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# Remittances as an opportunity to increase savings and financial inclusion of youth in South East Europe

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**ABSTRACT**
Paper discusses financial inclusion of youth focussing on effects of remittances on financial inclusion of youth (usage of debit card, credit card, savings and borrowing instruments) in South East Europe. It is argued that remittances, as stable sources of income (capital), contribute to savings and lead to an improvement in financial inclusion of individuals who receive remittances. We test our hypothesis that remittances contribute to increase in savings and in the level of financial inclusion of youth in South East European countries. We estimate probit regression models with a set of dummy dependent variables for financial inclusion: having a debit card, having a credit card, borrowing and savings, and regress them on receipt of remittances controlling for age, gender, education and income level. Results show negative impact of remittances on youth financial inclusion in selected countries with respect to having debit card, credit card and borrowing. On the other hand, results show positive effect of remittances on savings among youth that receive remittances.

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F24; G00; J13

## 1. Introduction

Youth being the vulnerable category of society are less likely to be financially included. To support this thesis, this paper aims to investigate weather youth is less included in financial system then general population but also aims to provide an insight if remittances might contribute to improvement of financial inclusion of youth. Furthermore, the overall goal is to inform policy makers to provide additional efforts to monitor and regulate remittances inflow through formal channels in order to improve financial inclusion and build inclusive financial systems.

Today, remittances are one of the most important sources of capital in many of developing countries. According to World Banks' *Migration and Remittances Factbook 2016* (World bank, 2016), remittance inflows to developing countries are more than three times official development aid and even bigger than foreign direct

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investment inflows. Remittances have been growing steadily, showing their resilience to global headwinds, while other types of capital flows to developing economies sharply respond to fluctuations of interest rates in advanced economies or growth prospects in developing countries. In 2018, worldwide remittance flows exceeded $689 billion (KNOMAD, 2019). It is argued by many researchers that remittance inflows in developing countries might have positive effect on development of financial system in terms of financial depth. However, previous studies do not provide evidence that remittance inflows contribute to improved financial inclusion.

As previous researches (which will be discussed later in the paper) suggest, remittances might have positive impact on financial inclusion of individuals. In that respect, the main goal of this paper is to provide evidence weather is this statement true for youth who receives remittances. In other words, this paper is trying to answer the question is it more likely that youth who receives remittances are more likely to be more financial included (i.e., to have debit or/and credit card, to save and borrow money through financial system).

The rest of the paper is organised as follows. In the second part of the paper theoretical concept on the impact of remittances on financial inclusion as well as the overview of the previous research are presented, while the third part of the paper contains description of data sample and empirical models. The fourth part of the paper presents the results of models' estimations and discussion. The fifth part of the paper provides conclusions and policy recommendations as well as further research recommendations.

## 2. Previous research on remittances and development of theoretical framework for assessment of the impact of remittance on financial inclusion

There is extensive literature that investigates effects of remittances on labour market (i.e., Funkhouser, 1992), economic growth (Chami et al., 2005, Rapoport and Docquier 2006), inequality and poverty (i.e., Adams, 1992; Giannetti et al., 2009; Brown and Jimenez, 2008; Milanovic, 1987; Russell, 1992; Stark, Taylor and Yitzhaki, 1988; Taylor 1999; Taylor and Wyatt, 1996) education (i.e., Acosta, 2006; McKenzie & Rapoport, 2006; Osorio, 2010) and on health (i.e., Amuedo-Dorantes et al. 2007; Drabo and Ebeke 2011; Valero-Gil 2008).

Recent studies provide evidence of positive impact of remittances on development of financial sector, but there are few studies that provide evidence on the impact of remittances on financial inclusion of individuals (and households). With respect to remittances impacting development of financial sector in recipients' countries, the most comprehensive study conducted by Aggarwal et al. (2011) on the sample of 109 countries during 1975 - 2007, shows a positive and significant association between remittances and financial sector development with respect to overall increase in savings and credit. Using a similar methodology as Aggarwal et al. (2011), Gupta et al. (2009) examine the influence of remittances on financial development on a panel sample of 44 Sub-Saharan African countries during 1975 - 2004. They found similar evidence that remittances help to promote financial development.

As discussed previously, there is limited literature studying the impact of remittances on financial inclusion.[1] The existing research on impact of remittance on financial inclusion provides evidences of positive impact of remittances on bank deposits in recipient's countries (Aggarwal et al., 2011) and savings (Anzoategui et al., 2014; Cuccaro, 2014), while there is no evidence on association between remittances and borrowing (Anzoategui et al., 2014; Cuccaro, 2014). Research also shows that remittances were mostly used for consumption smoothening of recipients during the income shocks (Amuedo-Dorantes and Pozo, 2011). Although a substantial portion of many remittances are used for short-term consumption, remittance recipient households do save, and these international transfers offer households an opportunity to reduce their vulnerability over time and to build assets. All the above-mentioned research does not provide evidence on the effect of remittances on the level of financial inclusion among youth and therefore, this research paper aims to fill this gap by investigating the impact of remittances on financial inclusion of youth population.

