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Title: Remittances and households’ livelihood in the context of Covid-19: evidence from Burkina Faso.

# Abstract: Using data from a migration survey conducted in Burkina Faso a few months after the first cases of Covid-19 in the country, this research seeks to understand the effects of the pandemic on migrant remittances and households’ livelihood. Results firstly suggest that households with a migrant and receiving remittances are less likely to report a negative effect of the pandemic on their livelihood. Secondly, using a recursive bivariate probit model and the variables xenophobia and possession of identity papers as instruments, we find that if remittances sent by migrants to families back home remained the same or increased during the pandemic, households are less likely to report a negative effect of the pandemic on their livelihoods.

Keywords: Covid-19, remittances, households’ livelihood, Burkina Faso.

# Introduction:

The link between mobility and epidemics goes back millennia. Cases of epidemics started by travellers, merchants and soldiers can be found in religious writings dating back to ancient era (Greenaway & Gushulak, 2017). As early as the fifth century BC, Thucydides described a disease that the Latins referred to as 'pestis' or 'pestilentia', to describe an epidemic infection in the broadest sense of the term (Gervais, 1972). Before reaching Athens, it was already rampant in Ethiopia, Egypt, Libya and Mesopotamia, underlining the geographically widespread nature of the disease. It would have entered Athens via the port, by a ship coming from the eastern Mediterranean or Egypt (Gervais, 1972). Coincidentally, it is precisely in Egypt that the first cases of Covid-19 were recorded on the African continent (Jeune Afrique, 2020). This new type of coronavirus first appeared in the province of Wuhan in China at the end of 2019 and has slowly spread to all countries in the world.

With the spread of the virus, we quickly assisted to national shutdowns, slowing down economies. As with all exogenous shocks, the main victims of an unexpected economic downturn are the most vulnerable people. International migrants are usually employed in precarious jobs that are the first to suffer from any adverse economic condition (World Bank, 2020). However, their earnings are a very important source of income for their households of origin who, thanks to their transfers, are able to cope with shocks and unforeseen events.
Remittances amounts can sometimes double public development aid and reach 2/3 of Foreign Direct Investment in certain developing countries (Rocher & Pelletier, 2008) (Choi & Yang, 2007). The literature has thus shown the major role that remittances play in reducing income inequalities (Mesple-Somps & Chauvet, 2007) (Koechlin & Leon, 2007), poverty (Adams & Page, 2005) (Acosta, Calderon, Fajnzylber, & Lopez, 2008) (Gupta, Pattillo, & Wagh, 2009), food insecurity (Tapsoba et al 2019) and climatic shocks (Mohapatra & Joseph, 2012). Although Sub-Saharan African countries do not rank high in terms of remittance receipts, the amount of remittances more than doubled between 2000 and 2006 in the region (Mohapatra & Joseph, 2012). According to the World Bank's development indicators, they generally increased in the region since 1980, but there have been occasional decreases with the advent of global crises such as the financial crisis of 2007-2008 (World Bank Indicators, 2020). With the advent of the Covid-19 pandemic, the World Bank projects a 20 per cent decline in remittances in 2020 due to the economic crisis that the disease will cause (World Bank, 2020). This projection, the largest drop in remittance levels in recent history, is due to the collapse of wages for migrant workers, who tend to be the most vulnerable and exposed to job and wage losses in destination countries (World Bank, 2020). Sub-Saharan Africa (SSA) is thus ranked second among the areas that will experience a sharp decline in remittances, with a projection of minus 23.1%.

The number of studies trying to understand and project the impacts of the coronavirus pandemic in the short, medium and long term has increased since then. All through the year 2020, research papers and reports have been written to assess the impacts of the pandemic on national economies, and people’s livelihood. In the case of India, Ceballos and al (2020) studied the impact of the national lockdown on smallholder farmers ‘s income and food security in two cities of the country. The authors found that these impacts were heterogeneous and depend on regional structural specificities, and state specific policies regarding Covid-19 (Ceballos, Kannan, & Kramer, 2020). Hence, farmers experienced income losses due to labor force prices’ increase and limited access to markets, but also challenges on access to diverse food. In Uganda and Kenya, Kansiime and al. (2021) found that more than two-third of the participants to their online survey experienced income shocks due to the crisis of Covid-19. The number of people suffering from food insecurity also rose, as the dietary quality worsened in the two countries (Kansiime, et al., 2021). In SSA, the International Growth Center (IGC) projected that 9.1% of the population in this region will fall in extreme poverty because of the virus (Teachout & Zipfel, 2020). According to IGC, the national lockdowns are responsible of 65% of this increase. Regarding specifically migration, Caruso & al. (2021) showed that in Latin America, remittances are expected to decrease 14%. This drop will cause according to the authors, an increase in poverty in countries such as Guatemala and El Salvador.

