two villages, with 53.1% of HHs (34/64) in the UCT village with at least one member reporting access to electricity, and 50.0% of HHs (9/18) in the control village. Solar panels are the main source of electricity in the two villages.

Some members of the same HH can live in separate buildings (in annexes of the main building), on the same plot of land. These buildings can be made of different materials, and it is also possible that some of them are not connected to the solar system (and do not have electrical power).

### 4.4.2. Possessions

We assessed the capacity to invest in professional equipment and livestock, or to buy consumer goods such as a mobile phone, radio, TV, refrigerator, generator, bicycle, motorcycle, or car, both at the individual and the HH level (Table 11).

Table 12: Being in possession of livestock, equipment, consumer goods

| At the individual level | | |
|---|---|---|
| | **UCT village (N =117)** | **Control village (N = 50)** |
| ***Livestock*** | 74 (63.2%) | 24 (48.0%) |
| ***Agricultural equipment*** | 112 (95.7%) | 41 (82.0%) |
| ***Mining equipment*** | 43 (36.7%) | 18 (36.0%) |
| ***Consumer goods*** | 79 (67.5%) | 50 (100.0%) |
| **At the HH level** | | |
| | **UCT village (N = 64)** | **Control village (N =18)** |
| ***Livestock*** | 41 (64.0%) | 11 (61.1%) |
| ***Agricultural equipment*** | 63 (98.4%) | 17 (94.4%) |
| ***Mining equipment*** | 38 (59.4%) | 13 (72.2%) |
| ***Consumer goods*** | 42 (65.6%) | 18 (100.0%) |

#### 4.4.2.1. Livestock

Forty-one HHs in the UCT village and 11 HHs in the control village keep livestock (64.0% versus 61.1%). The dominant livestock type is poultry: 54,7% of HHs (35 out of 64 HHs) in the UCT village and 61.1% of HHs (11 out of 18) in the control village, raise poultry.

Other livestock types are less common: 10 HHs (15.6%) in the UCT village and 5 HHs (27.8%) in the control village keep cattle; 5 HHs (7.8%) in the UCT village have pigs and 3 HHs (4.7%) keep sheep.

Both villages are comparable in terms of proportion of HHs keeping livestock, but the available livestock in the UCT village is more varied.

#### 4.4.2.2. Professional equipment

Most households possess basic agricultural equipment such as machetes (resp. 78.1% and 88.9% of HHs in the UCT village and control the village), hoes (resp. 89.0% and 83.3% of HHs in the UCT village and the control village), and spades (resp. 53.1% and 66.7% of HHs in the UCT village and the control village). More

sophisticated equipment is rare: only one HH (1.5%) in the UCT village and 4 HHs (22.2%) in the control village possess a plough.

Mining equipment is available in about 60% of HHs in the UCT village and 72% of HHs in the control village (Table 11). This is consistent with the statistics about employment at the HH level, with the UCT village showing a lower proportion of HHs with at least one miner, compared to the control village (Table 9). In general, villagers use basic equipment to work in artisanal mines, namely machetes (resp. 46.9% and 61.1% of HHs in the UCT village and the control village) and spades (resp. 57.8% and 61.1% of HHs in the UCT village and the control village). Few HHs have other mining equipment such as pickaxes (two HHs in UCT village and one in the control village), crowbars (seven HHs in the UCT village and one in the control village). Only one HH in the UCT village is in the possession of a jackhammer.

In both villages, most miners and farmers use basic equipment, lacking more advanced or mechanized equipment that would enable them to increase the production.

#### 4.4.2.3. Consumer goods

Table 13 shows the availability of several consumer goods at HH level (respondents had to select goods from a fixed list):

Table 13: Availability of consumer goods at HH level

| At least one member/HH | UCT village (N = 64) | Control village (N = 18) |
|---|---|---|
| ***Mobile phone*** | 33 (51.5%) | 10 (55.5%) |
| ***Radio*** | 19 (29.7%) | 16 (88.9%) |
| ***TV*** | 10 (15.6%) | 2 (11.1%) |
| ***Bike*** | 4 (6.3%) | 0 (0.0%) |
| ***Motorcycle*** | 4 (6.3%) | 0 (0.0%) |
| ***Refrigerator*** | 0 (0.0%) | 0 (0.0%) |
| ***Generator*** | 0 (0.0%) | 0 (0.0%) |
| ***Car*** | 0 (0.0%) | 0 (0.0%) |

The main consumer goods available in both villages are mobile phones and radios. Only some HHs in the UCT village possess a bike or a motorcycle. HHs do not have refrigerators, generators, or cars. As solar panels are used to generate electricity in both villages, there is no need for generators.

Remarkably, 8 out of 10 HHs in the UCT village possessing a TV, are mining HHs (with at least one adult member working in the mine); both HHs in de control village with a TV, are mining HHs (all these HHs have access to electricity, except one in the UCT village).

### 4.4.3. Nutrition

Table 14: Number of meals per day

| | UCT village (N = 117) | Control village (N = 50) |
|---|---|---|
| ***One meal/day*** | 13 (11.1%) | 0 (0.0%) |
| ***Two meals/day*** | 77 (65.8%) | 48 (96.0%) |
| ***Three meals/day*** | 27 (23.1%) | 2 (4.0%) |

The proportion of people having two meals/day is clearly higher in the control village than in the UCT village (96.0% versus 65.8%); inversely, the proportion of villagers taking three meals a day is higher in the UCT village than in the control village (23.1% versus 4.0%). Only in the UCT village some people take only one meal per day (Table 14).

Analysing the group of people taking only one meal per day ($n$ = 13), we observe that 61.5% of them are females, and 46% of them are the only adult in the HH (5/6 are females).

We also asked the villagers if there were days in the past month, they did not have enough to eat: 76.0 % and 86.0% of habitants in the UCT village and the control village respectively, reported days they did not eat enough (with no notable differences between males and females).

To get a sense of people's diet we asked what foodstuffs they eat daily, once or a few times a week, and less than once a week (respondents could select foodstuffs from a multiple-choice list) (Table 15).