Globally, according to the latest World Bank Global Findex data, in 2017 there were about 1.7 billion adults without a bank account which means that are excluded from financial system. Globally, 72 percent of adults age 25 and older have an account, while only 56 percent of those ages 15–24 do. (Demirgüç-Kunt et al., 2018, p. 29). Youth are less likely to have a bank account or save, and are more likely to be excluded from financial system.[2]

According to Sykes, J et al. (2016) there are three main reasons for youth people to be excluded from financial system: (1) policy and regulatory barriers that set minimum age and proof of identity requirements for opening accounts (2) many of products offered by financial service providers are not suitable for or attractive to youth and (3) the limited financial capacity and experience of youth themselves. In that respect, it is important that policy makers include strategies for youth into countries' regulatory framework and inclusive financial system policies.

Theoretically, remittances impact financial inclusion in general and of youth through the following mechanisms: remittances might increase the need of an individual or household to deposit remittances in formal financial institutions (Aggarwal et al., 2011; Anzoategui et al., 2014, p. 1; Ambrosius & Cuecuecha, 2016) and also might provide formal financial institutions with information about additional income of individuals and better insight on individuals' borrowing capacity (Anzoategui et al., 2014; Ambrosius & Cuecuecha, 2016).

In order to investigate the impact of remittances on financial inclusion, the theoretical framework shown in Figure 1 is used in this paper.

As it can be observed from the theoretical model, there are several ways in which remittances could have an effect on increasing financial inclusion. Remittances increase recipients' income which makes the recipient eligible for some financial products. It is expected that remittance recipient might open the account at formal financial institutions to deposit money. This might lead to increase in savings and borrowing capacity of the recipient. Remittances can have an impact in increase of demand for savings (savings instruments). If remittance inflow is steady, one might have excess cash and would start saving. Furthermore, steady remittances might increase household's (individual's) likelihood of obtaining a loan. If remittances

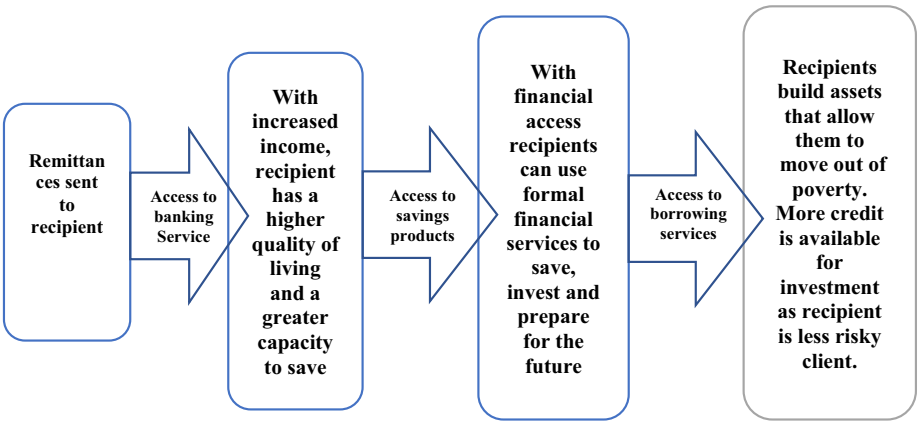


**Figure 1.** Theoretical concept of the impact of remittances on financial inclusion.
Source: Adapted from: Orozco, M. Yansura, J. (2015)

are processed through financial institutions (i.e., commercial banks), it provides necessary information to financial institution about recipient income. Remittances might also decrease credit needs due to the decrease in financial constrain of the recipient.

## 3. Data and the Empirical Model

### *3.1. Data source*

For the purposes of this research, we used secondary data which were collected through World Banks' Global Findex survey.[3] Data used in this research were collected in 2011 and the respondents were individuals aged 15 and above. As we are focussed on South East Europe countries, the sample included responses from the following countries: Albania, Bosnia and Herzegovina, Croatia, Kosovo, Montenegro, Macedonia and Serbia.

The total sample of respondents from the above-mentioned countries, was reduced to respondents who gave a positive answer to the question of having a bank account, since the Global Findex questionnaire was created in a way to capture whether the remittances were received through formal financial channels, in other words through formal bank accounts.

