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**MICROCREDIT AND MULTIDIMENSIONAL POVERTY IN ALGERIA: DOES
GENDER MATTER?
CASE STUDY: NATIONAL AGENCY FOR MANAGEMENT OF CREDIT /
DEPARTMENT OF BOUMERDES**

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Abstract. This article attempts to assess the impact of microcredit on the economic well-being and implicitly the degree of multidimensional poverty of women in Algeria. Based on data from a survey of 228 microcredit recipients in the department of Boumerdes in Algeria. The study showed that participation in microfinance services provided by the national agency for management of microcredit (ANGEM) could be a tool for women to acquire the capacity to make strategic choices concerning their lives. By having access to microfinance services, women can set up their own businesses and consequently improve their status within the household and in their communities. Only 26 women participated in the survey. Using the Mann Whitney U test, the results show a significant difference between the impacts generated by microcredit on both genders based on the asset ownership index where female beneficiaries feel more impacted than male members do. These results call for further questions. ANGEM is not Micro-Finance Institution (MFI) like the others. It is a public agency.

Key words: empowerment, impact, microcredit, multidimensional -poverty, gender.

JEL Classification D10, O30, M54, I32.

INTRODUCTION

The economic well-being of the people living in a society is essential for the development of the country and represent an integral part of the role of government. The contribution of the microfinance sector to this economic well-being is an important research question. The microfinance has generated considerable interest among researchers around the world after his success in multiple economies since 1970. The number of research articles published each year, by academics and practitioners in ranked journals, has increased significantly in recent times.

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It is recognized that microfinance is important tool for ensuring the transition from the informal economy to the formal economy (ILO, 2015). Social enterprises constitute a segment of the social and solidarity economy. One of the main components of the informal economy according to ILO resolution 204, "the *economic units of the informal economy include: a) units which employ labor of work; (b) units owned by individuals working on their own account, either alone or with the assistance of unpaid family workers; c) cooperatives and social and solidarity economy units*" (ILO, 2015, p. 5 point 3). It is also accepted that microfinance is one of the important approach to create a decent work.

One of the recurring contributions of microfinance is the reduction of poverty and the development of the empowerment of women (Kabeer, 2005, p. 4711). The latter is defined by Kabeer as "*a process by which those who have been deprived of the ability to make strategic life choices acquire this ability.*" In developing countries, women are poor and powerless compared to men. Women do not always have access to education, the right to claim property and many other living facilities. Before resorting to the services of microfinance institutions (MFIs), poor women borrowed in many informal ways, which increases their social vulnerability.

The vulnerability, the probability of physical or psychological abuse, health problems are some of the serious problems faced by women in developing countries. (Murshid, 2016, p.1582). Therefore, women economic empowerment increases women security, self-esteem, and social and economic status; in addition, it improves the standard of living of the whole family (Gaywala, 2018). According to the World Poverty Clock, among the world's poor, "65% are women" (World Data Lab, 2020).

In this sense, and for more than three decades, microfinance programs have been considered an important development strategy all over the world, particularly in developing countries. Governments and non-governmental organizations (NGOs) in these countries have set up various micro-credit programs targeted the poor. Most of these programs intentionally target women because they have more constraints of access to credit and limited access to the labor market. They have the "*higher loan repayment rates than men*". Similarly, the women are more likely to share the benefits of the loan with other family members, especially their children. An increase in social and political awareness, training and skills development of this disadvantaged group could also be the reasons for targeting women (Kato & Kratzer, 2013, p. 43).

In this study, we postulate that access to microfinance, has a significant impact on the level of poverty and the empowerment of women in Algeria. With access to microfinance, decision-making power increases, which brings economic well-being and prosperity to the family. Our aim is to examine the hypothesis that the impact of microcredit on beneficiaries is more significant for women than for men. The study is based on a survey of 228 beneficiaries of microcredit from ANGEM in the department of Boumerdes. We use first, the possession of assets, solvency index and the index of financial inclusion as dependent variables. Gender represents our stratified variable.

