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**Gender Aspects  
of the Households' Saving Behavior  
in the Kyrgyz Republic**

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**National Bank of the Kyrgyz Republic**  
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**Working Paper of the National Bank of the Kyrgyz Republic**

Gender Aspects of the Households' Saving Behavior  
in the Kyrgyz Republic

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**The views represented in this paper belong completely to the author and do not compulsorily reflect the viewpoint of the National Bank of the Kyrgyz Republic.**

**Summary**

The research results of the gender aspects of the households' saving behavior in the Kyrgyz Republic are represented in this paper using the data of Life in Kyrgyzstan survey for 2013

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## **Introduction**

After attainment of the independence and transition to the market economy, new income sources and opportunities for consumption opened for the families in Kyrgyzstan. Significant reduction of manufacturing, mass unemployment and social and economic instability affected first the most vulnerable social groups: handicapped persons, senior citizens, youth and women. In 1990s (according to NSC of the KR), unemployment among women was growing faster than among men; this led to women activation in the private sector (for example, in the shuttle trade) and working off the books. On the other hand, during this period the change of the women' role in the family and the society was observed as well as the change of the people's negative attitude to divorced women and single mothers, women holding leading positions or earning more than their spouses. Enhancing the role of the family and ensuring the gender equality are one of the basic directions of the government social policy and are included into the National Sustainable Development Strategy of the Kyrgyz Republic for 2013-2017.

Women, as the statistics shows, for the last two decades have started to depart from their traditional secondary role in the family, very often being at the head of the households. Empowerment of women as well as structural changes in the economics and the households' activities in Kyrgyzstan explain why it is necessary to study the principles of income management in the households and to define the factors that influence their saving behavior. The population's savings are one of the main internal investment sources and, accordingly, of the economic growth. However, during the last decade we have been observing decrease of the savings level and change in their structure (NSC, National accounts of the Kyrgyz Republic 2007-2011, 2010-2013, KIHS (Kyrgyz Integrated Household Survey) 2005-2010; Table 2 Annex).

The gender is supposed to be important in formation of the saving behavior due to differences in the economic behavior and the risk averseness between men and women. According to the gender stereotypes, women on the average are more risk averse and are more conservative in their investment and saving decisions. The wage gap between men and women affects their pension and accordingly can influence their decisions on the savings level. The men and the women have different average life and, besides, there is a prevailing opinion (Floro and Seguino, 2002; Ghowa, 2006; Horioka and Wan, 2007; Hazarika and Guha-Khasnobis, 2008; ur Rehman et al., 2010; Temel Nalin, 2013; and others), that the men and the women have the different level of the marginal propensity to save. Thus, it is expected that the gender of the household head who, mainly, takes important decisions and commands finance significantly determines the household's saving behavior.

The objective of this working paper is to study the gender aspects of the saving behavior in the Kyrgyz Republic. The tested hypothesis is deduced to the fact that the level and the characteristics of the family savings depend on the gender of the household head. The built empirical model takes into account the impact of various social and demographic, geographic (a village/a city, an oblast) and economic factors on the households' savings. The parameters of the model have been calculated using the logistic regressions and the survey data "Life in Kyrgyzstan" for 2013.

According to the results of the logit and probit estimations, the higher income, the loan and the life in the rural area increase the probability of savings irrespective of the gender of the household head. In addition, the savings are higher if a woman and a married person manages the household. Many children, shocks (death or disease of the household's member, job loss and other external shocks) that the family faces and life in the north of the country have an adverse affect on the savings.

The structure of this paper looks as follows: the first chapter represents the theoretical and methodological ground for gender and saving problems. The second chapter describes the model and the methodology as well as the used data. The third chapter presents calculations and results of the carried out empirical work.

### **Theoretical and methodological ground for the problem of gender and savings**

The approaches to the study of the saving behavior issue have changed significantly over the time. Keynes (1936) has outlined the main reasons for savings that include prudence, providence, improvement, independence, enterprise, pride and avidity. Keynes's work and ideas including the definition of the marginal propensity to consume and to save, however, have been argued by later works of Kuznets (Kuznets, 1946) and Duesenberry (Duesenberry, 1949), Friedman (Friedman, 1957) and his theory of the constant income/savings correlation as well as Modigliani, Brumberg and Ando (Modigliani and Brumberg, 1954; Modigliani and Ando, 1957) and their theory of the life cycle.

Later works expand the basic models mentioned above adding new determinants and taking into account the effect of demographic, economic and social variables. The majority of works written on the subject of the gender and the savings analyze the population's behavior in the developed countries and only from 2000-s the shift towards the developing countries has been observed. Overall, the researchers outline the following factors determining the level of the households' savings: inflation (Horioka and Wan, 2007; Temel Nalin, 2013), income (Harris et al., 2002; ur Rehman et al., 2010; Belekova, 2015), geographic location of the household (Abdelkhalek et al., 2010; Temel Nalin, 2013), social and demographic characteristics of the household head (age, education, marital status) (Grossbard and Berreira, 2006; Paxton, 2009), religious and cultural affiliation (Kobrich Leon, 2013), economic optimism level (Harris et al., 2002), composure and self-discipline (Belekova, 2015), as well as gender (Temel Nalin, 2013; Horioka and Wan, 2007; ur Rehman et al., 2010; ) and others.

The part of the empirical works on the subject is devoted to the issue of the gender inequality at the financial markets. Pallavi Chavan (2008) asserts that in the regions and the social groups falling behind economically, the women's access to the banking services is significantly more restricted than the men's access with the similar characteristics (Chavan, 2008, p. 20), which is observed in India. The access to the micro-financial organizations' services has also different influence on men and women. For example, in Uganda the micro-financial services contribute to empowerment of the female clients as well as positively influence the savings as a whole (Corsi, De Angelis and Montalbano, 2013).