The structure of the question regarding remittances in the Global Findex survey questionnaire is the main limitation of this research, since it is not possible to capture the effect of remittances received through informal channels.

Table 1 gives brief overview of basic characteristics of the sample.

### *3.2. Probit regression model*

Based on the similar research focussed on the impact of remittances on financial inclusion (Anzoategui et al., 2014; Cuccaro, 2014, Li et al., 2014), for investigating the impact of remittances in the context of this research, we propose the following model:

**Table 1.** Overview of the basic characteristics of the sample by country.

| Demographics | | Albania | Bosnia | Croatia | Kosovo | Macedonia | Montenegro | Serbia |
|---|---|---|---|---|---|---|---|---|
| Sample total | | 366 | 608 | 911 | 553 | 818 | 593 | 621 |
| a) Basic characteristics for the overall sample | | | | | | | | |
| Youth* | Youth (1) | 176 (48,1%) | 276 (45,4%) | 333 (36,5%) | 236 (42,7%) | 280 (34,2%) | 373 (62,9%) | 157 (74,7%) |
| | Adult (0) | 190 (51,9%) | 332 (54,6%) | 578 (63,5%) | 317 (57,3%) | 538 (65,8%) | 220 (37,1%) | 464 (25,3%) |
| Gender | Male (1) | 181 (49,4%) | 307 (49,5%) | 399 (43,8%) | 380 (68,7%) | 442 (54%) | 288 (48,6%) | 285 (45,9%) |
| | Female (0) | 185 (50,6%) | 307 (50,5%) | 512 (56,2%) | 173 (31,3%) | 376 (46%) | 305 (51,4%) | 336 (54,1%) |
| Education | Primary or less (1) | 31 (8,5%) | 66 (10,9%) | 114 (12,5%) | 104 (18,8%) | 132 (16,1%) | 32 (5,4%) | 108 (17,4%) |
| | Secondary (2) | 165 (45%) | 391 (64,3%) | 679 (74,5%) | 336 (60,8%) | 480 (58,7%) | 458 (77,2%) | 408 (65,7%) |
| | Tertiary or higher (3) | 170 (46,5%) | 151 (24,8%) | 118 (13%) | 113 (20,4%) | 206 (25,2%) | 103 (17,4%) | 105 (16,9%) |
| Income level | Poorest 20% (1) | 47 (12,84%) | 85 (13,98%) | 170 (18,66%) | 60 (10,85%) | 104 (12,71%) | 86 (14,5%) | 95 (15,3%) |
| | Second 20% (2) | 50 (13,66%) | 90 (14,8%) | 177 (19,43%) | 100 (18,08%) | 124 (15,16%) | 99 (16,69%) | 111 (17,87%) |
| | Middle 20% (3) | 81 (22,13%) | 111 (18,26%) | 184 (20,20%) | 78 (14,10%) | 164 (20,05%) | 87 (14,67%) | 121 (19,48%) |
| | Fourth 20% (4) | 9 (24,59%) | 165 (24,14%) | 194 (21,3%) | 153 (27,67%) | 166 (20,29%) | 143 (24,11%) | 140 (22,54%) |
| | Richest 20% (5) | 98 (26,78%) | 157 (25,82%) | 186 (20,42%) | 162 (29,29%) | 260 (31,78%) | 178 (30,02%) | 154 (24,8%) |
| Age | Avg. age of respondents (std.) | 37.9 (14.04) | 41.3 (15.6) | 42.9 (14.8) | 40.3 (16.1) | 44.6 (16.2) | 42.0 (14.6) | 49.6 (16.2) |
| b) Basic characteristics for youth in the sample (selected characteristics) | | | | | | | | |
| Total youth in the sample | | 176 | 276 | 333 | 236 | 280 | 373 | 157 |
| Education | Primary or less (1) | 6 (3.75%) | 5 (2.0%)1 | 16 (4.89%) | 17 (8.59%) | 18 (9.09%) | 5 (2.46%) | 7 (4.79%) |
| | Secondary (2) | 62 (38.75%) | 154 (61.85%) | 257 (78.59%) | 143 (72.22%) | 103 (52.02%) | 159 (78.33%) | 108 (73.97%) |
| | Tertiary or higher (3) | 92 (57.50%) | 90 (36.14%) | 54 (16.51%) | 38 (19.19%) | 77 (38.89%) | 39 (19.21%) | 31 (21.23%) |
| Income level | Poorest 20% (1) | 19 (11.88%) | 23 (9.24%) | 51 (15.60%) | 22 (11.11%) | 25 (12.63%) | 48 (23.65%) | 18 (12.33%) |
| | Second 20% (2) | 27 (16.88%) | 30 (12.05%) | 55 (16.82%) | 30 (15.15%) | 24 (12.12%) | 29 (14.29%) | 31 (21.23%) |
| | Middle 20% (3) | 37 (23.13%) | 49 (19.68%) | 64 (19.57%) | 27 (13.64%) | 47 (23.74%) | 21 (10.34%) | 38 (26.03%) |
| | Fourth 20% (4) | 36 (22.50%) | 74 (29.72%) | 74 (22.63%) | 56 (28.28%) | 46 (23.23%) | 42 (20.69%) | 26 (17.81%) |
| | Richest 20% (5) | 41 (25.63%) | 73 (29.32%) | 83 (25.38%) | 63 (31.82%) | 56 (28.28%) | 63 (31.03%) | 33 (22.60%) |