The present paper adds to the growing literature regarding the effect of Covid-19 on household’s livelihood, by focusing on Burkina Faso, a landlocked country in SSA. The paper also shed light on an aspect of the pandemic that is not really explored yet in the scientific literature which is remittances and its implications in the context of Covid-19. To the best of our knowledge, this is first work done on the topic of remittances and Covid-19 in Burkina Faso. Regarding the broader topic of Covid-19 effects on people’s livelihood, the World Bank conducted a study on Burkina Faso. It was based on a remote survey using telephones to interview nearly two thousand respondents. By using a survey that physically reach remote areas’ population, who not necessarily have access to a phone and internet, we believe that the present paper brings a more in depth analysis.

The paper is organized as follows: we firstly present some specificities of Burkina Faso, the context in which the virus appeared in the country, and measures took by the government to prevent the virus’ spread. Secondly, we present the data, descriptive statistics and empirical results based on Probit estimations regarding the link between remittances and the effect of Covid-19 on households’ livelihood.

Finally, using a variable that captures the effect of Covid-19 on remittances, and using a recursive bivariate probit model, we test the effect of the reduction/increase/stagnation of remittances on the livelihoods of households that were receiving remittances before the pandemic.

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# II. Covid-19 in Burkina Faso

Burkina Faso is a landlocked SSA country characterized by a very young population, working mainly in agricultural activities. The 2019 national census showed that on a population of 20 million people, 73.7% are living in rural areas, 45.3% are less than 15 years old, and only 3.4% are 65 years old or more (INSD, 2020). According to the 2006 population census, the agricultural sector employs 78.9% of the active population, the industrial sector employs 3.7%, and 16.4% of the active population is employed by the trade and services sector (INSD, 2009)[[1]](#footnote-1). It is important to note that the trade sector is mainly informal, constituted by self-employed people, such as street vendors and shopkeepers in markets. The latest survey on employment conducted in the WAEMU (West African Economic and Monetary Union) countries, showed that 70.1% of the population in Burkina Faso is employed in the informal sector defined as a sector where enterprises have no unique financial identification, nor a formal unique accounting (INSD, 2019) [[2]](#footnote-2). Within this informal sector, 29% of the businesses are agricultural, 33.5% in the trade sector, 25.5% in the industrial sector, and 11.8% in the service sector.

It’s within this population mainly marked by the agricultural and informal sector that the first cases of Covid-19 were recorded in March 2020, right in the dry season[[3]](#footnote-3). When the first cases were diagnosed, the government took almost immediately some measures to contain the propagation of the disease. Hence, on the 20Th of march 2020, several measures have been announced by the president Kaboré, encompassing the sectors of health, education, transports, trade, justice, and other cross cutting sectors. It is important to note that even though the socioeconomic conditions of Burkina Faso are very specific, those measures were almost a copycat of those taken in countries where the pandemic was raging such as European countries. These measures were therefore subsequently adapted to the Burkinabe context as a response to the growing dissatisfaction of some layers of the population.

The education system was the first to be targeted, following the confirmation of the first positive cases. Decision was taken to close all primary schools, secondary schools, professional schools and universities (Premier Ministère, 2020a). The ministry of education however opted during this time for the diffusion of classes on certain TV channels and radio stations, with the program available online (MENAPLN, 2021). This decision implied that students had access to the right ICT devices.
Following the cessation of classes, movements have been restricted. Hence, by presidential decree, people were invited to respect a curfew from 7pm to 5 am in March, and later on, the schedule changed from 9pm to 4am in April[[4]](#footnote-4). It was also decided the closing of international borders and the interdiction of gatherings (any unjustified gathering of more than 50 people, gatherings in cinemas, stadiums, theaters, night clubs, gym clubs, and worship places) (Présidence du Faso, 2020; Premier Ministère, 2020b, 2020c, 2020d). By the 1st of April the quarantining of every region where at least one positive case was recorded was taken (presidential decree n° 2020-0306/PRES).
Regarding the Transport sector, public transportation in urban and inter urban areas, transportation by tricycle, motorbikes and quadricycles, were stopped by the end of March 2020 (Ministère des transports, 2020). As a response to the growing dissatisfaction of the transport sector, the government decided to ease the restriction by asking the reduction of passengers’, social distancing, hand sanitization, and masks wearing in public transports (Ministère des transports,2020).
The most contested measure was the closure of markets in the main cities. As stated earlier, a vast majority of self-employed young people work in the informal sector, in the markets, and make a living from day-to-day selling of their products. In Ouagadougou the political capital, the mayor ordered the closure of 36 markets from the 26th of march to the 20th of April (Lefaso.net, 2020).
A few days later, the economic capital Bobo Dioulasso also closed its big markets from the 30th of March to the 12th of April (Lefaso.net, 2020). Anticipating the hostility of the markets’ workers, the government opted for the distribution of food and necessities to all the people who were impacted by the decision (minute.bf, 2020). It is clear that this decision did not have the expected effect, because the quantity of food and necessities was considered too small by the recipients. As a result, riots and demonstrations started to prompt the government to suspend the earlier decision (Lefaso.net, 2020). As a response to that, the government allowed markets and shops to reopen weeks later, with the respect of some measures: disinfection of all markets, reduction of clients’ number, installation of hand-washing equipment in every shops, social distancing, mask wearing (Mairie de Ouagadougou, 2020).