The gender influence on the savings has been studied not only at the level of the households but also at the individual level (Fisher, 2010). Overall, women are less inclined to save in the short-term period if they have health problems. Besides, education as one of the factors determining the saving behavior is more important for men than for women. However, not only the gender of the household head but also the gender of the children in a family can influence the saving behavior of the households. Thus, the authors studying the rural areas in India based on the data of 1977-1982 have defined that the "gender shock" (i.e. the birth of a boy and not a girl) significantly increases consumption and reduces the level of savings in large households (Deolalikar and Rose, 1998).

The differences in the saving behavior of men and women occur due to the following reasons: firstly, women especially in the developing world earn on the average less than men do<sup>3</sup>. Even taking into account the global trend of the gender inequality reduction between men and women, the significant gap in salary, a choice of occupation and held positions is still observed. This leads to less income and worse welfare of the female population and, accordingly, restricts their saving opportunities and makes women more conservative and less inclined to risk. This effect is described in detail and analyzed by the authors Grossbard and Pereira (2006), Seguino and Floro (2003), Mukami Njung'e (2010) and Paxton (2009), who using the panel data of the developing countries have proved that the saving level differs depending on the gender of the household head.

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<sup>3</sup> In the Kyrgyz Republic the women's average salary to the men's salary in 2015 amounted to 73.3 percent (NSC of the KR).

The work of Grossbard and Pereira (2006) presents a detailed theoretical model of savings and family relations where the intertemporal model of the individual behavior is used taking into account ambiguity with respect to marriage and divorce. The authors underline the importance of the marital status for the saving behavior noting that the higher level of savings is more peculiar to unmarried men and married women (Grossbard and Pereira, 2006). On the other hand, when the household is making a decision regarding savings, a woman's position in a family and a decision making power that each of the spouses has can be of high significance. (Seguino and Floro, 2003). Thus, with the growth of a wife's relative income (encountered nowadays in the most countries of the world), the woman's position is strengthening, this influences also the decisions regarding the level of savings and their presence. Seguino and Floro in example 22 of the semi-industrial economics for the period from 1975-1995 have shown that the more significant decision making power of a woman in a family leads to the higher rates of total savings.

The majority of the authors distinguish several main determinants of the households' financial behavior, besides the gender of the household head: family structure, age and education of the household head, geographical characteristics of the households. Paxton, whose research in Mexico mostly differs from others in its idea, objectives and methods, has found out that female heads and male heads of the households make savings in various assets (Paxton 2009, p. 227). Mukami Njung'e (2013), using the same methodology has come to a conclusion that in Kenya the savings level positively depends on income and education, and negatively – on employment age of the household head. Besides, the savings in the families differ greatly depending on the gender of the household head.

Overall, the empirical and theoretical works confirm the great influence of the gender on the households' saving behavior. They also distinguish such saving determinants as the characteristics of the household head (age, marital status, education) as well as total income of the household and its geographic location.

### **Financial and saving behavior of the households in the Kyrgyz Republic in light of the gender aspect**

The information about the characteristics of the households and their financial behavior has been received from the results of Life in Kyrgyzstan survey, carried out by the German Institute for Economic Research, DIW Berlin and the Stockholm International Peace Research Institute (SIPRI)<sup>4</sup>. The research is representative at the level of the country, the urban and rural area, the north and the south, covering about 3,000 households from seven oblasts and Bishkek city. We in the course of the research have used one wave for 2013, as the previous waves have no a separate module for the households' financial behavior. Overall, 2,400 households take part in the final sample.

The households' financial behavior is depicted in the module "2.D. Savings and a loan" of the questionnaire for the households. The questions of this module concern presence of savings and/or a loan, and only two out of nine questions of the module are devoted to the savings (presence of the financial savings and their form). 2,562 households have participated in this module, out of them only 587 has indicated that they have made financial savings during the last year. The low level of the savings is explained by many factors, in particular, by the low level of the households' income in the sample: KGS 21,429.7 per month in the households living in the urban area, and KGS 20,825.7 per month – in the rural area. The household's total income, the average size of which is five persons, includes the migrants' remittances, pensions and other transfers. As the sample is representative for the whole country, the conclusions made in this paper can be generalized for whole Kyrgyzstan; however, they are more exact for the rural area and for the poorer population groups.

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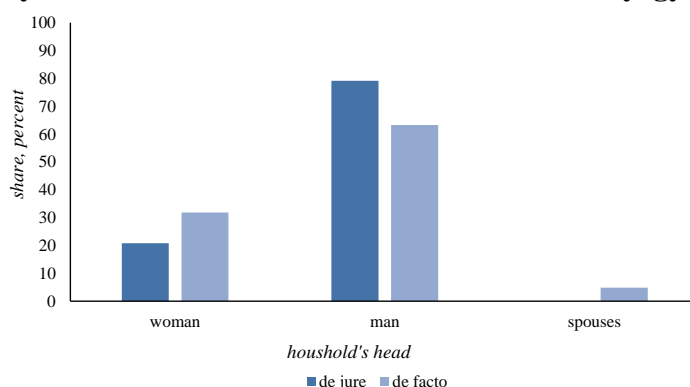
<sup>4</sup> For more detailed information regarding the research please refer to the link [http://www.diw.de/de/diw\\_01.c.100313.en/forschung\\_beratung/projekte/projekte.html?id=diw\\_01.c.345525.en](http://www.diw.de/de/diw_01.c.100313.en/forschung_beratung/projekte/projekte.html?id=diw_01.c.345525.en)

The research includes a question, specifying who of the family members is considered a head of the family that enables to define the gender of the household head. However, it shall be taken into account that due to the socially and culturally stipulated views regarding the role of men and women, we can have households where a husband is only formally a head of the family, but actually a main bread earner in the family and a head is a wife. The spouses also differently conceive who takes economic decisions: men are often inclined to believe that it is they who make a decision, while women often think that decisions are taken jointly. (Table 1, Annex). Thus, the patriarchal pattern of the family identifying a man as a master of the house and a woman as a caretaker is reflected in the data of the sample and may lead to the distorted results (Nava-Bolanos, et al., 2014). In addition, there are families in the sample where a woman is considered a head of the household because she is the oldest member of the family (the households, where a widow lives with a son and his family). If a woman, at that, does not take part in making important decisions and does not create the family's income, it shall be accounted in calculations.

