Financial Behaviours and Vulnerability to Poverty

in Low-Income Households in Transition Context

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Abstract

This paper examines links between financial behaviours of low-income individuals and their vulnerability to poverty. According to the analysis reactive financial behaviours in low-income households hamper asset accumulation and significantly increase vulnerability to poverty in transition context of Eastern Europe. Financial capability and behaviours are instrumental in explaining vulnerability to poverty as they are the strongest predictors from a wide menu of other livelihood and asset variables included in various analyzes on two different datasets. Limited long-term financial planning, saving and preparing for risks increase vulnerability. Whereas, borrowing and using financial services do not influence it much, though help to accumulate assets. Therefore, achieving vulnerability reduction through 'access to finance' agenda only is not evident in the context where individuals have low financial capabilities. It seems like microfinance will not be fully successful in meeting its development objectives in the transition context if it does not consider promoting proactive financial behaviours. The relationship between financial behaviours and vulnerability is weaker but also true for the poorest groups, which shows that the poorest can benefit from greater financial capability, especially if it is coupled with better access to safety nets in order to unleash their productive potential.

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1 Introduction

It is now recognized that to design forward-looking interventions meant to both prevent and fight poverty one needs to approach poverty from a dynamic perspective - vulnerability to poverty (Holzmann and Jorgensen 2000, World Bank 2001, Dercon 2005), which reflects exposure and ability to cope with downward pressures and shocks. The inability to respond to risks may lead as far as to social exclusion and deprivation. Without a certain level of security individuals living in low-income households cannot take advantage of promotional opportunities in order to grow out of poverty. Given that the low-income households are by nature risk-averse, this traps them in low-return, survival activities as any drop in income can push them below the survival point (Rosenzweig and Binswanger 1993, Ravallion 1997, World Bank 2001, Dercon 2005).

Vulnerability level is a function of various factors – ranging from structural to individual. It is argued that access and control over one's assets is key in understanding vulnerability as assets determine access to effective ex-ante or ex-post risk-management strategies. Intuitively, ways how people manage money, financial capabilities and behaviours should affect asset accumulation processes and consequently their vulnerability to poverty. Low-income individuals acquire lump sums to build assets and cope with risks through a wide range of saving, borrowing and insuring strategies. In principle, there should be differences in effectiveness of asset accumulation between those individuals who manage their finances proactively - have a positive attitude towards managing their finances, take longer horizons in financial planning, save systematically, try to insure or at least prepare for risks, and borrow smartly; and those who do it in reactive manner – they do not see much sense in managing money, tend to live from hand to mouth and respond spontaneously to risks.

This study attempts to understand if financial behaviours determine vulnerability to poverty in low-income households. Does it change anything for a low-income household if it manages its finances proactively? Or the resources are so scarce and structural factors so important that proactive financial behaviours do not add much value to reduce vulnerability to poverty. To my knowledge, there were not so many studies that tried to marry both by including financial behaviours as a central piece in understanding vulnerability to poverty. Some rare examples are Sebstad and Cohen (2000) and Hospes and Lont (2004). This research contributes to the gap in knowledge by developing a conceptual framework and exploring links between financial behaviours and vulnerability to poverty based on a multi-disciplinary framework and empirical work that involves analysis of two quantitative and two qualitative datasets from Poland.

According to the analysis, reactive financial behaviours in low-income households hamper asset accumulation and significantly increase vulnerability to poverty in transition context of Eastern Europe. This is an important finding in a context of transition countries where vulnerability to poverty increased significantly over the last 20 years during the process of change from communism to democracy, from centrally planned to market economy. It is strongly linked to the fact that public safety nets collapsed and most of the low-income households have not yet developed their own risk-management practices. At the

same time, financial behaviours are widespread in the transition context. This reflects ingrained practices of communist times, when people had limited incentives to pay attention to managing their own finances.