The World Bank, in collaboration with the National Institute of Statistics and Demography conducted three rounds of telephone surveys to assess the impact of Covid-19 and these government decisions on households’ access to food, basic services, employment, income, social protection and agriculture. According to the reports, there is an increase between the first and the third round, of the proportion of respondents who are employed. Hence, 75.1% of respondent were working in round 1 (June-July 2020) (The World Bank and INSD-a, 2020) against 89.4% in round 3 (September-October 2020) (The World Bank and INSD-c). Suggesting that if the pandemic caused losses of employment in round 1, this effect has been mitigated with time. This telephone survey gives an idea of how Covid-19 affected people’s livelihood, however, its nature excluded a large part of the population who do not have access to ICT items. Moreover, no questions have been asked regarding migration and remittances. With this article, we aim to participate to the analysis of the Covid-19 implications for Burkina Faso by using a survey conducted on the field nearly at the same time as the round 3 of the World Bank telephone survey. In this paper we focus on migration and remittances between Burkina Faso and Côte d'Ivoire in order to understand how this phenomenon may have affected households’ livelihood.

# III. Methods and results

## III.1 Data and descriptive statistics

The present work takes advantage of the latest migration survey conducted in Burkina Faso, under the MIDEQ (Migration for Development and Equality) south-south migration hub project funded by UKRI-GCRF (United Kingdom Research Innovation – Global Challenges Research Fund). Six corridors are studied in this research, within 12 countries. Burkina Faso shares a corridor with Ivory Coast, the historical destination of its migrant workers. The survey thus exclusively concerns international migration from Burkina Faso to Côte d’Ivoire. From the 24th of October to the end of November 2020, a quantitative fieldwork was conducted in 6 regions of the country namely the Centre-Ouest, Centre Est, Plateau Central, Sud Ouest, Centre (city of Ouagadougou), and Hauts Bassins (city of Bobo Dioulasso). These regions where chosen for their concentration in international migration, and for security reasons. Burkina Faso has been battling with an unprecedented number of terrorist attacks since 2016. This growing insecurity made some regions inaccessible without a military protection. Given the exceptional conditions we were in, some questions regarding Covid-19 and its implications on households’ livelihood have been included in the survey.

Our dependent variable stems from the following question:

“Did Covid-19 affect negatively (a little or a lot) your livelihood?”

Answers to this question have been recoded into a variable that take the value 1 if the household reports that its livelihood has been negatively affected and 0 otherwise.

Our explanatory variable of interest regarding remittances is a variable that takes 1 if at least one migrant in the household has ever sent money back home before Covid-19. In the same way, the migration variable takes 1 if the household has at least one migrant in Ivory Coast, and 0 otherwise.

Table 1 : Descriptive Statistics

|  |  |  |
| --- | --- | --- |
| **Variables** | **Mean / Frequency** | **SD** |
| Covid-19 affected negatively households’ livelihood | 41,67% | - |
| Household Head's (HHH) Occupation is agriculture (1= Yes; 0= Other occupation) | 87.4% | - |
| Household Head's Occupation is Trade (1= Yes; 0= Other occupation) | 4.1% | - |
| Household Head's Occupation is in the informal sector (1= Yes; 0 = Other Occupation) | 4.5% | - |
| Household Head's Occupation is in the public or private service (1= Yes; 0= Other occupation) | 3% | - |
| Respondent’s gender = Female | 31% | - |
| Household's monthly income <40.000 FCFA | 61.4% |  - |
| Household has a migrant in Ivory Coast | 57% | - |
| Household size  | 8.07 | 5.46 |
| Household receive remittances from migrant in Ivory Coast (Yes= 1, No= 0) | 25% | - |
| Respondent is HHH | 47.2% | - |
| Strata 1 | 6.8% | - |
| Strata 2 | 3.5% | - |
| Strata 3 | 89.6% | - |
| Household is in a rural area | 89.6% | - |

Notes: Sampling weights included
Source: Burkina Faso’s MIDEQ survey and author’s calculations