To solve the problem of socially and culturally stipulated views regarding the role of men and women Gammage (1998) proposes to introduce the definitions *de jure* and *de facto* household heads of the different gender identity. The definition *de jure* relates to the formal household heads noted in the survey. The definition *de facto* defines the gender of the actual household head who is a main bread earner in the family. The actual household head is a person making over 50 percent of the household's monetary income. If the income of a wife and a husband is equal, both spouses are considered a household head.

***Figure 1.***

**Gender identity of formal and actual household heads in Kyrgyzstan, 2013**

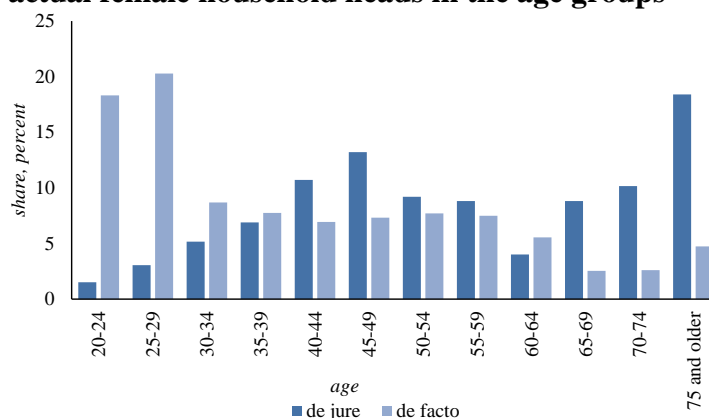


In the used sample 259 *de jure*, but 351 *de facto* household heads are women (Figure 1). The men formally head the family in 79 percent of the cases and the women in 21 percent. However, based on the definition, the actual share of the households headed by a woman is rather high and amounts to 32 percent. In the five percent of the observations the households are headed by a man and a woman together.

An interesting trend is observed among women who head the households: up to the age of forty many of them though they are actual bread earners in the family are not considered as their heads, and after the age of forty the situation is opposite – the women among this age group act more as formal but not actual household heads (Figure 2).

**Figure 2.**

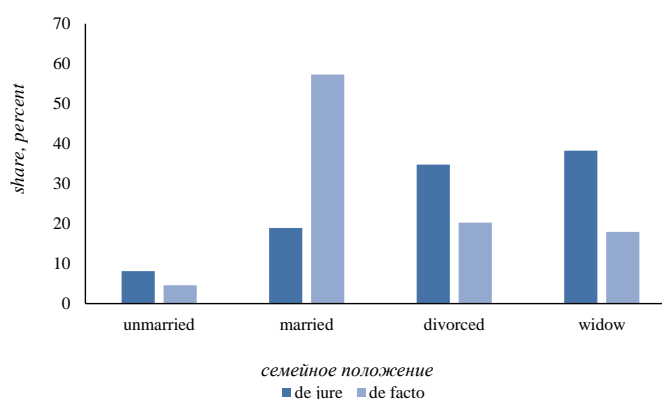
**Formal and actual female household heads in the age groups**



If a woman is married, even if she is an actual bread earner in the family, her husband is more likely to be considered as a head in the household (Figure 3). In the event of divorced women and especially widows, on the contrary, the mothers of the families often formally head the households though actually other family members bring income and make important economic decisions. In this paper, the calculations of the econometric model will be made with regard to the gender of both the formal and the actual household head.

**Figure 3.**

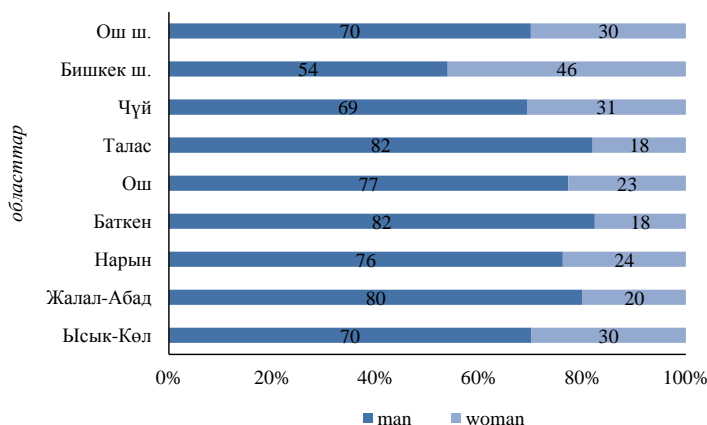
**Formal and actual female household heads in marital status**



The most of the women being at the head of the household live in Bishkek and Osh as well as Chuy and Issyk-Kul oblasts (Figure 4). The least share of the female household heads live in Talas, Batken and Jalal-Abad oblasts.

**Figure 4.**

**Gender identity of the household heads in oblasts**



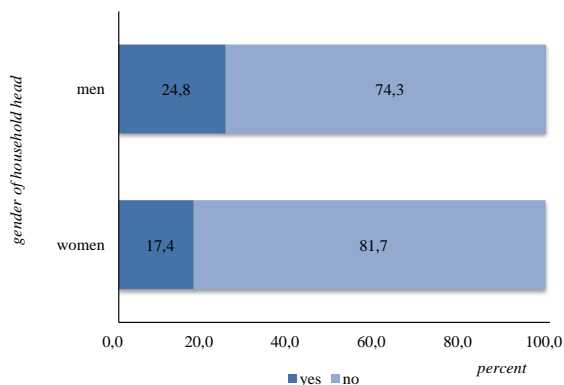
Among the households headed by women, the share of ones, having savings, is lower than among the households headed by men (Figure 5).



According to Life in Kyrgyzstan survey for 2013, overall 587 households have made savings within the last 12 months (22.9 percent) and 1 975 has not saved (77.1 percent). The share of the households making savings significantly differs in the urban and rural area: thus, if in the rural area it amounts to 27 percent, then in the city it is only 17.9 percent.