LITERATURE REVIEW

Empowering women through financial inclusion

Women constitute half of the population in all countries, but their unemployment rate is higher than unemployment mal-rate in almost countries according to the ILO data. The Arab countries have the lowest rates of activity. According to the female activity rate, Algeria is among the last countries in the world in 2019 (ILO, 2020). The empowerment of women was selected as one of Objectives of the Millennium for developing countries (MDG3). It was reappointed to the Agenda 2030 of the United Nations all over the world - goal of sustainable development (ODD5). The economic empowerment of women can be achieved by the financial inclusion.

The existing literature on the impact of microfinance can be classified into three categories. The first category examines the impact of microfinance on poverty. The second were addresses the impact of microfinance on women empowerment. The third series of studies highlights other effects of microfinance, such as the impact on education, health, nutrition, level of consumption and asset building.

According to a recent survey (Microfinance Barometer, 2020), MFIs serve 140 million people worldwide, over 80% of whom are women. Globally, women participation has different roles: as borrowers, board member, manager and loan officer, is increasing relative to male counterparts in the microfinance sector. Another study (MIX Market data, 2019) gives an order of magnitude of MFI clients by region of the world: South Asia (99%), East Asia and the Pacific (80%), Africa (60%) Latin America (49%), Middle East and North Africa (48%) and Eastern Europe (44%).

Numerous evaluations of MFIs have shown that microfinance services have a positive impact on women. Some economists (Hashemi, Schuler, and Riley, 1996, p. 652) found that programs micro credit had significant effects on the different dimensions of women empowerment. Other authors (Pitt & Shahidur, 1998, p. 989) does not found that microcredit has a greater effect on the behavior of poor households in Bangladesh where women participating. They also observed that the participation of women in microfinance programs had a positive impact on the acquisition of assets by client households. Another study (Rai & Ravi, 2011, p. 918) on women empowerment and microfinance, found that MFI members women are more independent than the others women. Finally another author (Rahman, 2009, p. 298) has deduced that the ability of women (income from their own jurisdiction) is also a major empowering.

From the above literature, we can confirm that women achieve some autonomy by using the services of MFIs. The difference in results may have a relation with the difference in the socio-economic environment, to the timeframe, the tools used (method of measuring economic empowerment), the nature of the studies (transversal or longitudinal) and socio-political conditions.

Improving the well-being of women in the context of microfinance services

There is a large body of research on the economic impacts of microcredit services (Banerjee, Duflo, Glennerster, & Kinnan, 2015). Previous research reported mixed evidence of the impact of microfinance on economic conditions of women (Vaessen et al., 2014). The diversity of results can partly be explained firstly by two major methodological differences in the study intervention. First, microfinance programs differ considerably in their services offered (Armendáriz & Morduch, 2010). Second, the study designs differ and include the results of national demographic survey data. So that controlled trials and randomized behavioral games, or semi-structured in-depth interviews (Banerjee, Duflo, Glennerster, & Kinnan, 2015). The two main methodological differences make the comparison of results very difficult.

To integrate the results of previous research and thus acquire a more in-depth understanding of the well-being of women in the field of microfinance services. We propose a three-dimensional model for measuring the well-being of women, which includes: (i) micro dimension, referring wealth index observed, (ii) the medium level , referring to financial independence measured by the degree of savings , and finally (iii) the dimension at the macro level, referring to the results women economic performance.

Micro finance in the mena region

According to the World Bank document on poverty and prosperity (World Bank, 2020), which provides global and regional comparisons, the poverty analysis in Middle East and North Africa (MENA) is different for two reasons. Firstly, it is the only region where the rate of extreme poverty increased between 2011 and 2015, from 2.7% to 5%. The number of people living on less than 1.90\$ per day has doubled to reach 18.6 million person. On the other hand, it is the first time that global estimates have been established for this region after several years marked by a lack of data and problems related to the conversion factors of purchasing power parities in 2011 in some countries (Atamanov & Tandon, 2018).

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However, the same institution emphasizes that a large part of the population lives in vulnerable situations, which increases its fragility to external shocks. For this region, several countries seem to suffer particularly from extreme poverty: nearly half of the population of Yemen (Middle East) lives below the poverty line of \$ 2 per day. The rates are also high for Iraq and Syria with 21.41% and 16.9% respectively.