*Note: Youth in this sample is defined as individuals ranging from ages 15 – 35, while adults are individuas from age 36 and above.
Source: Authors' own work.

$$Financial\ inclusion_{ij} = \alpha + \beta_1 Remittances_{ij} + \beta_2 Age_{it} + \beta_3 Education_{ij} + \beta_4 Gender_{ij} + \beta_5 Income_{ij} + \beta_6 Youth_{ij} + \varepsilon_{ij}, \tag{1}$$

When investigating financial inclusion, this term needs to be interpreted in a relative dimension depending on the stage of development, the degree of financial inclusion differs among countries. For example, in a developed country non-payment of utility bills through banks may be considered as a case of financial exclusion. However, the same may not (and need not) be considered as financial exclusion in an underdeveloped nation as the financial system is not yet developed to provide sophisticated services. Hence, while making any cross-country comparisons due care needs to be taken (Mehrotra et. al., 2009:14). In that respect, for the purpose of measuring the level of financial inclusion the following set of variables was used: an individual having bank account (debit card), credit card and if he/she is saving and borrowing at a formal financial institution. Having that in mind, financial inclusion is defined in terms of four alternative variables. Definitions of these alternative dependent dummy variables are given in Table 2. All dependent variables are binary, hence the reason why probit regression model was used.

Based on the alternative variables determining financial inclusion, we test four probit regression models.

$$Debit\ card = \alpha + \beta_1 Remittances + \beta_2 Age + \beta_3 Education + \beta_4 Gender + \beta_5 Income + \beta_6 Youth + \varepsilon, \tag{2}$$

$$Credit\ card = \alpha + \beta_1 Remittances + \beta_2 Age + \beta_3 Education + \beta_4 Gender + \beta_5 Income + \beta_6 Youth + \varepsilon, \tag{3}$$

$$Saving = \alpha + \beta_1 Remittances + \beta_2 Age + \beta_3 Education + \beta_4 Gender + \beta_5 Income + \beta_6 Youth + \varepsilon, \tag{4}$$

$$Borrowing = \alpha + \beta_1 Remittances + \beta_2 Age + \beta_3 Education + \beta_4 Gender + \beta_5 Income + \beta_6 Youth + \varepsilon, \tag{5}$$

The estimation of the effect when Remittances switches from 0 to 1 is calculated by considering the Marginal Effects at the Means (MEMS) of the control variables.

Goodness of model fit is judged by McFadden's Pseudo $R^2$. According to the existing literature (Louviere et al., 2000), goodness-of-fit using McFadden's pseudo r-square ($\rho^2$) is most often used for fitting the overall model. It is suggested that $\rho^2$ values of between 0.2 and 0.4 should be taken to represent an excellent fit (McFadden, 1978, p. 307).

Table 3 provides summary statistics for remittances and financial inclusion indicators of the sample by countries and per respondents' category (youth and adults). Data provided in the table shows the percentage of respondents who received remittances, has debit and credit card, who borrowed and saved money in financial institution.

Table 3 shows that the percentage of young persons who received remittance is slightly higher than the percentage of adults in all countries. Results also show that the percentage of young people who have debit card, credit card and save is higher than percentage of adults. On the other hand, in the case of borrowing, percentage of adults who borrows from financial institutions is higher than the percentage of young persons.

**Table 2.** Financial inclusion variables definitions.

| Financial inclusion variable | Definition of variable |
|---|---|
| Debit card | whether the individual has ATM/debit card at a formal financial institution |
| Credit card | whether the individual has credit card at a formal financial institution |
| Borrowing | whether the individual has borrowed money from any source for any reason in the past 12 months |
| Savings | whether the individual has saved or set aside any money for any reason in the past 12 months. |

Source: Authors' own work.