**Figure 5.**

**Presence of savings according to the gender of the household head**

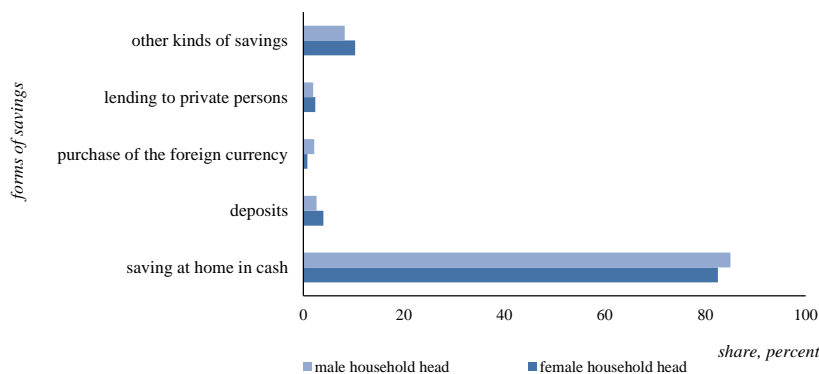


The households’ saving behavior differs depending on the area of living. The largest share of the households with the savings is in Batken oblast (59 percent of all households), Naryn oblast (49 percent), Issyk-Kul oblast (31 percent) and Talas oblast (30 percent). The smallest share is in Chuy oblast (5 percent), Jalal-Abad oblast (13 percent), Bishkek city (16 percent), Osh city (20 percent) and Osh oblast (27 percent). In Naryn and Talas oblasts the households where women are the heads save more, and in Jalal-Abad, Issyk-Kul, Osh oblasts and Bishkek city the households headed by men.

Out of those who have made savings, the overwhelming majority of the households (495 or 84 percent) have kept them “under the mattress” (Figure 6). Far fewer families have saved in the foreign currency, deposits and other forms. The female household heads more often than male lend to other persons, invest into deposits and other kinds of the savings. In the families where the head of the family is a man, money is more often saved in cash and in the foreign currency.

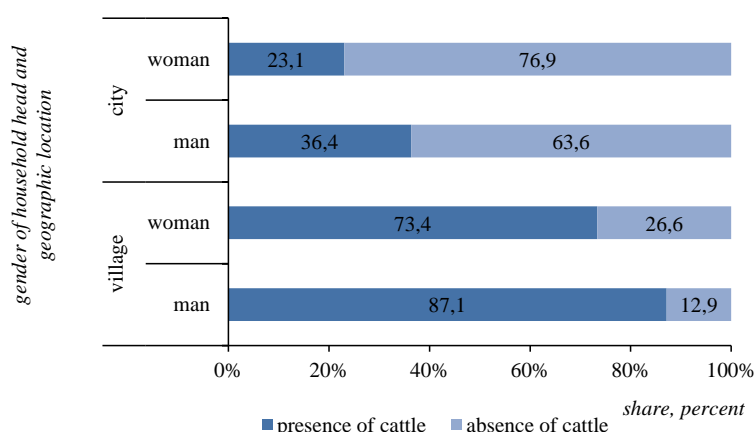
**Figure 6.**

**Forms of the households’ savings**



While less than one third of the households assert that they have made savings within the last year, over 62 percent of all households have assets in the form of small and great cattle and poultry. Particularly, in the rural area 73 percent of the households where the head is a woman and 87 percent where the head is a man have cattle (Figure 7). Among the households of the urban area, the share of those who have cattle is also rather high: 23 percent of the households with a female head and 36 percent with a male head. Of course, not all assets in the form of the domestic cattle can be treated as savings, however, cattle in the urban households confirms the hypothesis that cattle purchase and management is a widespread (and often more popular than the financial assets) form of savings and consumption smoothing.

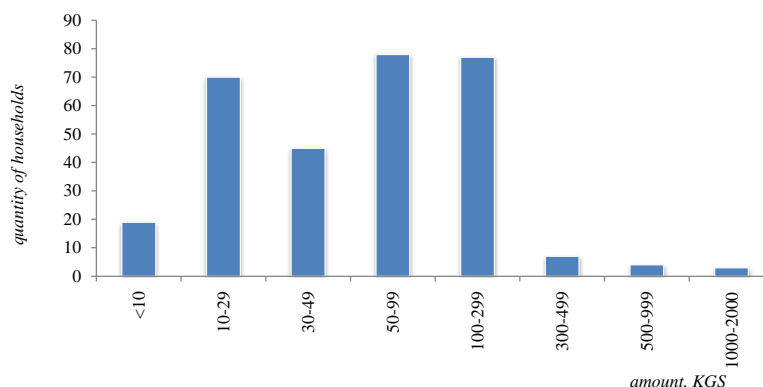
**Figure 7.**  
**Presence of other assets (small and great cattle, poultry)**



In the sample 303 households have borrowed money and used a loan (11.7 percent) from KGS 50 to KGS 2 million. The average size of the debt/the loan in 2013 amounts to KGS 89 673 for these households. The average size of the informal loan amounts to KGS 36,670, the loan from a micro-credit organization – KGS 65,872. The most active in receiving the loan have been the households of Naryn (55 percent of all households in the oblast) and Talas oblasts (29 percent). In other oblasts, the share of the households receiving the loans is substantially lower: 6-14 percent of the households.