Regarding access to basic financial services, developing countries in the Arab region (except Gulf countries) have the lowest proportion of adult account holders compared to other regions of the world in 2011, the proportion of adults with an account was only 18%. Women are less likely than men do to have an account in the Arab region (Asli & Leora, 2012, p. 09).

Financial inclusion of women can therefore be a solution to help women increase their economic participation and create their own income-generating activities. The characteristics of the region make it a fertile ground for the development of microfinance. Microfinance in the MENA region is a relatively new industry compared to other regions (Chehade, Navarro Barnieh, and Attia, 2017, p. 02). The Alexandria Business Association, launched in Egypt 20 years ago, managed the oldest program. In other parts of the world, particularly in Asia and Latin America, MFIs have been in existence for several decades. Thus, by developing microfinance, practitioners and policy makers in the MENA region can learn from other regions while adapting programs to their own environment.

Nevertheless, microfinance is narrowly defined, as most services offered by Arab MFIs are limited to loans. Yet many MFIs in the region are beginning to offer education loans as well as micro-insurance for death and disability, health and medical insurance, in addition to life insurance. Despite this deployment of inclusive finance, the MENA region continues to be the smallest market in terms of borrower reach and gross loan portfolio (Chehade, Navarro, Barnieh, & Attia, 2017, pp. 5.7).

In the MENA region, microfinance markets are at different stages of development, Morocco and Egypt in particular shows higher levels of reach and scale than younger markets in Iraq and Syria. Morocco and Egypt currently represent 85% of the total number of borrowers and 73% of the total loan portfolio in the region (Khamar, 2019, p. 4). Egypt remains the largest market in terms of borrowers, while Morocco remains the largest market in terms of portfolio.

Since 1999, when the first survey was carried out in the region, microfinance in the Arab States has moved from a commercial sector that targets financial performance, to an emerging industry that is based on social values. However large Gaps appear: most microfinance institutions in Egypt are both socially and financially successful, while those in Yemen are socially successful and those in Jordan are financially successful (Adair & Berguiga, 2014, p. 11).

Over the past decade, the sector has seen notable changes as well as areas requiring further development. The region has seen a significant improvement in terms of awareness of female borrowers compared to around 36% of borrowers in 1997; women currently represent almost two-thirds of borrowers in the MENA region (58%), compared to 63% for the Asian region (Khamar, 2019, p. 4). As women also constitute the majority of the world's poor, the increased focus on women has been accompanied by a general increase in the outreach of awareness. Despite some instability in the region, the influence of the microfinance sector remains constant. Group loans were the predominant lending methodology in the past, particularly in Morocco, Jordan and, increasingly, Egypt, where they are seen as an effective tool for reaching women. In all other countries, individual loans were largely used. The MENA region enjoys a low average loan balance per borrower, indicating that MFIs in the MENA region are targeting the low-income market. While Iraq, Lebanon and Palestine have the highest loan balances and are the only ones above the regional average of \$ 1,100, Palestine is the only country with the average loan balance / GNI per inhabitant is more than 50%. While benefiting from the largest markets, Egypt and Morocco also have the lowest average loan balances per borrower (Chehade, Navarro, Barnieh, & Attia, 2017). The MENA region recorded the highest capital-to-asset ratio and a relatively low

debt-to-equity ratio. This is because savings products continue to be offered on a limited scale in the region because of legal restrictions, while deposits constitute a larger share of MFI funding in other regions (Ben Abdelkader & Mansouri, 2019) .

In Algeria, microcredit is recent. The NGO Touiza introduced microfinance in 1995. The microcredit regulatory system, established and implemented by the government in 1999, coincides with the idea of promoting small economic activities. Touiza's experience did not last without obtaining the approval of the authorities (Benhabib, Smahi, Maliki, & Baha, 2005). The device microcredit was initially built in the Social Development Agency (ADS) created into 1996 mitigate the social effects of structural adjustment Program (SAP).

Only eight years after an independent agency was created. The (ANGEM) which was created by Executive Decree n ° 04 - 14 of January 22, 2004. According to Article No. 2 of Order, "the *micro lending is a loan granted to classes of citizens without income and / or unstable incomes with small and irregular activity*". According to ANGEM, micro lending is designed as "a *tool in the fight against unemployment, poverty and social exclusion*". Regarding the creation of activities and jobs, micro lending will effects: reducing unemployment, fight against poverty and social exclusion and to phase out the informal economy (Musette, 2014). ANGEM went through two stages, with changes made in its text in 2011 by a presidential decree.