**Table 3.** Summary statistics for remittances and financial inclusion variables of the sample by countries.

| | | Financial inclusion indicators | | | |
|---|---|---|---|---|---|
| Country | Remittances | Debit card | Credit card | Borrowing | Savings |
| Albania | | | | | |
| Total sample | 20.37% | 72.5% | 42.28% | 12.03% | 46.64% |
| Youth | 23.12% | 78.12% | 42.5% | 13.75% | 45.62% |
| Adults | 17.68% | 67.07% | 42.07% | 10.36% | 47.56% |
| Bosnia and Herzegovina | | | | | |
| Total sample | 15.05% | 64.51% | 25.08% | 20.25% | 23.47% |
| Youth | 18.87% | 68.67% | 25.3% | 15.66% | 26.5% |
| Adults | 11.97% | 61.16% | 24.91% | 23.94% | 21.03% |
| Croatia | | | | | |
| Total sample | 4.95% | 85.81% | 40.61% | 16.55% | 22.74% |
| Youth | 6.4% | 91.43% | 37.92% | 9.78% | 27.21% |
| Adults | 4.09% | 82.53% | 41.71% | 20.49% | 20.14% |
| Kosovo | | | | | |
| Total sample | 19.9% | 71.94% | 20.58% | 11.08% | 26.47% |
| Youth | 25.75% | 79.29% | 18.68% | 9.09% | 27.77% |
| Adults | 15.16% | 65.98% | 22.13% | 12.70% | 25.4% |
| Macedonia | | | | | |
| Total sample | 12.13% | 70.22% | 38.6% | 18.19% | 35.84% |
| Youth | 12.62% | 74.24% | 30.30% | 14.14% | 25.85% |
| Adults | 11.84% | 67.91% | 43.35% | 20.52% | 35.83% |
| Montenegro | | | | | |
| Total sample | 12.36% | 48.18% | 30.09% | 34% | 14.9% |
| Youth | 17.24% | 44.33% | 33.99% | 30.04% | 19.21% |
| Adults | 9.51% | 50.43% | 29.1% | 36.31% | 12.39% |
| Serbia | | | | | |
| Total sample | 7.69% | 70.94% | 34.18% | 17.65 | 19.65% |
| Youth | 12.32% | 73.28% | 38.35% | 15.06% | 20.54% |
| Adults | 6.15% | 70.155 | 32.8% | 18.45% | 19.36% |

Source: Authors' own work.

To examine the relation between financial inclusion and youth population, we test following simple probit regression models:

$$Financial\ inclusion_i = \alpha + \beta_1 Youth_i + \varepsilon_i, \tag{6}$$

where $i$ denotes financial inclusion indicators (debit card, credit card, savings, borrowing).

## 4. Results and discussion

### 4.1. Financial Inclusion of Youth

This section provides results of the financial inclusion likelihood of youth. Results of marginal effects at the means for probit regression model are reported in the Table 4.

Results of the likelihood of financial inclusion of youth differ across countries. As it can be observed, the young people in Croatia have the highest likelihood to be included in to the financial system. Analysis shows statistical significant likelihood of Croatian youth of having debit account (7.5% higher likelihood then adults), for savings (6.9%), while the results show statistically significant negative likelihood for borrowing. It is 11.4% less likely that Croatian youth will borrow money then the adults.

Furthermore, results show that in Macedonia youth have statistically significant negative likelihood to have credit card and to borrow money.

It can also be observed that it is more likely that young people from Albania, Bosnia and Herzegovina and Kosovo will also have debit card then the adults, i.e., 11% more likely in Albania; 7.5% in Bosnia and Herzegovina; and 13.5% in Kosovo. Positive, but not statistically significant likelihood of having debit card is detected in Macedonia and Serbia.

Results show negative likelihood that young people will borrow money from financial institutions. Statistically significant negative likelihood is detected in Croatia and Macedonia.

### 4.2. Results of Impact of Remittances on the Likelihood of Youth Financial Inclusion

Tables 5–8 show estimation results for the impact of remittances on the likelihood that an individual in selected countries has a debit card and credit card, and if he/she

**Table 4.** Likelihood of financial inclusion of youth.

| | Albania | BiH | Croatia | Kosovo | Macedonia | Montenegro | Serbia |
|---|---|---|---|---|---|---|---|
| Debit card | .1109819 | .0755187 | .0947121 | .1353692 | .0641727 | −.0611008 | .0317011 |
| | (.0496992)** | (.0409241)* | (.025175)*** | (.0434544)** | (.0411957) | (.0442382) | (.0438107) |
| Credit card | .0042683 | .0038195 | −.0380456 | −.0346301 | −.1330677 | .0484351 | .0547846 |
| | (.054894) | (.0369077) | (.034224) | (.0388157) | (.0440727) ** | (.0405907) | (.0448831) |
| Savings | −.0193622 | −.084085 | .0692551 | .0236268 | .0002044 | .0656144 | .0117514 |
| | (.0554385) | (.0345019)** | (.0286851)** | (.0421265) | (.0427318) | (.0304447)** | (.037711) |
| Borrowing | .0337844 | .1773646 | −.1140516 | −.0365637 | −.0658655 | −.0632889 | −.0349315 |
| | (.0360254) | (.1172588) | (.0268507) *** | (.0302005) | (.03515)* | (.042195) | (.0372801) |

Std.err. are shown in brackets. *, **, *** denote significance at 10, 5 and 1 percent, respectively.
Source: Authors' own work.