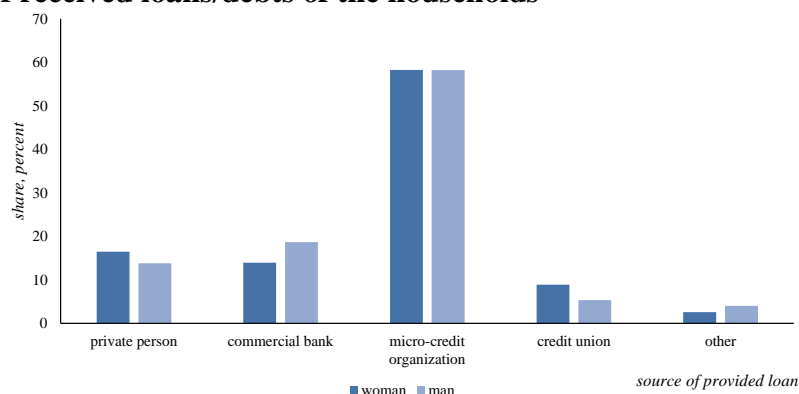
The households where women are heads are more active in receiving the loans in Issyk-Kul, Jalal-Abad, Naryn oblasts. In Talas, Chuy oblasts and Bishkek and Osh cities the male-headed households more actively borrow money. It is interesting that the households of Naryn and Talas oblasts are more active compared to the households in other oblasts both in making savings and receiving loans. Overall, the most borrowing households take small loans for KGS 30 thousand (Figure 8).

**Figure 8.**  
**The amount of the loans received by the households**



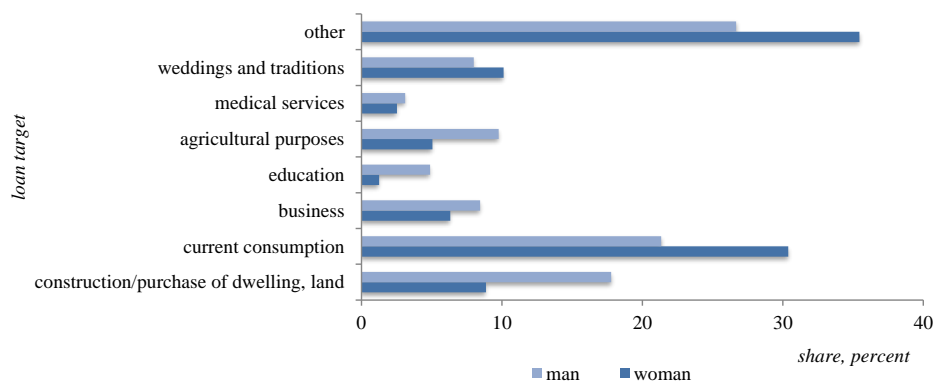
The main debt/loan sources for the households are micro-credit organizations (177), commercial banks (52) and private persons (44). In a considerably less degree, the households take loans in the credit unions (19), commercial organizations (5), pawnshops (1) and other sources (5). Overall, the most households – 58.4 percent – prefer to take loans in the micro-credit organizations providing group loans requiring fewer documents and having their representation offices in many localities (Figure 9). The commercial banks are a little more popular as a source of the loan than private persons are. However, if the households with a male head apply to the commercial banks more often than those with a female head, in the event with the informal loans (the loans from other private persons) the situation is opposite. In addition, the households use informal loans more actively than loans from the credit unions, pawnshops and other sources.

**Figure 9.**  
Sources of received loans/debts of the households



The households borrow money most often in order to cover current expenses, construction and purchase of dwelling, for purposes of agriculture, weddings and different occasions, opening of own business and other (Figure 10). Moreover, the main objective of the loan for most part of the households is to cover current expenses and other purposes especially for the households headed by a woman. The households where a man is the head significantly more often take loans for construction or purchase of dwelling/land as well as for agricultural purposes. The women take loans for weddings and different occasions more often than for opening the business and the agricultural needs; among men these objectives of the loan are topical in approximately equal degree. Moreover, the female heads take loans for weddings and different occasions even more often than for construction or purchase of dwelling. Formal and informal loans are directed to education as well as payment for treatment and medical services most seldom.

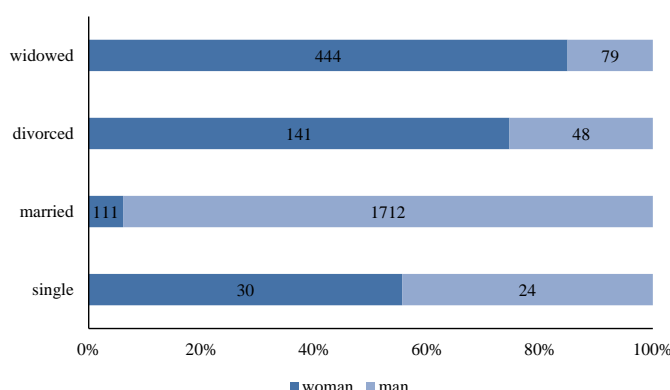
**Figure 10.**  
Loan target according to the gender identity of the household head



The households managed by young women save little; however, the level of the savings is increasing with the age achieving its peak among women at the age of 50-64. Thus, less than 5 percent of the households with female heads up to the age of 30 make savings and with the women in the age group of 60-64 – already 76 percent of all households. After 65 the level of the savings drops again, this complies with the theory of Modigliani’s life cycle (1957). The same trend is observed among the households with male heads, when the frequency of the savings is growing with the age and then drops. The only difference that the peak level of the savings among male heads of the families occurs earlier compared to women at the age of 45-55.

**Figure 11.**

**Marital status of the household heads of the different gender identity**



Overall, the households managed by women save more seldom than those headed by men do. In addition, it shall be accounted that it is partially explained by the fact that the quantity of divorced and widows among female heads of the families is several times more than among men (Figure 11). For example, women make 85 percent among all widowed household heads and 75 percent – among divorced. In these families judging by the results of the sample the average total income level and, accordingly the opportunities for savings are low.

Table 1 represents the summary statistics for the basic variables included into the empirical model and enables to compare the characteristics of the households where the head is a woman with the households where the head is a man. The average income of the households included into the sample and headed by a woman is low compared to the households headed by a man. The households also differ greatly in the marital status of the heads, their size as well as geographic location. The cost of the accumulated wealth is higher in the families that are headed by a woman but it can be explained by an older age of the household head and primarily the urban location of the family.