Before 2012, ANGEM developed two programs providing interest-free loans as well as non-financial services: (i) for the purchase of commodities (AMP); (ii) to create an activity, including at home, not necessarily a business.

After 2012, a change took place in its program. It joins the model of the National Agency for the Support of Youth Employment (ANSEJ) with mixed funding and tripartite funding with a ceiling of 1 million Algerian Dinar (DA). According to agency data, a steady increase in activity is recorded for the two types of "interest-free" financing, whether for the AMP or for the creation of a business (project).

It was able to reach the threshold of 923,788 projects at the end of 2020, of which nearly 834,896 were dedicated to the MPA. They have generated 1 357 764 job positions. From its inception to date, the agency has reportedly funded around 587,213 women businesses, mostly in the AMP formula.

Table 1

Financial services provided by ANGEM

Number of loans granted to women	587,213
Number of loans granted to men	336,575
Number of jobs created	1,357,764
Number of beneficiaries of non-financial services	342,323

Source: authors according to ANGEM data (ANGEM, 2021)

METHOD AND DATA

The empowerment economic of women is seen as a process as well as a result. Seen it as a process allows help us to better evaluate impact, but it is easy to collect data on women's empowerment as an outcome and it is difficult to measure empowerment as a process. Data collection (survey and participatory approach) related to the empowerment process takes longer and may add bias in interpreting responses (Pokhriyal, Rekha & Jaya, 2014). For this, we will treat the database of a survey by analyzing the impact on three dimensions: the asset ownership dimension to measure the depth of the impact, the savings dimension to measure the degree of financial inclusion and the dimension credit and debt to measure the creditworthiness of beneficiaries.

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Our main contribution is to measure the gender effect on the impact of microfinance through a sample regrouping 228 micro lending beneficiaries in the department of Boumerdes conducted by the Research center for applied economic for development (CREAD) in 2012.

The population of the department of Boumerdes is estimated at 800,000 inhabitants according to the 2008 RGPH. It grew by 2.2% between 1998 and 2008, slightly above the national average. This population is divided between 142,000 households, with an average of 5.6 persons / household.

The survey includes 90 questions classified under 9 headings. Relate to: (i) the observations of the interviewer, (ii) the living conditions, (iii) the household equipment, (iv) the individual characteristics of the promoter before the launch of his activity, (v) Characteristics of the promoter and the launch of the activity, (vi) The launch of the activity - situation at the start, (vii) the financial situation, (viii) the impact of the activity on the individual, on his family, on their environment, (ix) a general appraisal sheet of the system.

The sample of promoters was established by the technical services of ANGEM. The criteria used are the year of granting of loans, from 2005 to 2011, according to the two formulas "purchase of raw materials" (AMP) and for the creation of an activity (project). A second control sample was withdrawn for promoters who benefited from a loan after 2011, taking into account the reforms adopted by the government for the system. In total, a volume of 350 promoters, with a loss margin for each year. 30 executives from Algiers, Tipaza and Blida conducted the survey. The 10 executives of the Wilaya of Boumerdes were mobilized to support the investigators in locating the people to be investigated. The investigators were able to fill in 228 validated questionnaires (Musette, Belhouari, Meziani, & Achour, 2013).

In order to test the hypotheses, a non-parametric test is essential; the Mann-Whitney U test was used to determine whether there were significant differences between women and men receiving microcredit. This test represent an alternative to the t test for independent samples, it examines the differences in classified positions ordinal dependent variables in two independent groups (Nachar, 2008, p. 14). The Mann-Whitney U test is robust to violations of normality and homogeneity of variance. This test is used to determine if there is a significant difference between women and men receiving micro lending. Any significant difference statistically suggests that dependent variable that represent in our case the index of asset ownership, the index of financial inclusion and solvency index differ significantly between women and men beneficiaries of the ANGEM program.