Descriptive statistics in *Table 1* present other explanatory variables mainly inspired by the literature on Covid- 19 and its effects (Kansiime & al., 2021). For our dependent variable, we can notice that only 41.67% of the respondents stated that their livelihood has been negatively impacted by the pandemic. Regarding our interest variable, descriptive statistics show that 25% of the households are remittances recipients. These remittances are solely sent from Ivory Coast by former household members. Regarding these former members, descriptive analysis show that 57% of the households have at least one migrant in Côte d’Ivoire. We can note here that even though more than half of the households surveyed here have at least one migrant in Côte d’Ivoire, only a quarter of them receive remittances. Other explanatory variables presented in *Table 1* also shows, not surprisingly and given the characteristics of Burkina Faso, that 87% of the respondents work in the agricultural sector as farmers. They are followed by the trade sector (street vendors, shops in markets), and the informal sector (tailors, hairdressers, craftsmen…), both at approximatively 4%. Only 3% of the respondents is working as salaried employee in the formal private and public sector. Regarding income, we construct a variable that takes 1 if the monthly income of the household is less than forty thousand CFA ($59 in march 2021) which is a little above the minimum wage in the country[[5]](#footnote-5) (Présidence du Faso, 2006). Other important characteristics are to be noted. 89.6% of the households are living in rural areas, the same percentage as in the strata 3 which accounts for the rural environment. 6.8% of the households live in the main cities which are Ouagadougou, the political capital, and 3.5% in other towns. This differentiation between the strata can be interesting in seeing the heterogeneity between the main two cities given that they were and still are the epicenter of the pandemic. However, we do not include these variables as explanatory variables in our estimations for collinearity reasons[[6]](#footnote-6). Lastly, variables regarding demographic traits are looked at. As stated earlier, the survey started at the end of October, during the harvest season. Therefore, a lot of household heads were on their farms harvesting[[7]](#footnote-7). We then construct a variable that takes the value 1 if the respondent is the household’s head, and 0 otherwise. We also include a gender variable that takes the value 1 if the respondent is a female, and 0 otherwise. Not surprisingly, only 47.2% of the respondent are in fact the household’s head, and 31% of the respondent are female. Finally, households are constituted by 8 members in average.

We go further into the analysis by testing the link between the dependent variable and our explanatory variables, using the Pearson Khi2 test, Cramer V test and mean differences according to the variables nature. The Pearson Khi2 tests the relation between two categorical variables, by comparing the observed frequencies to frequencies that we would have if there were no relation between the variables[[8]](#footnote-8) (Fox, 1999). If the test is significant, we can conclude that there is in fact a relation between our two variables. We also test the power of this relation by using the Cramer V which is based on the Khi2 and measures the symmetric association between the two variables. The Cramer V varies between 0 and 1, and the more the coefficient approaches 1, the more powerful the relation is. According to Fox (1999), association measures based on the Khi2 like the Cramer’s V are usually low in social sciences, even if the relation between the two variables is strong. Finally, we use the mean differences to test the relation between our binary dependent variable and our continuous variable. The significance of the test means that there is a difference in mean between respondents who stated that they have been negatively affected by the Covid-19 and others in terms of the household’s size, our continuous explanatory variable.

Table 2 : Khi2, Cramer V test and t-test results

|  |  |
| --- | --- |
|  | ***Household’s livelihood has been negatively affected by Covid-19 (1= Yes)*** |
| ***Occupation*** |   |
| Agriculture | 37.5% |
| Trade | 74% |
| Informal sector | 61.8% |
| Public/private sector employee  | 72.4% |
| *Pearson Khi2* | *P= 0.000\*\*\** |
| *Cramer V* | *0.207\*\*\** |
| ***Respondent is HHH*** | 38.5% |
| *Pearson Khi2*  |  *P= 0.000\*\*\** |
| *Cramer V* | *0.063\*\** |
| ***HH monthly income <40 000 FCFA*** | 36.5% |
| *Pearson Khi2*  | *P= 0.000\*\*\** |
| *Cramer V* | *0.115\*\*\** |
| ***Migrant Household*** | *36.0%* |
| *Pearson Khi2*  | *P= 0.000\*\*\** |
| *Cramer V* | *0.131\*\*\** |
| ***Household size*** | *8.07* |
| *t-test: mean difference* |   *0.202* |
| ***Remittances*** | *32.7%* |
| *Pearson Khi2*  | *P= 0.000\*\*\** |
| *Cramer V* | *0.107\*\*\** |
| ***Respondent in Female*** | *42.5%* |
| *Pearson Khi2*  | *P= 0.149* |
| *Cramer V* | *0.012* |
| ***Rural area*** | 39% |
| *Pearson Khi2*  | *P= 0.000\*\*\** |
| *Cramer V* | *0.169\*\*\** |
| ***Strata***  |   |
| *Strata 1* | *78.9%* |
| *Strata 2* | *50.0%* |
| *Strata 3* | *39.0%* |
| *Pearson Khi2*  | *P= 0.000\*\*\** |
| *Cramer V* | *0.190\*\*\** |

Source: Burkina Faso’s MIDEQ survey and author’s calculations.

In *Table 2*, we can see that migration and remittances are significantly correlated to the answers given by households. Furthermore, the Cramer V test is significant for the two variables, with a coefficient of 0.107 for remittances and 0.131 for migration. The respondents’ answers also seem to strongly depend on the respondent’s occupation and whether his income is higher than the minimum wage or not. The Cramer V test is therefore high for the respondent’s occupation with a coefficient of 0.207. Earning an income lower than the minimum wage also has a high coefficient of 0.115. The household’s head status variable is significant but the gender seems to not have an influence. As stated earlier, the rurality of the household has a strong link to its experience with Covid-19. We can see that the scores are high for the rural variable with 0.169. The Cramer V test goes in the same way for the strata variable, which is obvious given their construction. Lastly, there seems to be no difference in terms of household size.