**Table 1.**

**Summary statistics for the households included into the sample**

№	Variable	Households with a female head			Households with a male head		
		Average	Min	Max	Average	Min	Max
1	Income	19,063.6	300	159,000	21,776.4	1,000	230,000
2	Age	55.4	18	95	50.2	17	94
3	Marital status (1=married)	0.16	0	1	0.93	0	1
4	Number of children	1.35	0	7	1.96	0	8
5	Number of adults	2.95	1	9	3.59	1	10
6	Geographic location (1=city)	0.52	0	1	0.67	0	1
7	Loan (1=there is a loan)	0.12	0	1	0.13	0	1
8	Accumulated movable and immovable property	1,320,083	3,000	9,450,000	1,294,162	800	9,197,000

**Empirical model and methodology**

To evaluate the effect of the gender on the households' savings in Kyrgyzstan and to define other determinants of the saving behavior, the model and the methodology used by Nava-Bolanos, Brown-Grossman and Dominguez-Villalobos (2014) are applied. The specification of the model takes into consideration income, social and demographic characteristics of the household heads, presence of shocks, composition of the family and looks as follows:

$$S_i = f(Y_i, CHD_i, ADT_i, URB_i, CRD_i, AGE_i, (AGE_i)^2, GEN_i, ED_i, SHOCK_i, MAR_i, south_i, WEALTH_i)$$

where  $S$  – is a dummy variable of the savings equal to 1, if the household has made savings within the last 12 months (=0, if it hasn't), and that depends on the following variables:

$Y$  – is an annual total income of the household;

$CHD$  – is number of children;

*ADT* – is number of adults;  
*RUR* – is a dummy variable equal to 1 for the households of the rural area and 0 for the urban households;  
*CRD* – is presence of an informal or formal loan (= 0, if there is no);  
*AGE* – is age of the household head;  
*GEN* – is gender of the household head (=1, if a woman);  
*ED* – is the level of the household head’s education, quantity of years<sup>5</sup>;  
*SHOCK* – is presence of shocks in the family (death/disease of one family member, sudden reduction of received remittances or loss of job by a bread earner);  
*MAR* – is marital status of the household head;  
*south* – is a dummy variable equal to 0 for the households located in the north oblasts of the country and 1 for the households of Batken, Jalal-Abad and Osh oblasts;  
*WEALTH* – is accumulated wealth of the family (movable and immovable property purchased up to 2013);  
*u* – is an error term.

The data of the savings have been received from the answers to the question “Have you made any savings within the last 12 months?” and represented in the form of dummy variables. The described above logit/probit model will be calculated separately for formal and actual household heads. Thus, the data of the variable GEN can change in calculations of *de jure* and *de facto*, while other independent variables will remain unchanged. As in interpretation of the logistic models, the marginal effects are important; the marginal effects in the representative values for the households *de jure* and *de facto* headed by men and women will be also separately calculated. The annual and total income of the household as well as the accumulated wealth has been translated into the natural logarithmic values.

### Empirical model estimations and results

The results of the logit and probit regressions (Table 2 and Table 3) show that higher income, presence of a loan and life in a rural area stimulate the households to make more savings. In addition, the level of the savings is higher if the household is managed by a woman and a married person. Presence of many children, shocks, which the family faces, and life in the north of the country negatively affect the savings.

**Table 2.**

#### Results of logit and probit regressions, formal household heads

№	Variable	Results of a logit model		Results of a probit model	
		Ratio	Stand. deviation	Ratio	Stand. deviation
1	ln_income	0.41***	0.07	0.24***	0.04
2	CHD	-0.12***	0.04	-0.07**	0.02
3	ADT	-0.02	0.04	-0.01	0.02
4	RUR	0.64***	0.14	0.37***	0.08
5	CRD	0.57***	0.16	0.34***	0.09
6	age	-0.005	0.03	0.00	0.02
7	age_sq	0.001	0.00	0.00	0.00
8	gender	0.12**	0.06	0.07**	0.04
9	gen_mar	-0.58	0.43	-0.32	0.24
10	educ	0.03	0.02	0.02	0.01
11	SHOCK	-0.09***	0.02	-0.06***	0.01
12	MAR	0.33*	0.20	0.20*	0.12
13	south	-0.44***	0.11	-0.25***	0.06
14	ln_WEALTH	0.18***	0.06	0.10***	0.03
15	_cons	-10.86***	1.23	-6.34***	0.69

\*\*\*, \*\*, \* mean the statistical importance with 1, 5 and 10 percent of importance respectively

<sup>5</sup> Calculation of the training duration proceeding from the educational categories was carried out according to the example of the work by Bruck and Esenaliev. (2013). Post-Socialist Transition and the Intergenerational Transmission of Education in Kyrgyzstan.

The results based on the data of the formal household heads differ from the results of the model estimation using the data of the actual heads. Thus, the results with the actual household heads show the higher influence of income, accumulated wealth and, especially, gender compared to the results with the formal heads. The female family management according to the results of the model with *de jure* data increases the probability of the savings by 2 percent and according to the results with *de facto* data – by 6.5 percent. At the same time, the effect of the household location (a city/a village, an oblast) is significantly lower in the case with the actual data. Such determinants of the savings as income, quantity of children<sup>6</sup>, location, presence of a loan and shocks, accumulated wealth and gender identity of the household head are statistically important.

**Table 3.**

**Results of logit and probit regressions, actual household heads**

№	Variable	Results of a logit model		Results of a probit model	
		Ratio	Stand. deviation	Ratio	Stand. deviation
1	ln_income	0.45***	0.12	0.26***	0.07
2	CHD	-0.07	0.06	-0.05	0.04
3	ADT	-0.03	0.07	-0.01	0.04
4	RUR	0.77***	0.17	0.46***	0.10
5	CRD	0.61***	0.20	0.36***	0.12
6	age	-0.02	0.06	-0.01	0.03
7	age_sq	0.00	0.00	0.00	0.00
8	gender	0.41**	0.19	0.22**	0.10
9	gen_mar	-0.33	0.57	-0.17	0.33
10	educ	-0.01	0.03	0.00	0.02
11	SHOCK	-0.11***	0.04	-0.07***	0.02
12	MAR	0.41*	0.24	0.17	0.26
13	south	-0.34**	0.16	-0.19**	0.09
14	ln_WEALTH	0.14*	0.08	0.20***	0.06
15	_cons	-11.27***	2.02	-6.70***	1.15

\*\*\*, \*\*, \* mean the statistical importance with 1, 5 and 10 percent of importance respectively

As it is seen in Tables 2 and 3, the results of logit and probit regressions are very similar. Overall, the closeness of the logit model makes 77.75 percent and of the probit model – 77.63 percent (Table 4). The built model correctly predicts in 94 percent of the cases when the households do not save and in 26 percent of the cases when they save.