RESULTS AND INTERPRETATIONS

Descriptive analysis

This study seeks to measure the impact of gender-split micro lending on the economic empowerment of beneficiaries and implicitly the degree of multidimensional poverty. For this, descriptive analysis is essential to identify our research variables.

The household size is an essential tool to estimate equivalence scales to compare the two subgroups. It can be seen from the visualization of the data that 80% of households have a maximum of eight members. We also note that only 11% of our sample is female against 89% male.

We note from the data that the average age of beneficiaries is 56 years and 80% of respondents are under 66 years old, for the marital status of respondents we see that more than 86% of respondents are married. For the level of education, we see that 95% of respondents does not access to university, with a rate of 33% completely excluded from the education system. For the individual situation before access to micro lending program, we note that only 48% of beneficiaries were excluded from the labor market.

Impact analysis

Different tests are available to determine whether the relationship between two crosstab variables is significant according to a categorical variable, which is represented in our case by the gender of the respondents. The most commonly used test is the Mann-Whitney test. One of the advantages is that it is suitable for the type of ordinal data. This test is used to determine if there is a significant difference between women and men receiving micro lending. The impact measurement will be done in two stages: first on the possession of assets and then on three indices.

Impact on asset ownership

The impact on the ownership of assets includes four tests on four selected items based on the approach of the deprivation; this dimension includes the degree of participation in the purchase of goods following refrigerators, a television, a cooktop and a computer. The choice of these goods is subjective. The significance value contains the information sought. Over the significance value is negligible, more likely the two variables are different.

The following table summarizes the results obtained for the equipment selected from the households surveyed.

Table 2

Mann-Whitney test of possession of selected equipment

Mann-Whitney U	2082	2310.5	1280	84
W from Wilcoxon	22182	22210.5	13526	90
Z	-3.284	-1.722	-2.621	-0.759
Asymptotic significance (bilateral)	0.001	0.085	0.009	0.448
To. Grouping criteria: Gender				

Source : Own compilation

According to the data, 226 ANGEM micro lending beneficiaries interviewed believe that the microcredit has positively influenced the possession of a refrigerator. In our case, we record a significance value of 0.001 less than 5%, which confirms the existence of a significant difference between the possession of a refrigerator between women and men.

According to the data, 225 beneficiaries find that the microcredit positively influenced the possession of a television. We records a significance value of 0.085 higher than 5%, which does not confirms the existence of a significant difference between owning a TV between women and men, but it is significant at 10% of error risk

According to the data 176 beneficiaries approves that the microcredit positively influenced the possession of a stove. The significance level of 0.009 less than 5%, which confirms the existence of a significant difference between owning a stove between men and women.

According to the data, 70 beneficiaries admit that the microcredit positively influenced the possession of a computer. The significance value of 0.660^{bis} greater than 5%, which confirms the non-existence of a significant difference in the possession of a computer between women and men.

Impact on the survival of businesses, the financial inclusion and the a solvency financial

We applied the same test under the same questions about the degree of significance for beneficiaries and the difference between the two genders. The results are synthetic in the following table.

First of all, the index sustainability measured by the financial situation of the company represent an indispensable tool to know to what degree beneficiaries applies good governance of their companies. According to the descriptive statistics, we realize that 217 beneficiaries consider that the financial situation of their business is difficult. In our case, it records a value of 0 meaning of, 114 over 5% which says the lack of a significant difference in the index of corporate sustainability among both genders.

Table 3

Mann-Whitney test on business sustainability, inclusion and financial solvency

Mann-Whitney U	1895.5	2397	2298.5
W from Wilcoxon	20616.5	21703	2623.5
Z	-1.579	-0.194	-0.625
Asymptotic significance (bilateral)	0.114	0.846	0.532
To. Grouping criteria: Gender			

Source: authors from survey data

Second, access to finance and financial capacity are both intermediate outcomes and components of financial inclusion. Being strictly interrelated, efforts to simply improve financial access without at the same time improving financial capacity and contextual conditions for development will be insufficient. They will also be unsustainable given that choosing and using the most adequate financial product (access) can be complex, if not impossible, as understanding all the implications in terms of risks, costs and benefits without the skills and knowledge necessary to make informed financial choices (capacity).