Table 15: Food consumption

| | UCT village (N = 117) | Control village (N = 50) |
|---|---|---|
| ***Daily meals*** | | |
| ***Fufu*** | 114 (97.4%) | 49 (98.0%) |
| ***Vegetables*** | 115 (98.3%) | 50 (100.0%) |
| ***Rice*** | 9 (7.7%) | 1 (2.0%) |
| ***Bread*** | 3 (2.5%) | 0 (0.0%) |
| ***Fritter (beignets)*** | 2 (1.7%) | 1 (2.0%) |
| ***Fish*** | 4 (3.4%) | 4 (8.0%) |
| ***Meat (poultry)*** | 2 (1.7%) | 0 (0.0%) |
| ***Meat (beef, goat, sheep, pork)*** | 3 (2.5%) | 0 (0.0%) |
| ***Once or a few times a week*** | | |
| ***Rice*** | 82 (70.1%) | 42 (84.0%) |
| ***Fish*** | 96 (82.0%) | 41 (82.0%) |
| ***Fritter (beignets)*** | 6 (5.1%) | 1 (2.0%) |
| ***Bush meat*** | 16 (13.6%) | 3 (6.0%) |
| ***Meat (poultry)*** | 11 (9.4%) | 1 (2.0%) |
| ***Meet (beef, goat, sheep, pork)*** | 15 (12.8%) | 6 (12.0%) |
| ***Eggs*** | 1 (0.8%) | 0 (0.0%) |
| ***Fruits*** | 5 (4.3%) | 1 (2.0%) |
| ***Less than once week*** | | |
| ***Rice*** | 22 (18.8%) | 0 (0.0%) |
| ***Bread*** | 6 (5.1%) | 0 (0.0%) |
| ***Fritter (beignets)*** | 6 (5.1%) | 0 (0.0%) |
| ***Bush meat*** | 22 (18.8%) | 22 (44.0%) |
| ***Meat (poultry)*** | 54 (46.1%) | 11 (22.0%) |
| ***Meat (beef, goat, sheep, pork)*** | 84 (71.8%) | 31 (62.0%) |
| ***Eggs*** | 9 (7.7%) | 3 (6.0%) |
| ***Fruits*** | 14 (11.9%) | 4 (8.0%) |

*Daily meal*

Most adult villagers eat only fufu (dough-like food made of manioc) and vegetables daily: 87.1% of habitants (102 out of 117) in the UCT village and 90.0% (45 out of 50) in the control village. About 8.5% of respondents (10/117) in the UCT village and just one person in the control village, combine fufu and vegetables daily with rice or bread (or have it as an alternative for fufu). Only 4.2% (5/117) of people in the UCT village combine vegetables and fufu with fish or meat (poultry or pork), and 8.0% (4/50) in the control village, combine it with fish only.

*Foodstuff eaten once a week (or a few times a week, but not daily)*

The vast majority of adult villagers consume rice and fish once or a few times a week:

- Rice: about 70.0% of habitants (82/117) in the UCT village, and 84.0% of habitants (42/50) in the control village;
- Fish: 82.1% of habitants (96/117) in the UCT village, and 82.0% of habitants (41/50) in the control village.

Less than 15% eat bush meat, poultry, beef, goat, sheep, and pork on a weekly basis, although bush meat and poultry are consumed by a significantly larger proportion of habitants in the UCT village than the control village (resp. 13.6% and 9.4% versus 6.0% and 2.0%).

*Foodstuff consumed less than once a week*

Most adult villagers eat less than once a week beef, pork, sheep, and goat as reported by almost 72.0% of inhabitants (84 out of 117) in the UCT village, and 62.0% of inhabitants (31 out of 50) in the control village. A little less than half of inhabitants of the UCT village (46.1%) eat poultry less than once a week, and 44.0% of inhabitants of the control village each bush meat less than once a week.

Summarizing, a clear and comparable tendency regarding food consumption is observed in both villages:

- Most villagers eat each day fufu and vegetables;
- Many eat weekly rice and fish;
- Meat is only occasionally consumed (less than once a week).

Finally, we tried to assess how much HHs spend on food on a weekly base. We did so by asking the head of HH and his spouse separately, to estimate the amount spent in *Franc Congolais* (Fc) (Table 16).[23]

Table 16: Average and median weekly spending on food (in Fc)

| | Head of HH* | | Spouse | |
|---|---|---|---|---|
| | **Average** | **Median** | **Average** | **Median** |
| ***UCT village*** | 10,567 | 7,000 | 10,344 | 7,000 |
| ***Control village*** | 6,083 | 3,750 | 8,042 | 6,000 |

*Including single-parent HHs (mainly women)

[23] At the current exchange rate 1 USD = 2000 Fc.

On average, an HH in the control village seems to spend a bit less on food than an HH in the UCT village (with consistency between estimates of HH head and spouse). In the control village the spouse tends to estimate weekly food spending a bit higher than the head of HH.

### 4.4.4. Debts and savings

Almost half of the respondents in the UCT village (45.3%) and in the control village (48.0%) admitted that they owe a debt. In both villages the proportions of men having debts are higher compared to women (in the UCT village: 49.0% versus 42.2%; in the control village 59.1% versus 39.3%).

Remarkably, many respondents who confirmed that they owe a debt, also answered that they were able to save money (92.5% in the UCT village and 100.0% in the control village). This apparent contradiction could be partially explained by the fact that some of the villagers are a member of savings and credit associations or groups (e.g., *mutuelles, tontines)*. Members of these associations are expected, and have the moral obligation, to contribute financially to the association on a regular basis (weekly, monthly).[24] When members are not able to pay their contributions (e.g., for economic reasons), they start accumulating debt while participating in a savings system. Members of credit associations who contribute regularly, can ask the association for a loan which has to be reimbursed. This is again a situation of debt creation while saving money by participating in a savings system. More in general, the fact that most inhabitants have an income and most probably have some cash at home, could have motivated people to answer that they can (could) save money (put aside some money), even if they owe debts.

## 4.5. Health

Health status indicators are essential to assess people's physical and mental health being. Comparing health perception ('*how would you assess your health today?*') reveals differences between the UCT village and the control village (Table 16). The percentage of habitants confirming they feel healthy or very healthy is clearly higher in the UCT village than in the control village. Inversely, the proportion of people self-assessing their health as bad or very bad is lower in the UCT village.

[24] F.J.A. Bouman. Rotating and Accumulating Savings and Credit Associations: A Development Perspective. *World Development* 1995, 23 (3): 371-384; M. Le Polain. Dettes et liens: deux moteurs de l'épargne populaire au Sud Kivu (R.D. Congo). *Mondes et Développement* 2018, 46 (181): 41-56.

Table 17: Health perception

| Health | UCT village (N = 117) | Control village (N = 50) |
|---|---|---|
| ***Good – very good*** | 64 (54.7%) | 23 (46.0%) |
| ***Average*** | 24 (20.5%) | 9 (18.0%) |
| ***Bad – very bad*** | 28 (23.9%) | 17 (34.0%) |

Interestingly, we observed a significant relationship between health perception and level of education in the control village (chi-squared = 13.3, df = 5, $p$ = .02), which may indicate that people with a higher education tend to feel healthier than less educated people. In the UCT village, although suggestive of an association, the test did not achieve statistical significance (chi-squared = 8.57, df = 4, $p$ = .07) (Figure 2).