**Table 4.**

**Closeness of the logit and probit models**

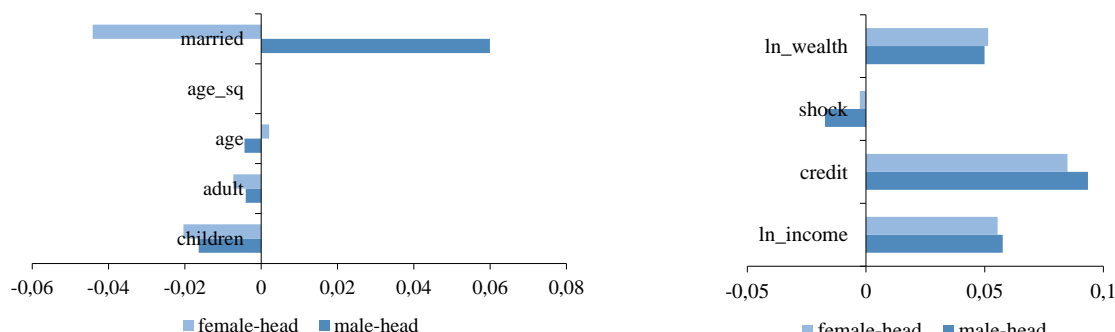
Logistic model for SAV				Probit model for SAV			
Classified	True		Total	Classified	True		Total
	D	~D			D	~D	
+	151	110	261	+	147	109	256
-	424	1715	2139	-	428	1716	2144
Total	575	1825	2400	Total	575	1825	2400
Classified + if predicted Pr(D) >= 0,5 True D defined as SAV !=0				Classified + if predicted Pr(D) >= 0,5 True D defined as SAV !=0			
Sensitivity	Pr (+ D)		26,26 %	Sensitivity	Pr (+ D)		25,57 %
Specificity	Pr (- ~D)		93,97 %	Specificity	Pr (- ~D)		94,03 %
Positive predictive value	Pr (D +)		57,85 %	Positive predictive value	Pr (D +)		57,42 %
Negative predictive value	Pr (~D -)		80,18 %	Negative predictive value	Pr (~D -)		80,04 %
False + rate for true ~D	Pr (+ ~D)		6,03 %	False + rate for true ~D	Pr (+ ~D)		5,97 %
False - rate for true D	Pr (- D)		73,74 %	False - rate for true D	Pr (- D)		74,43 %
False + rate for classified +	Pr (~D +)		42,15 %	False + rate for classified +	Pr (~D +)		42,58 %
False - rate for classified -	Pr (D -)		19,82 %	False - rate for classified -	Pr (D -)		19,96 %
Correctly classified			77,75 %	Correctly classified			77,63 %

<sup>6</sup> The quantity of children is statistically important only for calculations using the data of the formal household heads

Figures 12 and 13 summarize the marginal effect in the representative values for three groups of independent variables: demographic (marital status, age, number of adults and children), economic (income, presence of shocks and loans, accumulated wealth) as well as geographic (a city/a village, an oblast).

**Figure 12.**

**Marginal effects in the representative values on *de jure* household heads**

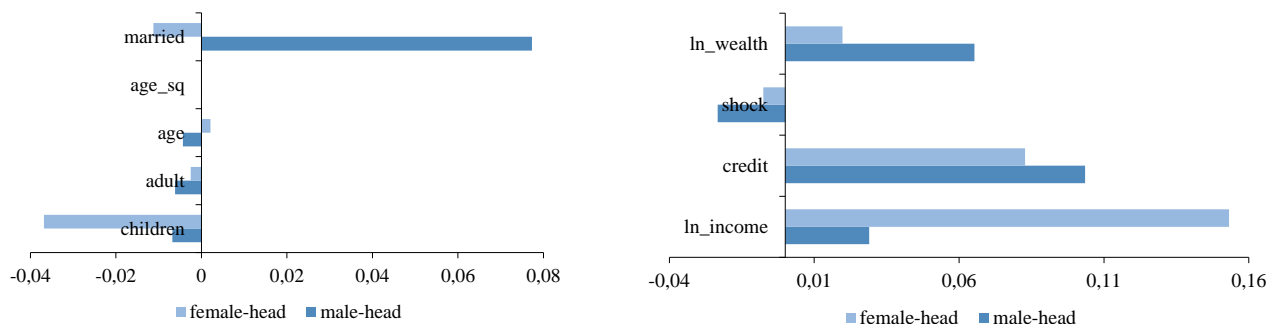


The results of the estimations on *de jure* household heads have shown that marital status and presence of children are the key demographic determinants of the savings<sup>7</sup>. Presence of a spouse increases the probability of the savings for men by 6 percent but decreases for women by over 4 percent. Presence of children decreases the probability of the savings for all types of the households by approximately 2 percent. The impact of the household head's age on the saving behavior is insignificant and statistically unimportant (Figure 12).

The presence of the loan positively influences the probability of the savings increasing it by 9 percent for the households with a *de jure* male head and by 8 percent for the households with a female head. The impact degree of income and accumulated wealth on the saving behavior is approximately equal for both types of the households. The growth of the income by 10 percent increases the probability of the savings almost by 0.6 percent, and the growth of the accumulated wealth by 10 percent increases it by 0.5 percent (Figure 13). The shocks, which the family faces, negatively affect the savings and the effect for the households where the head is a man is significantly higher than for the households with female management.