In this sense, financial inclusion represents the main objective of microcredit programs and it is measured by the degree of savings. In our case, we see that there is no difference in terms of impact on the index of financial inclusion between the two sexes, according to the Mann-Whitney test the degree of significance is 0.846 higher than the significance level, which is 5%.

Finally, the development of financial capacity is therefore only one of the intermediate outcomes of financial inclusion (Deb & Kubzansky, 2012), where achievement requires a portfolio of various personalized products and services. Therefore, in order to successfully include the gender dimension in the financial inclusion program, innovative modes of access to financial services must be adapted to women and the capacity to use these products must be developed within the framework of the same action (Arora-Jonsson, 2014). To enable such changes, a radical changeover would have to occur in the financial market, which is achieved through rigorous financial solvency.

The financial solvency index measured by the respect of loan maturities is an effective financial tool to identify the sustainability of the microfinance institution. In our case we find that 222 beneficiaries have not bump into the deadlines payment of microcredit, in terms of gender no difference is observed, according to the Mann-Whitney test the degree of significance is 0.552 greater than the significance limit that is 5%.

CONCLUSION

This article examines the impact of women participation in microfinance institutions (MFIs) on various indicators of well-being and implicitly the degree of multidimensional poverty using quantitative data collected at the department of Boumerdes in the center of Algeria, directed by the center of research in applied economics for development in 2013. The study showed that participation in microfinance services provided by the National Agency for Management of Microcredit (ANGEM) could be a tool for women to acquire the capacity to make strategic choices concerning their lives. By having access to microfinance services, women can set up their own businesses and consequently improve their status within the household and in their communities.

This article has examined how participation in services microfinance leads primarily to an increase in women control over savings and income generated by the company, secondly the impact on the ownership of assets, third point the self-efficacy measured by the solvency

index and lastly the good governance of companies managed by women . The results are consistent with previous research indicating that, there is a significant relationship between participation in MFIs and the possession of certain assets. The results show that women beneficiaries have more control over their savings and income than men do.

These results call for further questions. ANGEM is not an MFI like the others. It is a public agency, with a public service mission that operates according to the public budget, renewed each year by the state. The number of women beneficiaries of this agency is greater, in particular for AMP loans, which is a developed activity , most often at home, known in particular for lack of social security. This type of loan can thus lead, paradoxically, to the dynamics of the informal economy.

As against the loans related to the projects of creation of micro-enterprises, as ANSEJ model seems attract men more than women. These micro-enterprises are subject to regulation. The few women recipients of funding for a project, our sample results from the fact observed for companies. However, our study provides irrefutable proof that women engaged in the creation of projects acquire relative autonomy and are more successful than men in the world of micro-business are.

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МІКРОКРЕДИТУВАННЯ І БАГАТОМІРНА БІДНІСТЬ В АЛЖИРІ: ЧИ Є ГЕНДЕРНЕ ЗНАЧЕННЯ?

ТЕМАТИЧНЕ ДОСЛІДЖЕННЯ: НАЦІОНАЛЬНЕ АГЕНТСТВО З УПРАВЛІННЯ КРЕДИТАМИ / ДЕПАРТАМЕНТ БУМЕРДЕС

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У цій статті зроблено спробу оцінити вплив мікрокредитування на економічний добробут і, побічно, рівень багатомірної бідності жінок в Алжирі. На основі даних опитування 228 одержувачів мікрокредитів у департаменті Бумердес в Алжирі. Дослідження показало, що участь у мікрофінансових послугах, що надаються національним агентством управління мікрокредитами (ANGEM), може стати для жінок інструментом набуття здатності робити стратегічний вибір щодо свого життя. Маючи доступ до послуг мікрофінансування, жінки можуть створити свій власний бізнес і, отже, покращити своє становище у сім'ї та суспільстві. В опитуванні взяли участь лише 26 жінок. Використовуючи U-тест Манна-Уїтні, результати показали значну різницю між впливом мікрокредитування на представників обох статей на основі індексу володіння активами, де жінки-бенефіціари відчують більший вплив, ніж чоловіки. Ці результати потребують подальших питань. АНГЕМ не є мікрофінансовою організацією (МФО), як інші. Це державна установа.

Ключові слова: розширення можливостей, вплив, мікрокредитування, багатомірна бідність, гендер.