By contrast, we do not observe any significant relationship between health and employment ($p$ > .15), which means that there is no evidence to conclude whether people work regardless they feel healthy or not (Figure 3).

We also do not find any evidence of a significant relationship between education and access to medication (Figure 4) ($p$ > .50): irrespective of their level of education, people may have money to buy medication, borrow money to buy medication, or use traditional medicine.

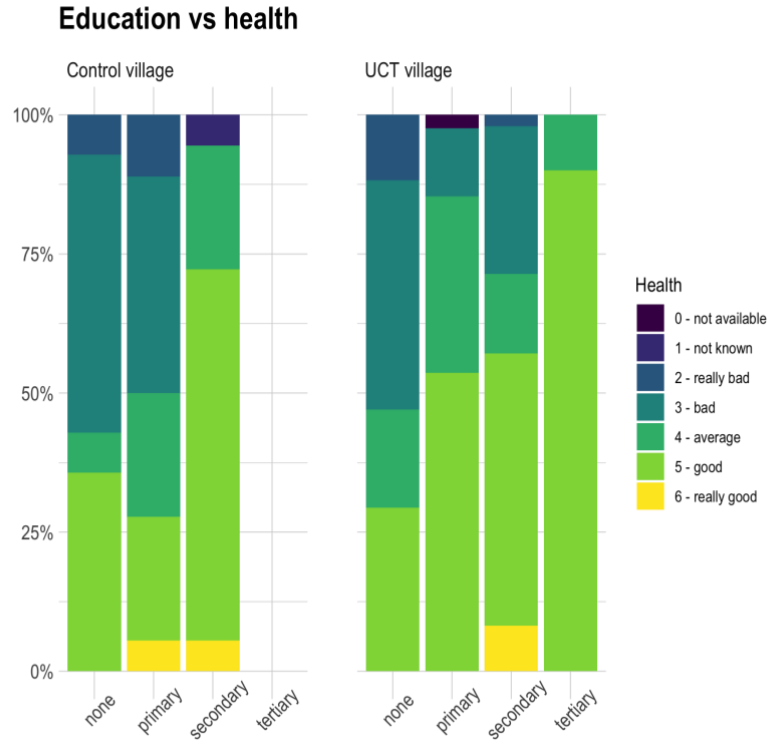


*Figure 2. Relationship between education and health*

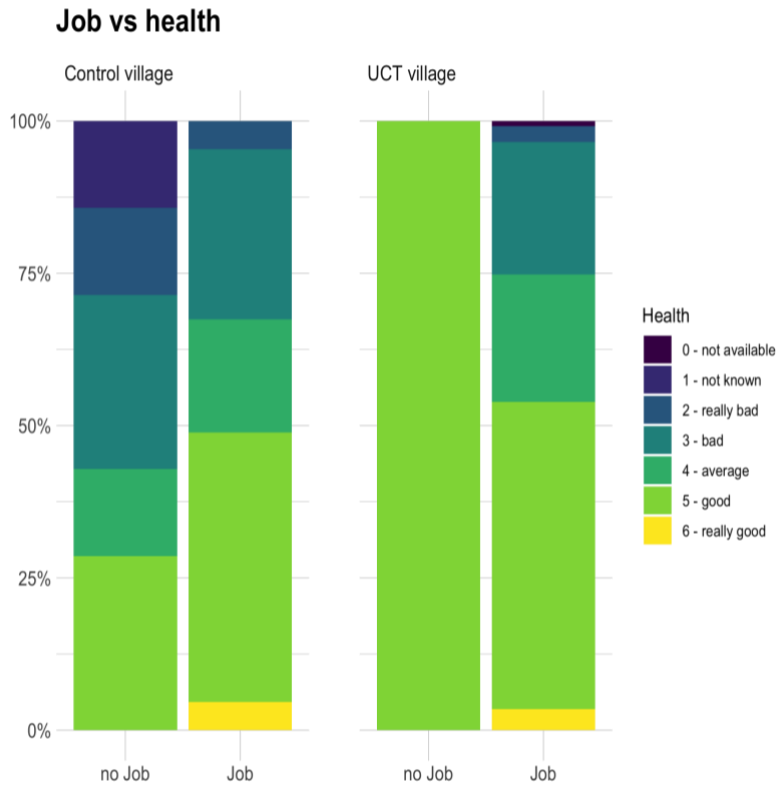


*Figure 3. Relationship between employment and health*

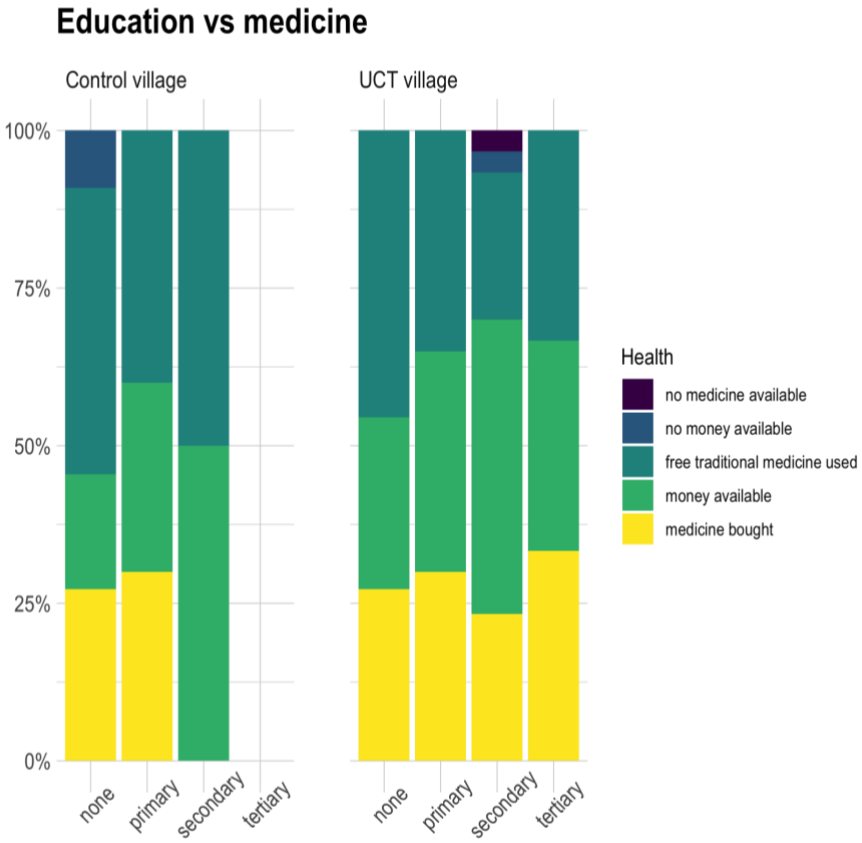


*Figure 4. Relationship between education and access to medication*

Data by gender show differences between males and females regarding their personal health perception (Table 18): the proportion of females in the control village self-assessing their health as good/very good is much smaller than in the group of males (28.5% versus 68.1%); the difference is less pronounced in the UCT village, where 50.0% of females feel healthy compared to 60.4% of males. The health perception of the adult male population of the UCT village, is the same as male health perception in the control village. The relationship between gender and health perception is close to our significance threshold for the control village ($p$ = .05), but there is no evidence of an association for the UCT village ($p$ = .32) (Figure 5).

Table 18: Health perception by gender

| | UCT village | | Control village | |
|---|---|---|---|---|
| **Health** | **Male ($n$ = 53)** | **Female ($n$ = 64)** | **Male ($n$ = 22)** | **Female ($n$ = 28)** |
| ***Good – very good*** | 32 (60.4%) | 32 (50.0%) | 15 (68.1%) | 8 (28.5%) |
| ***Moderate*** | 9 (16.9%) | 15 (23.4%) | 3 (13.6%) | 6 (21.4%) |
| ***Bad – very bad*** | 12 (22.6%) | 16 (25.0%) | 4 (18.1%) | 13 (46.4%) |