**Figure 13.**

**Marginal effects in the representative values on *de facto* household heads**



After evaluating the results of the calculations, it can be concluded that location in the rural area positively influences the probability of the savings. Moreover, location in the south of the country positively influences the probability of the savings under other equal conditions.

The results of the regression using the gender of the actual but not formal household head are slightly different in demographic and economic determinants but quite similar in geographic variables. Thus, based on the estimations of the *de facto* household heads, presence of a spouse becomes much more significant and positive factor for the households with the male head, however, less important negative for the households with the female head. Presence of children has the significant negative effect on the probability of the savings for the households managed

<sup>7</sup> Such demographic variables as age, quantity of adults in a family are not statistically important.

by a woman (reduces the probability by 3.7 percent) and much less effect for the households managed by a man (0.7 percent).

Out of the economic variables, total income of the households have the greatest effect on the savings as it has been expected. At that, the effect from the income on the savings of the households *de facto* managed by a woman is much higher than for the households managed by a man. The growth of the income by 10 percent increases the probability of the savings by 1.5 percent for women and only by 0.3 percent for men. Presence of the loan increases the probability of the savings for both types of the households (by 10 and 8 percent) and presence of shocks reduces the probability in a higher degree for the households managed by men. The growth of the accumulated wealth is more significant for the saving behavior of the households with the male head than for those where the head is a woman.

Overall, the hypothesis about presence of some gender inequality in the savings is confirmed: in the households actually managed by women, the probability of the savings is by 6 percent higher than in the households managed by men. Moreover, the impact degree of other determinants on the saving behavior also depends on the gender of the household head.

### **Conclusion**

To mobilize the internal resources that are determined among others by the saving behavior of the households, it is necessary to reveal the basic determinants of the savings. The lack of the empirical literature on the subject of the saving behavior of the households in the Kyrgyz Republic, especially with regard to the gender aspect is the main reason for the carried out research.

This paper has taken into account the social and cultural views regarding the role of men and women and accounted the possibility of difference in the gender identity between *de jure* and *de facto* household heads. The definition *de jure* relates to the formal household heads noted by the respondents in Life in Kyrgyzstan survey. The definition *de facto* defines the gender of the actual household head who is a main bread earner in the family. All calculations have been made using the data of both formal and actual household heads.

The carried out analysis has shown that the income level and the accumulated wealth, presence of the loan, shocks that the household faces significantly determine whether it will save or not. The marital status of the household head and the place where the family lives have also a significant influence on the probability of savings. Besides, the households with equal economic, social and geographic characteristics differ in the saving behavior depending on the gender identity of the household head.

The households located in the urban area and in the north oblasts of the republic are inclined to save even less than the households do located in the villages and in the south of the country. Probably, due to the income gap some households in the rural area save small amounts, however, the probability of the savings in these households is much higher. At present, the largest part of the savings in the households located in the country is channeled to purchase of small and great cattle, grain, seedlings and seeds; the large amounts are saved in a such asset as lands. Accordingly, the rural population has a significant saving and investment capacity that is increased with the growth of income and that can be directed to the formal financial markets. In this connection, the recommendation for the financial institutes is to develop deposit products clear for the rural households and supposing small amounts of the savings. For example, it can be in the form of the group deposits made according to the analogy to the group loans or “sherine/black cash”<sup>8</sup>, widely spread among the population in the Kyrgyz Republic.

The received results show that in the households with a female head the probability of the savings is higher than in the households where the head is a man. Moreover, the growth of the income increases the probability of the savings more for the households managed by a woman

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<sup>8</sup> “Black cash” is cash of mutual help where the participants make weekly/monthly contributions and are lined up in one queue defined by a random draw. Receiving the payment a participant in the first place goes to the end of the queue and again moves to the start.



but not a man. Thus, the financial institutes are recommended to develop deposit products oriented to the female household heads that take into account cultural and financial peculiarities of these families.

The households managed by men are more sensitive to the shocks. Taking into account the fact that the majority of the households are managed by men, there is sense to develop and to make popular the insurance system against external shocks (loss of harvest, death or disease of a bread earner, natural disaster, etc.). It can be done according to the example of the farm management deposit scheme widely used in Australia. It is necessary to carry out a more detailed study of the population's needs, especially people involved into agriculture, for various kinds of insurance as well as to make an analysis of the cost effectiveness on the available insurance systems. These steps can significantly reduce the households' vulnerability as well as expand their saving capacity.

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**Annex**

**Table 1.**

**Decision making process in the household from the viewpoint of different spouses**

№	Activity/process	Reply of one of the spouses	Household member who has had heavy weight in decision making			
			Husband	Wife	Together	Other household members
1						
2	What to grow on a plot of land	Husband	599	125	477	222
		Wife	513	138	555	217
3	Whether to make large purchases	Husband	496	57	690	282
		Wife	434	58	749	296
4	To lend money or not	Husband	535	123	842	154
		Wife	430	127	938	163
5	How much money to give on the occasion of weddings/traditional events/funerals	Husband	385	108	1032	187
		Wife	357	71	1084	211
6	What part of income shall be spent on consumption	Husband	287	171	1018	260
		Wife	297	131	1059	272
7	What part of income shall be saved	Husband	307	161	1008	244
		Wife	303	120	1053	264
8	What the household's income to be invested into	Husband	321	110	910	240
		Wife	332	73	933	271
9	How to use remittances	Husband	208	82	473	186
		Wife	215	49	514	199
10	When and at what price the harvest shall be sold	Husband	456	79	483	230
		Wife	452	42	535	236
11	When and at what price cattle shall be sold	Husband	445	83	465	226
		Wife	443	37	524	236

**Table 2.**

**The share of the households with savings, in years**

Year	Total number of households	Households with savings	Share, in percent
2005	4,771	259	5.43
2006	4,827	248	5.14
2007	4,803	265	5.52
2008	4,995	265	5.31
2009	4,984	227	4.55
2010	4,979	198	3.98
Total	29,359	1,462	4.98

Source: KIHS 2005-2010, NSC of the KR