Based on these findings I argue that determinants of reactive financial behaviours are key to be understood for a development of successful vulnerability reduction policies. While different actors have been trying to eliminate structural vulnerability drivers during transition period, there have been few actions to promote proactive financial behaviours. It also concerns microfinance movement that has not yet incorporated financial capability agenda. Achieving vulnerability reduction through 'access to finance' agenda only is not evident in the context where individuals have low financial capabilities. It seems like microfinance will not be fully successful in meeting its development objectives in the transition context if it does not consider promoting proactive financial behaviours.

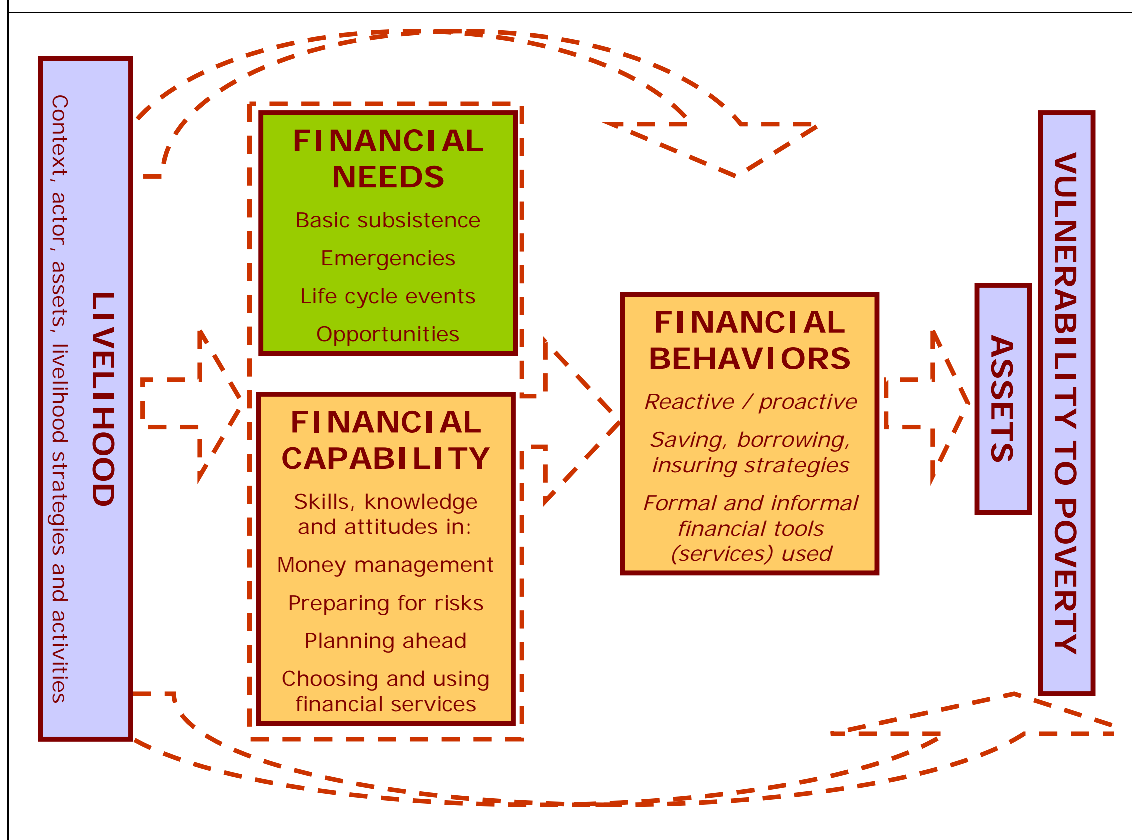
The remainder of the paper is organized as follows. Next section puts forward a conceptual framework for this study. Section 3 presents details on research methodology and data. Section 4 discusses briefly transition, poverty and vulnerability to poverty. Section 5 attempts to understand financial behaviours of low-income households. In Section 6 the relationship between financial behaviours and asset accumulation as well as vulnerability to poverty is analyzed. The last section summarizes key findings and concludes on applications.