**Table 5.** Likelihood that a remittance recipient has a debit card.

| | Albania | BiH | Croatia | Kosovo | Macedonia | Montenegro | Serbia |
|---|---|---|---|---|---|---|---|
| Remittances | .2502308 | −.1517683 | −.1792335 | .3092219 | .2840689 | .7671911 | −.1389734 |
| | (.2003094) | (.1542026) | (.2332057) | (.1770866)* | (.1995241) | (.1767476)*** | (.2093897) |
| Youth | −.3859559 | −.1118683 | .4821187 | .8026751 | −.4207026 | −.3234282 | −.0017544 |
| | (.2857094) | (.211073) | (.1860317)** | (.2484694)*** | (.160047)* | (.1882574)* | (.2012062) |
| Log likelihood | −179.63174 | −352.46395 | −339.3117 | −231.13369 | −287.65803 | −362.0286 | −347.2962 |
| Obs. | 324 | 558 | 876 | 442 | 527 | 548 | 585 |
| LR chi2 | 21.68 | 20.91 | 39.39 | 62.36 | 66.66 | 34.90 | 10.55 |
| Prob > chi2 | 0.0168 | 0.0217 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.3936 |
| Pseudo $R^2$ (Mc Fadden's pseudo $\rho^2$) | 0.0569 | 0.0288 | 0.0549 | 0.1189 | 0.1038 | 0.0460 | 0.0150 |

Std. err. are shown in brackets. *, **, *** denote significance at 10, 5 and 1 percent, respectively.
Source: Authors' own work.

**Table 6.** Likelihood that a remittance recipient has a credit card.

| | Albania | BiH | Croatia | Kosovo | Macedonia | Montenegro | Serbia |
|---|---|---|---|---|---|---|---|
| Remittances | .1922502 | .0298106 | .229471 | .0498195 | .0766404 | .8209609 | −.2700939 |
| | (.1771366) | (.167502) | (.1965419) | (.1761405) | (.1781276) | (.168402)*** | (.2115079) |
| Youth | −.4998175 | −.1220336 | .4940977 | −.4621702 | −.4279314 | −.0287802 | −.4786523 |
| | (.2683509)* | (.2262089) | (.1499381)*** | (.2480922)* | (.202963)** | (.1987299) | (.1950273)** |
| Log likelihood | −213.58621 | −302.98005 | −554.47264 | −216.51531 | −328.64103 | −317.7574 | −356.2745 |
| Obs. | 324 | 558 | 876 | 442 | 527 | 548 | 585 |
| LR chi2 | 14.24 | 22.70 | 70.66 | 16.44 | 44.32 | 39.98 | 38.91 |
| Prob > chi2 | 0.1623 | 0.0119 | 0.0000 | 0.0877 | 0.0000 | 0.0000 | 0.0000 |
| Pseudo $R^2$ (Mc Fadden's pseudo $\rho^2$) | 0.0323 | 0.0361 | 0.0599 | 0.0366 | 0.0632 | 0.0592 | 0.0518 |

Std. err. are shown in brackets. *, **, *** denote significance at 10, 5 and 1 percent, respectively.
Source: Authors' own work.

**Table 7.** Likelihood to savings.

| | Albania | BiH | Croatia | Kosovo | Macedonia | Montenegro | Serbia |
|---|---|---|---|---|---|---|---|
| Remittances | .5955127 | .0675798 | .7757014 | −.1432206 | −.0811048 | .4613011 | .4810811 |
| | (.1812379)*** | (.1663949) | (.1986316)*** | (.1735037) | (.1815714) | (.1917956)** | (.2089752)** |
| Youth | −1.574992 | −.0972511 | .3404743 | −.4350804 | .3405143 | .1829218 | .135461 |
| | (.6484388)** | (.2255013) | (.1655852)** | (.2357777)* | (.207236) | (.2362926) | (.2225239) |
| Log likelihood | −211.68765 | −294.41981 | −435.59432 | −244.80866 | −327.34879 | −211.0421 | −275.20793 |
| Obs. | 324 | 558 | 876 | 442 | 527 | 548 | 585 |
| LR chi2 | 24.29 | 19.35 | 65.14 | 21.27 | 30.81 | 37.02 | 29.47 |
| Prob > chi2 | 0.0069 | 0.0360 | 0.0000 | 0.0193 | 0.0006 | 0.0001 | 0.0010 |
| Pseudo $R^2$ (Mc Fadden's pseudo $\rho^2$) | 0.0543 | 0.0318 | 0.0696 | 0.0416 | 0.0450 | 0.0806 | 0.0508 |