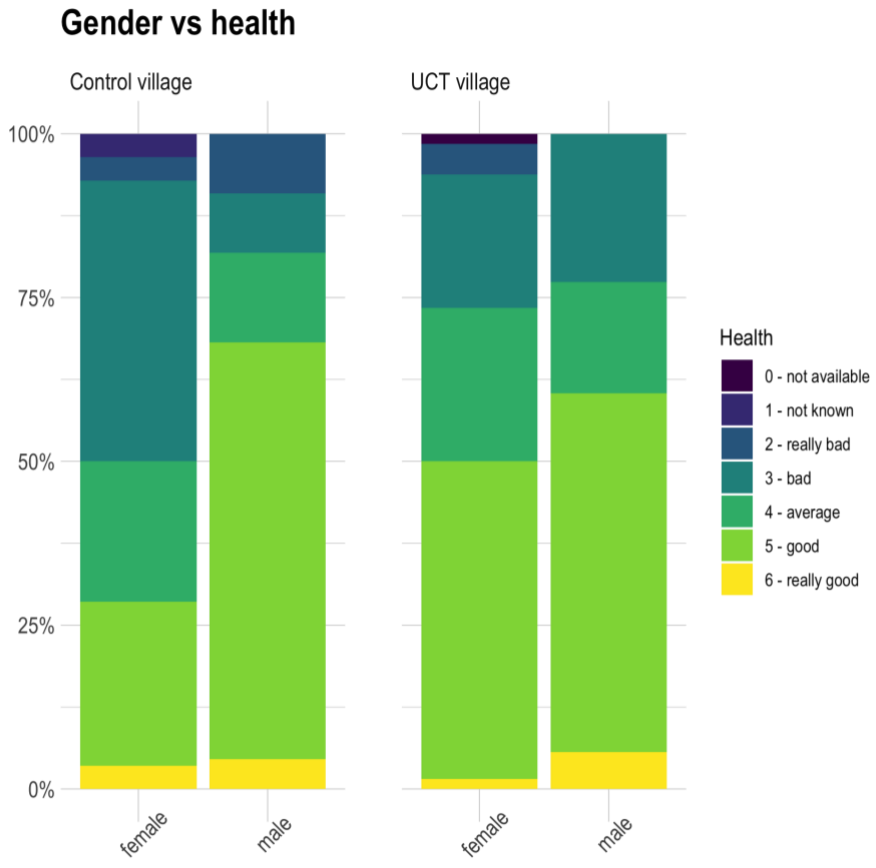


*Figure 5. Relationship between gender and health perception*

### 4.5.1. Physical health

The proportion of adults who were once or multiple times seriously ill during the past year, is larger in the UCT village than in the control village (57.2% versus 46.0%). An important proportion of ill people use traditional, free-of-charge medicine: this proportion is larger in the control village (43.5%) than in the UCT village (31.3%). Inversely the proportion of habitants who were able to pay for the medication is larger in the UCT village (38.8%) than in the control village (26.1%) (Table 19). The data suggest that more people were able and/or were willing to buy medication to cure their illness in the UCT village than in the control village (65.6% versus 52.2%), where the use of traditional treatments seems more popular.

Table 19: Illness in the previous year and capability to buy medication

| Illness | UCT village (N = 117) | Control village (N = 50) |
|---|---|---|
| ***Seriously ill in past year (yes)*** | 67 (57.2%) | 23 (46.0%) |
| ***Capable of buying medication:*** | | |
| - ***Yes, I had money*** | 26/67 (38.8%) | 6/23 (26.1%) |
| - ***Yes, I borrowed money*** | 18/67 (26.8%) | 6/23 (26.1%) |
| - ***No, I did not have money*** | 1/67 (1.5%) | 1/23 (4.3%) |
| - ***No, medication not available*** | 1/67 (1.5%) | 0/23 (0.0%) |
| - ***I used traditional medicine*** | 21/67 (31.3%) | 10/23 (43.5%) |

In the UCT village, gender-disaggregated data show that the proportion of females who were seriously ill in the previous year is near the proportion of males (59.3% versus 54.7%), whereas in the control village the proportion of females is much larger (57.1% versus 31.8%; which is consistent with the health perception data, Table 17). However, we do not observe a statistically significant relationship between gender and access to medication in the UCT village or in the control village ($p > .5$) (Figure 6).