2 Conceptual Framework

To study both complex concepts, vulnerability to poverty and financial behaviours, there is a need to draw on theories from different disciplines. Consequently, sustainable livelihood framework proposed first by Chambers and Conway (1992) is an underpinning concept used in this study. As argued by Lont and Hospes (2004) central rationale for using livelihood framework in development studies today is the necessity to look beyond work and income in order to understand poverty and vulnerability. In this study the livelihood concept is expanded by two perspectives: behavioural and institutional economics that provide the most promising frameworks to study financial (saving) behaviours of low-income people. Eventually, the framework is enriched by the financial capability model (PFRC 2005, Cohen et al 2005) and personal financial intermediation concept developed by Rutherford (1999).

Presented in Figure 1, the study framework structures relationship between financial behaviours and vulnerability to poverty. Financial behaviours encompass a wide range of saving, borrowing and insuring strategies and tools used to generate lump sums of money needed to respond to financial needs. These strategies can take monetary or non-monetary form as well as be operationalized using formal or informal financial services. Financial behaviours are determined by household's financial capability level described as knowledge, skills and attitudes that make a household capable to manage money wisely, prepare for risks, plan ahead one's finances and smartly use relevant financial services. Livelihood variables determine financial needs and capability, but they impact also directly on financial behaviours (i.e. actor psychographic profile, available financial offerings) and on asset building and vulnerability levels (i.e. structural factors, risky context, profile of household activities).

Figure 1: Framework for studying financial behaviours and vulnerability to poverty



Based on the framework presented above I put forward a central hypothesis of this study that the reactive financial behaviours in low-income households significantly increase vulnerability to poverty in transition context of Eastern Europe. Causal links that are explored are the following: low financial capability results in reactive financial behaviours that hamper asset accumulation by low-income households, thus increasing their vulnerability to poverty.[1] The following additional hypotheses are set to support my line of reasoning:

- Vulnerability to poverty is determined by household asset ownership and is high in transition context.
- Reactive financial behaviours are widespread in low-income households in transition context and are mostly due to low financial capabilities.
- Reactive financial behaviours hamper asset accumulation in low-income households, thus increasing vulnerability to poverty.

Livelihood, assets and vulnerability to poverty

The sustainable livelihood concept is holistic and helps to identify a wide range of determinants of both vulnerability to poverty and financial behaviours of low-income people. Chambers and Conway (1992), Scoones (1998), Lacoste (2003), Lont and Hospes (2004) identify the following most important elements of the livelihood framework:

- Actor (socio-demographic and psychographic characteristics, including motives, expectations and attitudes, especially those toward risk taking and toward learning)

[1] An inverse causality is also possible. The reactive financial behaviors can be also a result of high vulnerability to poverty. The research framework takes this into consideration.

- Particular context in which actor lives (general conditions and trends, institutional environment and arrangements, psychical network of main services and infrastructure)
- Portfolio of assets (the stock of wealth, controlled and/or accessed by actor)
- Livelihood strategies (processes by which actor constructs a multidimensional portfolio of assets and activities in order to survive and to improve the standard of living)
- Activities (which outcomes have direct impact on all the above elements).

Assets are a central piece in vulnerability analysis. They are defined as a stock of wealth in the household used to generate well-being. Assets include intangibles as household relations, social entitlements and human capital and can be classified into four main groups (Sebstad and Cohen 2000, Ellis 2000, Scones 1998, Chen and Dunn 1996, Moser 1998, Sherraden 1991):

- *Financial assets* – all types of monetary resources, cash, savings, loans and gifts, regular remittances or pensions, and other financial instruments;
- *Physical assets* - (natural and manufactured in kind resources) land, animals, stored food, housing, buildings and improvements to these, jewellery, consumer durables such as household appliances, shoes, clothing, and vehicles, and productive assets, including fixed-enterprise assets;
- *Human assets* – skills and knowledge, ability to labour, good health, self-esteem, bargaining power, autonomy, and control over decisions; and
- *Social assets* – networks, group memberships, relationships of trust, access to wider institutions of society, and freedom from violence.