Std. err. are shown in brackets. *, **, *** denote significance at 10, 5 and 1 percent, respectively.
Source: Authors' own work.

borrowed or saved money, respectively. In the following tables, we report only the coefficient related to youth dummy variable.

Results of probit regression models show that overall models are statistically significant (Prob > chi2), while McFadden's pseudo $\rho^2$ is not excellent, but high values were not expected and, therefore, it can be interpreted that the model is rather good.

Even though the results are rather heterogeneous across countries, it is indicative that in most of the cases there is statistically significant and positive relation between

**Table 8.** Likelihood to borrowing.

| | Albania | BiH | Croatia | Kosovo | Macedonia | Montenegro | Serbia |
|---|---|---|---|---|---|---|---|
| Remittances | .186702 | .0937587 | .2173479 | .467588 | .281185 | .1724257 | .2010923 |
| | (.2300266) | (.1701474) | (.2256421) | (.1924201)** | (.193862) | (.1688442) | (.21941) |
| Youth | −.2529357 | −.7338801 | −.7641834 | −.5124161 | −.3772227 | −.3783216 | −.9812518 |
| | (.3701616) | (.2299351)*** | (.1750138)*** | (.2884774)* | (.229348)* | (.1917718)** | (.2322855)*** |
| Log likelihood | −106.56388 | −271.8094 | −373.61812 | −147.59673 | −240.33105 | −345.5315 | −252.43761 |
| Obs. | 324 | 558 | 876 | 442 | 527 | 548 | 585 |
| LR chi2 | 25.12 | 18.69 | 29.14 | 12.71 | 16.61 | 12.41 | 39.62 |
| Prob > chi2 | 0.0051 | 0.0444 | 0.0012 | 0.2402 | 0.0834 | 0.2585 | 0.0000 |
| Pseudo $R^2$ (Mc Fadden's pseudo $\rho^2$) | 0.1054 | 0.0332 | 0.0375 | 0.0413 | 0.0334 | 0.0176 | 0.0728 |

Std. err. are shown in brackets. *, **, *** denote significance at 10, 5 and 1 percent, respectively.
Source: Authors' own work.

savings, while statistically insignificant positive relation was detected for debit card, credit card and borrowing.

As the coefficients obtained from probit regression models only tells us that our models as a whole are statistically significant, that is, it fits significantly better than a model with no predictors.

The marginal effects at the mean are calculated and reported in Table 9. Marginal effects measure discrete change, i.e., how do predicted probabilities change as the binary independent variable changes from 0 to 1 (Williams, 2017, p. 1).

Overall, the obtained results show positive (but only in few cases statistically significant) relation between receiving remittances and being financial included into financial system.

In particular, results show that is more likely that recipients of remittances in Albania, Kosovo Macedonia and Montenegro will have debit and credit card, while negative likelihood of having debit and credit card is detected in Bosnia and Herzegovina, Croatia and Serbia.

In most of countries remittances also have positive impact on having credit card (statistically significant result is obtained only for Montenegro, where it is 31.1% more likely that remittance recipient will hold a credit card). Positive and statistically significant likelihood of remittance recipient saving in financial inclusion is found for Albania, Croatia, Montenegro and Serbia), as well as in respect to borrowing, but statistically significant result was obtained only for Kosovo.

In contrast to overall positive impact of remittances on financial inclusion of individuals in selected countries, the results show negative impact of remittances on youth financial inclusion in selected countries for following financial indicators having debit card, credit card and borrowing. Negative statistically significant likelihood of borrowing among youth remittance recipient was found in all countries except Albania, which is supported by earlier research that remittance reduce borrowing needs of recipient. Only in case of Croatia, a positive likelihood of having debit card was found for youth remittance recipients

In respect to incentive to savings, there is a positive (yet statistically not significant) impact of remittances on saving among remittance recipient youth in selected countries except in Bosnia and Herzegovina and in Kosovo.