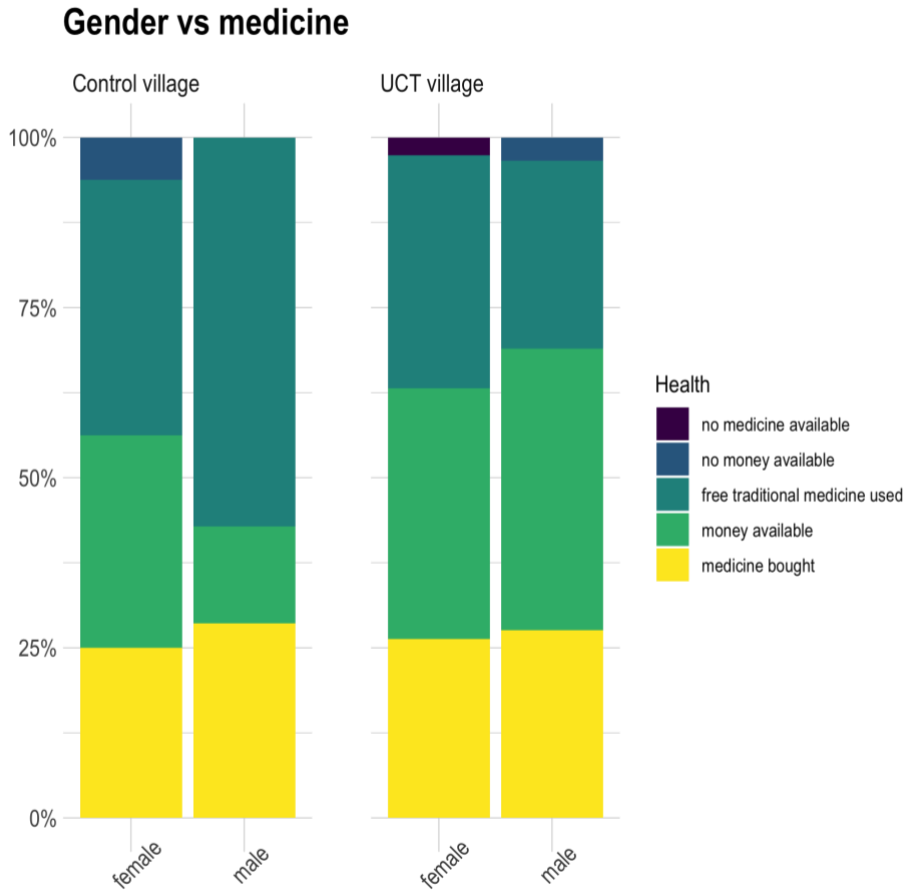


*Figure 6. Relationship between gender and access to medication*

In Table 20, we show the health situation of children at the HH level (i.e., in how many HHs children were once or multiple times seriously in the previous year).

Table 20: Illness of children and capacity to buy medication

| Illness children | UCT village (*n* = 50)* | Control village (*n* = 15)* |
|---|---|---|
| ***Children seriously ill in past year (yes)*** | 41(82.0%) | 14 (93.3%) |
| ***Capable of buying medication:*** | | |
| - ***Yes, I had money*** | 22 (44.0%) | 9 (60.0%) |
| - ***Yes, I borrowed money*** | 22 (44.0%) | 10 (66.7%) |
| - ***No, I did not have money*** | 2 (4.0%) | 0 (0.0%) |
| - ***No, medication not available*** | 0 (0.0%) | 0 (0.0%) |
| - ***I used traditional medicine*** | 6 (12.0%) | 1 (6.7%) |

*Only HHs with children

Interestingly, both in the UCT village and the control village parents seem to avoid using traditional medication for the treatment of their sick children (in about 30.0% and 44.0% of HHs in the UCT village and the control village respectively, adults resorted to traditional medicine for their own treatment). The majority of HHs in both villages try to buy medication for the sick children (resp. 86.7% of HHs, or 13 out of 15 in the control village, and 70.0% of HHs, or 35 out of 50 in the UCT village).

In the past year 73.5% of habitants (86 out of 117) of the UCT village and 86.0% of habitants (43 out of 50) of the control village visited a healthcare facility. The most important reasons for a visit to a healthcare facility were personal illness, sick children, and visiting hospitalized family members or friends (Table 21).

Table 21: Reasons to visit a healthcare centre

| Reason visit healthcare centre | UCT village (N = 117) | Control village (N = 50) |
|---|---|---|
| ***Personal illness*** | 42 (36.0%) | 10 (20.0%) |
| ***Illness of child*** | 59 (50.5%) | 36 (72.0%) |
| ***Visit family, friends*** | 41 (35.0%) | 37 (74.0%) |
| ***Pregnancy*** | 4 (3.5%) | 3 (6.0%) |
| ***Vaccination*** | 2 (1.5%) | 3 (6.0%) |

In resp. 17.9% and 10.0% of respondents in the UCT village and the control village, people admitted that they were not able to attend a medical centre in the past year despite being ill or one of their children being ill, because they did not have enough money.

Alcohol consumption is proportionally higher in the control village than in the UCT village, with 44.0% of respondents consuming now and then alcohol in the control village, compared to 15.4% in the UCT village. Gender disaggregated data reveal a large difference between males and females regarding alcohol consumption in both villages: in the UCT village 26.4% of males and 6.2% of females consume alcohol occasionally, while in the control village 77.3% of males and 17.8% of females consume alcohol occasionally.

### 4.5.2. Mental well-being

#### 4.5.2.1. Happiness

We asked respondents to self-assess their "happiness" by selecting one of several choices (i.e., '*very good*', *'good'*, *'moderate'*, *'bad'*, '*very bad*', '*do not know*'). Respondents were also asked to explain why they were happy or unhappy by selecting one or several answer options related to family, marriage, education of children, health, work, money, housing, nutrition, security, and other reasons.

Most villagers consider themselves as happy with 88.0% of adults in the control village (44 out of 50) and 81.2% in the UCT village (95 out of 117) who answered that they felt "good" or "very good". Only 5.1% (6/117) in the UCT village and 2.0% (1/50) in the control village considered themselves unhappy (i.e., '*bad'* and '*very bad'*). The main reasons of unhappiness were the decease of a family member, sickness, and poor quality of housing. The most important reasons for happiness were a stable family, an income, enough to eat, living in a decent house, and children attending school. Some respondents also referred to the peace in their region (i.e., no activity of non-state armed groups).

However, data regarding "happiness" should be considered with caution, because several respondents seemed to link their state of happiness to the visit of a surveyor of an international NGO, answering for example that "they were happy to be selected", "happy to receive visitors", or "they hope that new projects would start in their village". This means that the presence of a surveyor may introduce a bias by creating expectations for the future, influencing positively the respondent's answers about happiness.

To be able to evaluate change in happiness over time, we will ask people in the follow-up surveys to assess if the feel happier or less happy than the year before.

#### 4.5.2.2. Safety

Safety is a crucial factor in daily life in Eastern Congo, having a tremendous impact on the well-being of Congolese citizens, especially in rural areas. Eastern Congo has been torn apart by armed conflict and persistent violence in the past two decades. Unlike the situation in the provinces of North Kivu, South Kivu and Ituri, where armed conflict is still devastating rural communities, Maniema - in particular Pangi territory - has been spared from violence by non-state armed groups in recent years.