## III.2 Econometric analysis and results

### III.2.1 Probit Model

1. Baseline Model

The objective of this study is double. Firstly, we want to understand what role remittances play in understanding the effect of Covid-19 on households’ livelihood in Burkina Faso. Secondly, we try to understand if the reduction, stagnation or increase of remittances during the pandemic plays any role in how the Covid-19 affected households’ livelihood.

For the first objective of this study, we resort to a Probit regression model, to estimate if remittances and other factors are relevant in determining whether households’ livelihood has been affected by Covid-19 pandemic. This can be expressed as:

$Y\_{i}= α\_{i}+ β\_{1}Rem\_{i} + β\_{2}X\_{i}+ ε\_{i}$ (1)

Where $Y\_{i}$ is a binary outcome for household $i$ that takes the value of 1 if the household responded that its livelihood has been negatively affected by Covid-19 and 0 otherwise. $Rem\_{i}$ is our variable of interest and $β\_{1}$ is the parameter to be estimated for remittances. The term $X\_{i}$ is a vector of other explanatory variables presented previously, and $β\_{2}$ is the associated vector of parameters to be estimated. Finally, $ε$ is the error term. *Table 3* presents the results for equation 1 estimations.

***Table 3***: Probability of households' livelihood to be negatively affected by Covid-19

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|   | Household's Livelihood | Household's Livelihood | Household's Livelihood | Household's Livelihood | Household's Livelihood | Household's Livelihood | Household's Livelihood |
|   |
| VARIABLES |
|   |   |  |  |  |  |  |   |
| Remittances | -0.3436\*\*\* | -0.3708\*\* | -0.3707\*\* | -0.3642\*\* | -0.3646\*\* | -0.3661\* | -0.3656\* |
|   | (0.0681) | (0.0825) | (0.0824) | (0.0876) | (0.0882) | (0.0938) | (0.0946) |
| Migrant HH |  | -0.3888\*\* | -0.3866\*\*\* | -0.3938 | -0.3930\* | -0.3771\*\* | -0.3784\*\* |
|   |  | (0.0688) | (0.0694) | (0.0729) | (0.0727) | (0.0791) | (0.0820) |
| Female |  |  | -0.3841\* | -0.3776\* | -0.3680\*\* | -0.3678\*\* | -0.3669\*\* |
|   |  |  | (0.0754) | (0.0771) | (0.0764) | (0.0816) | (0.0816) |
| Trade (base agriculture) |  |  |  | 0.6823\*\*\* | 0.6817\*\*\* | 0.6660\*\*\* | 0.6648\*\*\* |
|   |  |  |  | (0.213) | (0.215) | (0.231) | (0.231) |
| Informal Sector (base agriculture) |  |  |  | 0.5629\*\*\* | 0.5614\*\*\* | 0.5429\*\*\* | 0.5413\*\*\* |
|   |  |  |  | (0.149) | (0.151) | (0.156) | (0.156) |
| Private/public sector (base agriculture) |  |  |  | 0.6551\*\*\* | 0.6644\*\*\* | 0.6075\*\*\* | 0.6047\*\*\* |
|   |  |  |  | (0.210) | (0.218) | (0.223) | (0.222) |
| Respondent is HHH |  |  |  |  | -0.3899 | -0.3994 | -0.3990 |
|   |  |  |  |  | (0.0830) | (0.0801) | (0.0802) |
| HH income |  |  |  |  |  | -0.3852\*\* | -0.3846\*\* |
|   |  |  |  |  |  | (0.0660) | (0.0688) |
| HH size |  |  |  |  |  |  | -0.00239 |
|   |  |  |  |  |  |  | (0.00605) |
|   |  |  |  |  |  |  |   |
| Observations | 3,452 | 3,452 | 3,452 | 3,077 | 3,077 | 2,838 | 2,838 |
| Sampling Weights | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Regional dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
|  |  |  | Standard errors in parentheses |  |  |
|  |  |  | \*\*\* p<0.01, \*\* p<0.05, \* p<0.1  Marginal effects presented |  |  |

Source: Burkina Faso’s MIDEQ survey and author’s calculations.