**Table 9.** Marginal Effects at the Means (MEM).

| | | Albania | BiH | Croatia | Kosovo | Macedonia | Montenegro | Serbia |
|---|---|---|---|---|---|---|---|---|
| Debit card | Remittances | .0778113 | −.0572838 | −.0411203 | .0945409 | .0884611 | .2902051 | −.0488733 |
| | | (.0587801) | (.0591104) | (.0580146) | (.0503325)* | (.0571283) | (.0592793)*** | (.075709) |
| | Youth | −.125981 | −.0415441 | .0947037 | −.2641063 | −.1443529 | −.1280228 | −.0005985 |
| | | (.092735) | (.0784892) | (.0339395)** | (.0808719)*** | (.075343)* | (.0736193)* | (.0686612) |
| Credit card | Remittances | .075779 | −.1220336 | .0899734 | .0139983 | .0293288 | .3111556 | −.092236 |
| | | (.0701875) | (.2262089) | (.0781094) | (.0500989) | (.0687118) | (.0646013)*** | (.0673617) |
| | Youth | −.1933155 | −.0378289 | −.1843755 | −.1253302 | −.158352 | −.0099492 | −.092236 |
| | | (.101626)* | (.0697538) | (.0537872)*** | (.0654135)* | (.0726711)** | (.0685572) | (.0673617)** |
| Savings | Remittances | .233205 | .0207728 | .2734177 | −.044656 | −.0294778 | .116122 | .14967 |
| | | (.0678269)*** | (.0520118 | (.0776618)*** | (.0523974) | (.0650735) | (.0558484)** | (.0732541)** |
| | Youth | .0910345 | −.0292626 | .1013918 | −.1370681 | .1269009 | .0394866 | .0370785 |
| | | (.1062696) | (.0675603) | (.0506144)** | (.072406)* | (.0776648) | (.0524109) | (.0626782) |
| Borrowing | Remittances | .0336159 | .0265439 | .0564045 | .0990079 | .0789607 | .0646132 | .0523094 |
| | | (.0443818) | (.0494396) | (.0637736) | (.0467188)** | (.0591988) | (.0645701) | (.0615008) |
| | Youth | −.0423647 | −.1943545 | −.1634578 | −.0890183 | −.0919709 | −.1348556 | −.1818065 |
| | | (.0619843) | (.057988)*** | (.0336395)*** | (.0488742)* | (.0532638)* | (.0661742)** | (.0326681)*** |

Source: Authors' own work.

## 5. Conclusion

The main contribution of this paper is that it fills the literature gap on investigating the financial inclusion of youth as well as it provides better insight weather remittances might have an impact of financial inclusion of youth in selected countries of South-East Europe, namely Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro and Serbia. In particular, we analysed the impact of remittances on the likelihood that individual holds debit card and credit card as well as the individual has saved or borrowed money from financial institutions.

Overall, the results show positive relation between receiving remittances and being financially included into financial system with respect to all recipients regardless of age. On the other hand, results show negative impact of remittances on youth financial inclusion in selected countries with respect to having debit card, credit card and borrowing. In respect to incentive to savings, there is a positive likelihood of remittances on saving among remittance recipient youth.

The main concern regarding remittance payments is that majority of these transfers are paid out as cash, that is, they are not transferred through formal financial system. Lack of use of formal channels could disincentivize saving excess remittances. In that respect, government can impose certain laws to reduce the amount of remittances transferred outside of the formal financial system and promote savings. Research results leads to the conclusion that decision makers need to create regulatory framework that will encourage remittance recipients to receive remittances through formal financial institutions. This would mean that all receipts would be in the need to have bank account opened which might give them the incentive to save portion of received money.

The future research can be directed in several directions. First, more comprehensive research that includes analysis of financial inclusion level of recipients (both adults and youth) who receive remittances through informal channels. Second, it would be interesting to further analyse the level of active usage of financial services among remittance recipients. Lastly, it would be interesting to analyse impact of internal remittances on financial inclusion, since internal migration from rural to urban areas, especially among youth, have become significant in last few decades.

## Notes

1. According to the World Bank, financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit and insurance – delivered in a responsible and sustainable way. http://www.worldbank.org/en/topic/financialinclusion/overview
2. UNDP (2014) proposes to focus principally on young women and men ages 15 – 24, but also to extend that youth group to include young men and women ranging from ages 25 – 30 (and even beyond through age 35), based on contextual realities and regional and national youth policy directives. In this research, we will include in the sample young women and men ranging from ages 15 – 35.
3. The survey is carried out by Gallup, Inc. as part of its Gallup World Poll, which since 2005 has continually conducted surveys of approximately 1,000 people in each of more than 160 countries and in over 140 languages, using randomly selected, nationally representative samples. The target population is the entire civilian, noninstitutionalized population age 15 and above (World Bank, 2014a,b).

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