We asked inhabitants of the UCT village and the control village if they feel secure in their villages, and why they feel secure or insecure. We observed a clear difference between the two villages, with a larger proportion of the population of the control village feeling unsafe compared to the UCT village (26.0% versus 4.2%, Table 22).

Table 22: Perception of security

| Safety | UCT village (N = 117) | Control village (N = 50) |
|---|---|---|
| ***Good – very good*** | 98 (83.7%) | 28 (56.0%) |
| ***Moderate*** | 13 (11.1%) | 7 (14.0%) |
| ***Bas – very bad*** | 5 (4.2%) | 13 (26.0%) |

However, analysing the reasons given by respondents who answered they feel unsafe, shows different interpretations of the concept of "safety": people in the UCT village referred mainly to physical safety (i.e., theft, absence of police in the village), whereas some habitants in the control village (*n* = 6) apparently showed a wider interpretation, including food and environmental safety, such as polluted water and lack of a diverse diet (some referred to the fact that they only eat fufu and vegetables, mainly *sombe*, see also point 4.4.3.). The main reasons people feel safe in their village are that there is peace in the area (absence of war, rebels, armed groups, stability, resp. 15.3% and 42.8% of respondents who feel safe in the UCT village and the control village), and that villagers live in harmony (absence of disputes among villagers, resp. 65.3% and 28.5% of respondents who feel safe in the UCT village and the control village).

Remarkably, there is a clear difference between males and females in the control village regarding their perception of safety: 46.4% of females feel safe in the village, versus 68.2% of males, and 35.7% of females feel unsafe compared to 13.6% of males. In the UCT village 78.1% of females and 90.5% of males feel safe in their village (only 5.6% of males and 3.1% of females reported feeling unsafe in their village).

Violence was absent in both villages during the past year with only two persons (one woman and one man) in the UCT village who reported that they have been a victim of violence.

## 4.6. Collective participation and independent decision making

### 4.6.1. Civil society

Proportionately, twice as many people participate in civil society organisations (CSO) in the UCT village, compared to the control village (33.3% versus 16.0% of the population). Moreover, we observe a difference between males and females, which is especially apparent in the control village (Table 23).

Table 23: Gender-disaggregated data on CSO participation

| | UCT village | | Control village | |
|---|---|---|---|---|
| **CSO participation** | **Male (*n* = 53)** | **Female (*n* = 64)** | **Male (*n* = 22)** | **Female (*n* = 28)** |
| ***Yes*** | 20 (37.7%) | 19 (29.7%) | 8 (36.3%) | 0 (0.0%) |
| ***No*** | 33 (62.2%) | 45 (70.3%) | 14 (63.6%) | 28 (100.0%) |

Females in the control village do not at all participate in CSOs; in the UCT village the proportion of females who are member of a CSO, is lower than the proportion of males. The CSO landscape is also more diverse in the UCT village than in the control village, probably due to the lower number of adult habitants in the control village (Table 24).

Table 24: CSO types active in the villages

| CSO | UCT village (N = 117) | Control village (N = 50) |
|---|---|---|
| ***Cooperative*** | 3 (2.5%) | 7 (14.0%) |
| ***Agricultural association*** | 3 (2.5%) | 0 (0.0%) |
| ***Women's association*** | 6 (5.1%) | 0 (0.0%) |
| ***Mutuelle*** | 19 (16.2%) | 0 (0.0%) |
| ***Tontine*** | 7 (5.9%) | 0 (0.0%) |
| ***Church*** | 2 (1.7%) | 1 (2.0%) |
| ***Socio-cultural organisation*** | 1 (0.8%) | 0 (0.0%) |

The mining cooperative[25] seems to be the most active organisation in the control village with six members among the villagers (14.0% of the total

[25] According to the Congolese Mining Code (*Code Minier*) artisanal miners must belong to an accredited mining cooperative.

population or about 58% of all artisanal miners in the village). In the UCT village savings associations (i.e., *mutuelle, tontine)* are most popular with about 22% of the inhabitants being members. Six habitants of the UCT village are member of a women's association[26], and two of them are also active in an agricultural organisation. Remarkably, in the UCT village only three respondents confirmed being a member of a mining cooperative (2.5% of the population and only 7.8% of all miners in the village). In the UCT village, all three cooperative members participated in the past year in meetings of the cooperative (monthly or more than once a month), whereas in the control village six out of seven members (monthly or more than once a month). All members of the savings associations in the UCT village ($n$ = 26) participated in the past year, weekly, monthly or multiple times a year in meetings. Five out of six members of the women's association participated weekly, monthly, or multiple times a year in the organisation's meetings.

### 4.6.2. Civic engagement

To assess the extent to which people take initiative to consult authorities or other state actors, we asked if people contacted local authorities, traditional authorities, public state services or members of political parties in the past year (Table 25).

Table 25: civic engagement

| Civic engagement | UCT village (N = 117) | Control village (N = 50) |
|---|---|---|
| ***Contact local authorities*** | 9 (7.6%) | 4 (8.0%) |
| ***Contact traditional chiefs*** | 12 (10.2%) | 7 (14.0%) |
| ***Contact public services*** | 1 (0.8%) | 9 (18.0%) |
| ***Contact politicians*** | 0 (0.0%) | 3 (6.0%) |

The populations of the UCT village and the control village are comparable with respect to the extent they connect with local and traditional authorities, but there seems to be a large difference between the villages about seeking recourse from public services and politicians (resp. 0.8% and 0% of the population in the UCT village, versus 18.0% and 6.0% in the control village).

The main reasons why people contact local or traditional authorities are:

[26] The women's association active in The UCT village is actually a microcredit organisation (*Akiba na mkopo).*

- Courtesy visit;
- To discuss the situation and organisation of the village;
- Security issues;
- Family issues;
- Problems with children;
- Work-related topics;
- Forest related issues;
- Customary matters.

The main reasons why people consult state services are:

- Courtesy matters;
- Education;
- Work-related issues;
- Security matters.