Results in Table 3 show that households that were receiving remittances before Covid-19 are less likely to report that the pandemic negatively affected their livelihood. The same result is noticeable for households that have at least one former member abroad. In Kenya and Uganda, Kansiime and al. (2021) found that workers who depend on transfer payments as their main source of income are 17% less likely to report an impact of Covid-19 on their income. Remittances being some sort of transfers, we can say that the results are going in the same way. Results in Burkina Faso are however different regarding the main source of income of households. In fact, if the primary source of households’ income is from another sector than agriculture, they are more likely to report a disruptive effect of Covid-19 on their livelihood. In the context of Kenya and Uganda the results are opposite (Kansiime & al., 2021). This interesting result can find an explanation in the fact that during the government restrictions period, farmers did not have a lot to do as it was the dry season. During the survey, some of the respondent stated that they were not doing much during that period and did not really felt the incidence of the measures on their work. However, for other sectors especially trade and the informal sector, the restrictions really impacted them as people were not allow to travel within or out the country. Female respondents are less likely to report a disruptive effect of Covid-19 on their livelihood, which is a results also found in the literature (Béland, Brodeur, & Wright, 2020) (Kansiime, et al., 2021). Households that have a monthly income lower than the minimum wage are less likely to say that Covid-19 negatively affected their livelihood. Certainly this result is surprising, however, as we saw in descriptive statistics, the majority of our sample is made out of farmers who were not directly affected by Covid-19. Also, this population, living from subsistence agriculture, simply did not felt a direct effect of the pandemic like people living in cities and working from trade and the informal sector.

1. Changes in remittances pattern

The projected 23.1% decline in remittances projected by the World Bank for SSA may exacerbate the vulnerability of households that already deal with the effects of Covid-19. The survey used in this study has a question regarding the pattern of remittances during the pandemic. Households were asked if the remittances sent by the former member stayed the same, increased, reduced or even stopped during the pandemic. We used this question to construct a new variable that takes the value 1 if the amount of remittances sent by the migrant stayed the same of increased, and 0 if the amount diminished or stopped during the pandemic.

Given that a household can have more than one migrant, and that each of them could have had a different behaviour during the pandemic, we did not resume the information to the household level, but rather looked at all the migrants in the context of their household. Hence, 56.4% of the migrants sent an equal or superior amount during the pandemic, and 43.6% sent less or did not even send remittances.

We firstly estimate the following Probit model:

$Y\_{ij}= α\_{ij}+ α\_{1}Rem\\_Cov\_{ij}+ α\_{2}X\_{ij}+ ε\_{ij}$ (2)

Equation (2) has the same elements as equation (1) except for the interest variable which is $Rem\\_Cov\_{ij}$ standing for the change in remittances sent by migrant $j$ in the household $i$. Results are presented in Table 4.

**Table 4** Probability of Covid-19 affecting negatively Households'livelihood

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|   | Household's Livelihood | Household's Livelihood | Household's Livelihood | Household's Livelihood | Household's Livelihood | Household's Livelihood |
|   |
| VARIABLES |
|   |   |  |   |   |   |   |
| Rem\_Cov | -0.2613\*\*\* | -0.2665\*\*\* | -0.2642\*\*\* | -0.2642\*\*\* | -0.2668\*\* | -0.2620\*\*\* |
|   | (0.135) | (0.141) | (0.143) | (0.143) | (0.144) | (0.144) |
| Trade |  | 0.5557\* | 0.5852\* | 0.5847\* | 0.5886\*\* | 0.6150\*\* |
|   |  | (0.408) | (0.401) | (0.397) | (0.400) | (0.422) |
| Informal Sector |  | 0.4078 | 0.3947 | 0.3886 | 0.3800 | 0.3862 |
|   |  | (0.478) | (0.486) | (0.489) | (0.503) | (0.525) |
| Private/public sector | -0.2429 | -0.2191 | -0.2208 | -0.2083 | -0.2384 |
|   |  | (0.523) | (0.545) | (0.549) | (0.550) | (0.556) |
| Female |  |  | -0.2468\*\* | -0.2371\* | -0.2208\*\* | -0.2340\* |
|   |  |  | (0.150) | (0.188) | (0.179) | (0.185) |
| Respondent is HHH |  |  | -0.3160 | -0.3129 | -0.3149 |
|   |  |  |  | (0.226) | (0.226) | (0.230) |
| HH income |  |  |  |  | -0.3111 | -0.3177 |
|   |  |  |  |  | (0.135) | (0.127) |
| HH size |  |  |  |  |  | 0.0159\*\* |
|   |  |  |  |  |  | (0.00676) |
|   |  |  |  |  |  |   |
|   |  |  |  |  |  |   |
|   |  |  |  |  |  |   |
|   |  |  |  |  |  |   |
| Observations | 1,254 | 1,178 | 1,178 | 1,178 | 1,142 | 1,142 |
| Sampling Weights | Yes | Yes | Yes | Yes | Yes | Yes |
| Regional dummies | Yes | Yes | Yes | Yes | Yes | Yes |
|  |  | Standard errors in parentheses |  |  |
|  |  | \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Marginal effects presented |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

Source: Burkina Faso’s MIDEQ survey and author’s calculations.

Results in Table 4 suggest that compared to households that receive less or no remittances during the pandemic, households where migrants sent an amount equal or greater than the amounts sent before the Covid-19 are less likely to report a negative effect of the pandemic on their livelihood. Other explanatory variables seem to go in the same direction as previous results, except that only the effect of gender and trade sector are significant.

1. A recursive bivariate probit model.

The Probit model showed that when controlling for other observable characteristics, receiving the same amount or more remittances during the pandemic is associated with a lower probability for the household to be negatively affected by Covid-19. This correlation does not imply a causality given the high suspicion of endogeneity of the variable of interest. Endogeneity issues can stem from omitted variables, measurement errors and reverse causality. In our case, reverse causality has a higher probability. In fact, being negatively affected by covid-19 may lead to an increase in remittances, as the literature showed that remittances can serve to mitigate the effect of shocks. Conversely, an increase or decrease in remittances may have a non-negligible effect on the ability of households to cope with a shock. Also, factors that affect the ability for migrants to send remittances might also explain the ability of households to cope with the pandemic.

 In the face of this strong suspicion of endogeneity, we resort to a recursive bivariate probit model where the probability for the household to be negatively affected by Covid-19 and the probability for the amount of remittances to stay the same or decrease are simultaneously determined. The recursive structure is based on a first reduced form equation for the variable suspected to be endogenous, and a second equation which is structural and determine our dependent variable (Fabri & al., 2004). The probability $Rem\\_Cov\_{ij}$ of the remittances amounts to change depends on the value of a latent variable $Rem\\_Cov\_{ij}$\* where:

$Rem\\_Cov\_{ij}^{\*}= β\_{1}X\_{ij}+ β\_{2}Z\_{ij}+ ε\_{ij}$ (3)

The error term $ε\_{ij}$ is assumed to be independently and identically distributed. In the equation (3), $Rem\\_Cov\_{ij}^{\*}$ is a function of $X\_{ij}$ a vector of households characteristics presented earlier. Some literature suggests that the parameters of the endogenous equation are not identified unless a exogenous variable is included (Maddala, 1983). For Wilde (2000), the identification in such models is obtained if the two equations contain at least one different exogenous variable.

Given the availability of data and the special context of the Burkina Faso-Ivory Coast migration we chose two instruments: the fact that the migrant does not have its identity documents, and the fact that the migrant ever suffered from Ivorian’s xenophobia[[9]](#footnote-9). These two variables crystallize some of the issues that stems from the late 2000’s crisis in Ivory Coast and the colonial past of the countries. In fact, in addition of sharing borders, Burkina Faso and Ivory Coast are both former French colonies. During the colonial times, the former was perceived by the French colonial power as a labour tank. The country was considered too populated in view of its precarious environmental conditions (Gervais & Mandé, I, 2010). With an area of nearly 300,000 km2 representing 6% of French West Africa (AOF), its population was estimated at nearly three million inhabitants, or 25% of the population of AOF (Sarraut, 1923). As early as 1921, with the adoption the colonies’ development law, each colony was required to participate in the construction effort according to its natural potential. The Upper Volta (current Burkina Faso) was naturally designated as a supplier of labour at the time. Massive departures of Voltaic people followed, to participate in great construction sites, particularly in Ivory Coast, where the climatic conditions were ideal for agriculture. A major date in this colonial era was September 5th 1932, when the dismantling and distribution of the Voltaic territory among neighbouring countries was ordered by decree. The purpose of this new division was to meet the labour needs of the large agricultural and industrial operations in Ivory Coast (Yao, 2003). Even though the country’s borders were re-established in 1947, this territorial division resulted in an intermingling of ethnic groups that did not necessarily recognize themselves in the administrative boundaries established by the colonists. Independences came about in this context where administrative boundaries did not reflect ethnic realities. After economic issues during the 80’s (David, 1986), the death of Houphouet Boigny in 1993 and the succession disputes between the president of the national assembly, Bédié, and the prime minister, Ouattara, the concept of “Ivoirité” emerged, denoting the fact that a person is entirely Ivorian, i.e. of Ivorian father and mother born on the Ivorian soil (Ogunmola & Badmus, 2005). All these elements contributed to the birth of a civil war in the 2000s in Ivory Coast, where millions of Burkinabe had to flee Ivory Coast to save their lives. Since then, relations between Côte d'Ivoire and Burkina Faso have been tainted by a certain contempt for Burkinabe by Ivoirians, which can translate into xenophobia.

The two countries are linked by agreements on the free movement of goods and people within the WAEMU (West African Economic and Monetary Union) area. However, for prolonged residence, nationals of the area must obtain a residence permit, which is often difficult to obtain depending on the country. Given the ambiguous history shared by Ivory Coast and Burkina Faso, we believe that not having the required identity documents to stay in Côte d'Ivoire can exacerbate an already precarious situation of the migrant.

We therefore use these two variables accounting for xenophobia and possession of identity documents as instruments for the effect of the pandemic on the amount of remittances sent by migrants. Given that when shocks occur in a given country, the first to bear the consequences are the most vulnerable such as migrants, we believe that in our context, migrants that do not have their identity documents, and also suffered from xenophobia in the past in Ivory Coast are also those who will be more prone to lose their jobs, and not be able to send or send lower amounts of money to their families back home. *Table 5* presents the results for the bivariate recursive probit model.