Gender-disaggregated data show clear differences between males and females (Table 26):

Table 26: gender-disaggregated civic engagement

| | UCT village | | Control village | |
|---|---|---|---|---|
| **Civic engagement** | **Male (*n* = 53)** | **Female (*n* = 64)** | **Male (*n* = 22)** | **Female (*n* = 28)** |
| ***Local authorities*** | 8 (15.1%) | 1 (1.5%) | 4 (18.1%) | 0 (0.0%) |
| ***Traditional chiefs*** | 8 (15.1%) | 4 (6.2%) | 5 (22.7%) | 2 (7.1%) |
| ***Public services*** | 1 (1.9%) | 0 (0.0%) | 7 (31.8%) | 2 (7.1%) |
| ***Politicians*** | 0 (0.0%) | 0 (0.0%) | 3 (13.6%) | 0 (0.0%) |

In both villages it is clearly man's responsibility to seek recourse from or discuss issues with official authorities and services.

### 4.6.3. Decision making within the household

We finally assessed how the decision-making process takes place per household by asking if adults decide independently or in concertation with each other on HH-related matters (Table 27).

Table 27: Decision making within the household

| | UCT village (N = 117) | Control village (N = 50) |
|---|---|---|
| **The way I spend the money I earn:** | | |
| ***I decide alone*** | 22 (18.8%) | 18 (36.0%) |
| ***I decide together with my partner*** | 91 (77.8%) | 30 (60.0%) |
| ***My partner decides*** | 3 (2.5%) | 2 (4.0%) |
| **The money is spent for the children:** | | |
| ***I decide alone*** | 24 (20.5%) | 18 (36.0%) |
| ***I decide together with my partner*** | 90 (76.9%) | 30 (60.0%) |
| ***My partner decides*** | 3 (2.5%) | 2 (4.0%) |
| **Decisions on education of children:** | | |
| ***I decide alone*** | 24 (20.5%) | 18 (36.0%) |
| ***I decide together with my partner*** | 90 (76.9%) | 30 (60.0%) |
| ***My partner decides*** | 3 (2.5%) | 2 (4.0%) |
| **Time spent on work, household, children, leisure,..:** | | |
| ***I decide alone*** | 22 (18.8%) | 18 (36.0%) |
| ***I decide together with my partner*** | 91 (77.8%) | 30 (60.0%) |
| ***My partner decides*** | 3 (2.5%) | 2 (4.0%) |
| **How many children I want to have:** | | |
| ***I decide alone*** | 23 (19.6%) | 18 (36.0%) |
| ***I decide together with my partner*** | 90 (76.9%) | 30 (60.0%) |
| ***My partner decides*** | 4 (3.5%) | 2 (4.0%) |
| **Membership of a CSO:** | | |
| ***I decide alone*** | 24 (20.5%) | 18 (36.0%) |
| ***I decide together with my partner*** | 87 (74.3%) | 30 (60.0%) |
| ***My partner decides*** | 3 (2.5%) | 2 (4.0%) |

Most adults decide for themselves or together with their partner, both in the UCT village and in the control village (ranging from 94.8% to 97.4% of the people in the UCT village, and 96.0% of the habitants in the control village). Most of the respondents confirmed that they decide together with their spouse on household matters (74.3 - 77.8% of people in the UCT village; and 60.0% of people in the control village). Only a small proportion admitted that their spouse decides for them. Remarkably, the percentage of people claiming that they decide alone is higher in the control village compared to the UCT village (36.0% versus 18.8 – 20.5%). Analysis of gender-disaggregated data do not reveal any significant difference between men and women.

## 4.7 Multivariate Correspondence Analysis

We used MCA to visually explore whether the population of the UCT village and the population of the control village seems distinct relative to key indicators used at the same time, including gender, education, employment/work activities, livestock (beef, poultry), health, and collective participation (CSO membership, civic engagement). Each statistical individual is represented by a point and similar profiles (i.e., similar answers to the questions' survey) tend to group together in the graph. We also used 95% confident ellipses to see whether the two villages are significantly different from each other. (Figure 7).

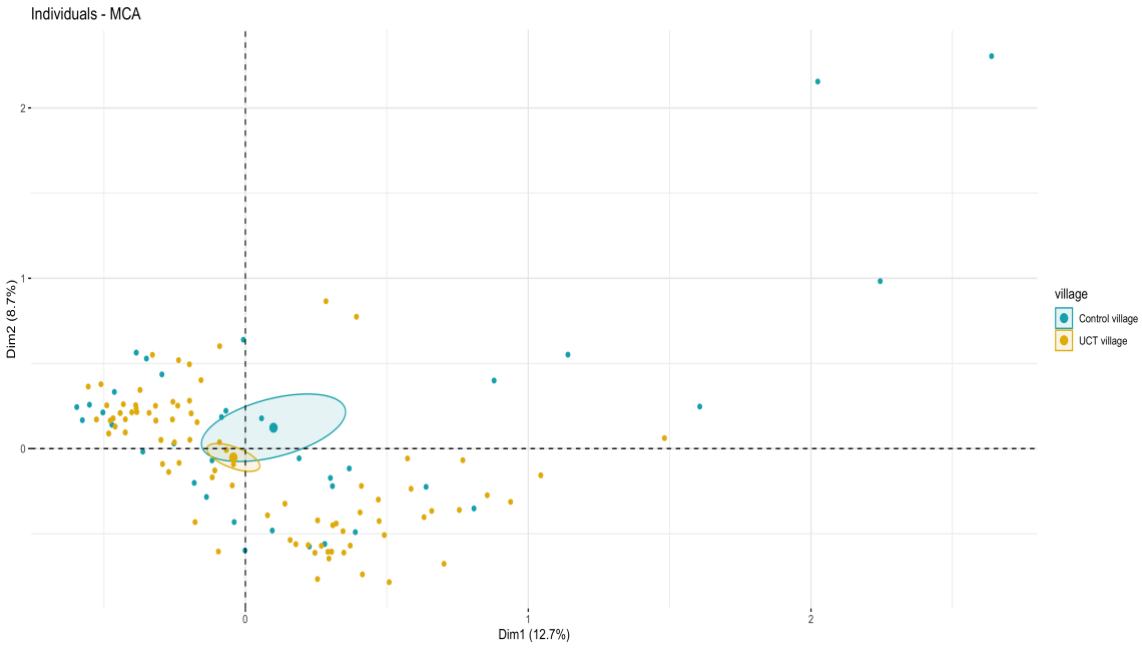


*Figure 7. MCA biplot: a plane representation of individuals in both villages and 95% confident ellipses for each village.*

Figure 7 shows that the distribution of the individuals of the two villages is relatively homogenous in the biplot (i.e., the individuals of the two villages are not grouped by village). Although the cumulative inertia of the two first axes (i.e., the amount of variation accounted for Dimensions 1 and 2 in Figure 7) is relatively low (21.4%), the apparent lack of clustering of the individuals by village origin tends to indicate that the statistical profile of the respondents is similar in both village relative to key socio-economic indicators[27]. This observation is also confirmed by the overlapping confident ellipses of each village.