**Table 5** : Probability of Covid-19 affecting negatively Households' livelihood, recursive bivariate probit model

|  |  |  |
| --- | --- | --- |
|   | 1 | 2 |
|   |   |   |   |   |
| VARIABLES | HH Livelihood | Rem\_Cov | HH Livelihood | Rem\_Cov |
|   |   |   |   |   |
| Rem\_Cov | -1.157\*\* |   | -0.917\*\* |   |
|   | (0.457) |   | (0.412) |   |
| Respondent is HHH | -0.0878 | 0.368\*\* | -0.133 | 0.381\*\*\* |
|   | (0.227) | (0.142) | (0.223) | (0.143) |
| HH income | 0.0343 | 0.363\*\*\* | -0.00249 | 0.401\*\*\* |
|   | (0.128) | (0.117) | (0.118) | (0.116) |
| Trade | 0.824\*\* | -0.292 | 0.888\*\* | -0.286 |
|   | (0.403) | (0.258) | (0.396) | (0.259) |
| Informal Sector | 0.333 | -0.485 | 0.407 | -0.514 |
|   | (0.503) | (0.383) | (0.487) | (0.375) |
| Private/public sector | 0.0885 | 0.725 | 0.0304 | 1.052 |
|   | (0.441) | (0.590) | (0.448) | (0.736) |
| HH size | 0.0267\*\*\* | 0.0196\*\* | 0.0255\*\*\* | 0.0203\*\* |
|   | (0.00728) | (0.00968) | (0.00731) | (0.00965) |
| Female | -0.319\* |   | -0.338\*\* |   |
|   | (0.166) |   | (0.170) |   |
| Xenophobia |   | -0.684\*\*\* |   | -0.513\*\*\* |
|   |   | (0.147) |   | (0.128) |
| Id. Papers |   |   |   | -0.769\*\*\* |
|   |   |   |   | (0.191) |
|   |   |   |   |   |
| Observations | 1,142 | 1,142 | 1,142 | 1,142 |
| ρ | 0.4362 | 0.2751 |
| Wald Test H0: ρ =0 | 5.83\*\*\* | 5.11\*\*\* |
| Sampling Weights | Yes | Yes | Yes | Yes |
| Regional dummies | Yes | Yes | Yes | Yes |
|  |  |  |  |  |
|  | Standard errors in parentheses |  |
|  | \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 |  |
|  |  |  |  |  |
|  |  |  |  |  |

Source: Burkina Faso’s MIDEQ survey and author’s calculations.

The correlation coefficient ρ between the error terms of the two equations is significantly different from zero, and the xenophobia and identity documents are negatively associated to the probability of remittances to stay the same or rise because of Covid-19. Results here, give similar results. In fact, households that receive the same or equal amount of remittances by their migrants are less likely to report that Covid-19 negatively affected their livelihood.

# Conclusion and discussion

This paper has analyzed the relationship between remittances and households’ livelihood in the context of Covid-19. The econometric analysis evidenced the fact that households that receive remittances are less likely to report a negative effect of the pandemic on their livelihood. Furthermore, using a recursive bivariate probit model, and instruments variables such as xenophobia and id. documents, we found that when the remittances stayed the same, or increased during the pandemic, households are less likely to report a negative effect of Covid-19 on their livelihood.

These results in the case of Burkina Faso emphasizes the important role that remittances play in supporting households when they face shocks. The results also suggest that ensuring that migrants are able to send these precious spin-offs especially during a crisis is vital, as it has been highlighted in the 2030 sustainable development goal 10.

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1. Regarding people’s occupation, we rely on the statistics of the 2006 census because the 2019 census full results are not available. For now, only preliminary results of this census have been published. [↑](#footnote-ref-1)
2. The formal sector which represents 29.9% have the public sector as their main employer. [↑](#footnote-ref-2)
3. The climate in Burkina Faso is characterized by a dry and a wet season. [↑](#footnote-ref-3)
4. This period was marked by the beginning of Ramadan, but also the resentment of people in the cities, who were not able to work properly. [↑](#footnote-ref-4)
5. The exact amount is 30 684CFA, but our data are categorized into certain amount. In order to make sure we account for the minimum wage, we use the category of less than 40.000 and down. [↑](#footnote-ref-5)
6. People who practice agriculture are more likely to live in rural areas rather than urban areas and cities. [↑](#footnote-ref-6)
7. When it was possible, the interviewers meet the household’s head in their farms, or wait in the evening for them to come back home. If it was not possible to talk to them, they talked to their wives, children, or relative with respect to them being adults and from the same household. [↑](#footnote-ref-7)
8. H0: There is no relation between the two variables; H1: There is a relation between the two variables. [↑](#footnote-ref-8)
9. 4.49% of the migrants stated that they have identity documents issues, and 9.97% stated that they have once faced xenophobia. [↑](#footnote-ref-9)