The results of the MCA thus offer another evidence that the population of the two villages appear comparable. In addition, the variables that have influenced the most the calculation of the axes are, by order of importance, civic engagement, employment/work activities, gender, education, livestock, health, and business owner. Civic engagement (discussed section 4.6.2) is the indicator that contributes to statistically distinct the most the two villages.

# 5. Conclusions

The population of the two villages are in general comparable, but we observed differences for several indicators, including composition of HHs, education at individual level, children combining school/work, HHs with at least one miner, possession of consumer goods, health, safety feeling, number of meals per day, CSO membership, and independent decision-making. These differences must be considered when comparing the results of the follow-up surveys with this baseline study. We also noticed clear differences between male and female adults for several variables within both villages, including education, employment, owing a debt, health, alcohol consumption, illness, safety feeling, and civic engagement. Finally, in the UCT village and/or the control village, the baseline data also reveal statistical relationships between specific variables, including gender and education, health perception and education, and gender and health perception.

## 5.1. Demographics

Although the average age of the adult population (18 years and older) and the ratio adults/children and female/male adults is similar in both villages, the population of the UCT village is more than double the size of the population of the control village. Consequently, the number of households (HHs) is higher in

[27] As with Dimension 1 and 2, MCA biplots exploring Dimensions 3 and 4 do not show a significant difference between the two villages (cumulative inertia is 32.7%).

the UCT village compared to the control village, but in the latter, the HHs have on average more adults and children. The proportion of married adults is similar, as well the proportion of people who are not married, divorced or widow(er).

The proportion of low-educated adults (i.e., no education or only primary education) is higher in the control village, whereas the proportion of employed adults is slightly larger in the UCT village. Not surprisingly, there is a significant relationship between gender and education, confirming gender inequality. The proportion of HHs with at least one member who received secondary education and the proportion of HHs with at least one employed adult is similar in both villages.

## 5.2. Children

In both villages, almost all children at school age attend school. Most children at school age are in the age group of 6 – 12 years, attending primary school. While the proportions of children working in the mine are similar, the frequency of children combining school and work is higher in the control village than in the UCT village. Proportionally more children work in agriculture in the control village than in the UCT village. Although children who work instead of attending school - the worst form of child labour - hardly exists, a substantial proportion of children in both villages work either in agriculture or artisanal mining. In this regard, it is alarming that children of less than 15 years work in the mine in both villages.

## 5.3. Employment

Farming is the dominant professional activity in the two villages, followed by mining. Proportions of people with a job with *mining* as their primary occupation, are comparable, whereas the proportion of people mentioning *farming* as primary occupation, is slightly larger in the UCT village. The proportion of HHs with at least one miner is lower in the UCT village, whereas proportions of HHs with at least one farmer, are comparable. Few miners possess a miner's card, and only a minority uses protecting equipment (mainly boots) while working in the mine. Proportionally more miners are member of a mining cooperative in the control village, compared to the UCT village. In both villages, there is also a division of labour between females, who work mostly in agriculture, and males, who work mostly in the mines. Finally, only a small and comparable proportion of adults confirmed that they run a small business.

## 5.4. Socio-economic well-being

Almost all inhabitants live in a permanent house that is built of brick or mud walls (mainly brick in the control village and a mix of brick and mud in the UCT village). Most heads of HHs in both villages, confirmed being owner of the house they live in. Comparable proportions of HHs have access to electricity.

Proportions of HHs keeping livestock are comparable in the villages. Almost all HHs have agricultural equipment, whereas the proportion of HHs that possess mining equipment is larger in the control village. Proportionally less HHs in the UCT village have consumer goods (radio, TV, phone, bike, motorcycle, etc.) compared to the control village.

Proportionally more people have two meals per day in the control village than in the UCT village. On the other hand, more people in the UCT village have either one meal, or three meals a day. Most people in the two villages eat fufu and vegetables daily, whereas rice and fish are consumed weekly. Meat consumption is less than once a week. In the control village, the percentage of respondents reporting days without enough to eat in the past month, is slightly higher than in the UCT village.

About half of the villagers admitted they owe a debt. Remarkably, in both villages the proportion of males accumulating debt is higher than the proportion of females.

## 5.5. Health

The percentage of respondents answering that they feel healthy, is higher in the UCT village than in the control village. In both villages the proportion of females self-assessing their health as good/very good is smaller than in the group of males, but the difference is larger in the control village. A significant relationship between health perception and level of education was observed in the control village, but not in the UCT village.

A larger proportion of the population of the UCT village was ill in the past year, compared to the control village. Only in the control village, the proportion of female adults who were sick in the past year, is clearly larger than the proportion of males. More people were able and/or willing to buy medication to cure their illness in the UCT village than in the control village. Important proportions of people in both villages used traditional, free-of-charge medication in the past year.

In the control village, proportionally more HHs with children had to deal with child illness in the past year. Remarkably, parents try mostly to buy medication instead of using traditional treatments for their sick children.

The proportion of the population drinking alcohol occasionally is higher in the control village than in the UCT village. Gender-disaggregated data show a difference between females and males in both villages with proportionally more males consuming alcohol than females.

Regarding mental well-being, most inhabitants in both villages feel happy and many feel safe. However, the proportion of the population that reported feeling unsafe is larger in the control village, where females feel also more insecure than males.

## 5.6. Civic engagement and independent decision-making

Proportionately, twice as many people participate in civil society organisations in the UCT village, compared to the control village, but the proportion of females who are member of an organisation is lower than males. Females in the control village do not participate in civil society organisations.

Populations of the UCT village and the control village are comparable with respect to the extent they connect with local and traditional authorities, but more people has contacted public services and politicians in the past year in the control village than in the UCT village. Contacting authorities, public services and/or politicians are male responsibilities in both villages. Finally, most of the respondents confirmed that they decide together with their spouse on household matters, although the proportion is larger in the UCT village.

## 5.7. Follow-up surveys

Follow-up surveys will be conducted in the UCT and the control village after one and two years, to measure the impact of UCT on the socio-economic well-being of the population in the beneficiary village, and to assess if UCT as a basic income boost, can lift households out of poverty. These surveys will also allow to evaluate if UCTs can improve people's freedom of choice and civic engagement; if UCTs are able to change artisanal mining conditions (making the work safer for example); and if they have an influence on child labour.

# Unconditional Cash Transfers (UCT) in the Democratic Republic of Congo:

## A Comparative Baseline Study in an Artisanal Mining Zone in Maniema Province

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