In this study vulnerability to poverty is defined as a risk of exposure of people to downward pressures and shocks and their ability to cope with the consequences of these risks (Sebstad and Cohen 2000). Risks are defined as all shocks and stresses that require a lump sum of money to cope with. Risks might be structural (i.e. unemployment), crisis (i.e. illness, earthquake), life-cycle (i.e. death of main breadwinner). They can have idiosyncratic (i.e. theft, accident) or covariant nature (i.e. flood). Risk-management strategies might be ex-ante (preparing or preventing risks) or ex-post (managing loss). Different strategies are associated with different levels of stress and have different impact in the long run (Montgomery 1996). Key to describe vulnerability is to understand a risk chain. It comprises: risk realization, risk management and impact of risk (Sebstad and Cohen 2000, Heitzman et al. 2002, Cohen et al. 2003). Magnitude of impact of risks tells the level of vulnerability to poverty of a given household. The impact of risks is a function of household exposure to risks, nature of risks (severity and frequency) as well as access to and effectiveness of risk management strategies used, which are defined by level and mix of household assets.

Financial needs

One may see financial needs as a pyramid:

- Basic subsistence needs are necessary to satisfy in order to keep certain standard of living. For the poorest ones it is about survival. For those better off it is about keeping certain standard of life that they aspire to.
- Emergency needs are expenses related to crisis and structural risks. In most of the cases it is hard to postpone or lower the emergency expenses.

- Life cycle needs relate to all common expenditures that happen to a typical household in a given context (e.g., buying house/apartment to live, birth of a child, children education, children wedding, ceremonies, old age expenses, etc). Some of these expenses can be to certain extent adapted to one's abilities.
- Opportunities relate to all the expenses in situations where there is a possibility to seize economic opportunities, for example opening new business, investing in livestock or real estate.

Financial Capability

Drawing from Lusardi (2004), Cohen et al (2005) and PFRC (2005) financial capability is a function of knowledge, skills and attitudes that make a household capable to manage its finances. Basic knowledge and understanding is necessary to manage properly one's finances. This knowledge is acquired through experience; through education and training; and through passive receipt of information from different sources such as family and friends, the media and information materials produced by the financial sector. People also need the ability to apply their knowledge and understanding in order to manage their money and to make appropriate financial decisions. This calls for a range of specific skills, which need to be underpinned by basic levels of literacy and numeracy. Lastly, knowledge and skill alone are not enough to ensure that people manage their financial affairs appropriately. They must be prepared to take whatever steps are necessary to apply their knowledge and to exercise their skill. This is largely a question of attitude. The strength of attitudes can be measured by assessing the extent to which the willingness, ability and confidence is reflected in a person's behaviour.

The following four key financial capability areas are identified:

- *Money management* is about being able to live within one's means and meet basic subsistence needs. Staying within one's means involves developing strategies to make ends meet and resisting pressures to spend or to borrow money.
- *Planning ahead* is required to make provision for the long term, meet life cycle needs and seize economic opportunities. Planning ahead of one's finances is about anticipating most of the household financial needs in the near and far future and putting together a strategy to be able to meet the needs.
- *Preparing for risks* is about being able to deal with a large fall in income and to know how to cope with large, unforeseen expenses. Financially capable people make some provision for emergencies, insure themselves and are aware of possible sources of financial help. If there is no risk-management strategy it is hard to plan ahead and realize one's financial goals.
- *Using financial services* – financial services can be very useful tools for money management, planning ahead and preparing for risks. Given the array of financial products available, being aware of what is on offer and being able to choose those that are most appropriate to an individual's circumstances are important aspects of financial capability.

In summary, financial capability is about setting goals and choosing right strategies to meet households financial needs.

Financial behaviours

The term financial behaviour encompasses a wide range of strategies and tools used to generate lump sums of money needed to respond to various types of financial needs. Rutherford (1999) explains that low-income individuals acquire the lump sums through basic personal financial intermediation, which relates to saving up (saving current income when it comes in or cutting expenses to increase consumption later in life), insuring to protect future income, and saving down (borrowing from future income to increase consumption now). It can be said that all the financial strategies are a form of saving, especially when saving is considered as a way to build assets. Borrowing can be perceived as saving down, a contractual form of saving, that imposes more discipline in saving small amounts to repay a loan for a given purpose. Insuring is a way to protect ones assets by contributing premiums on a regular basis. Therefore, saving theories should be particularly useful in conceptualizing a framework to analyze financial behaviours.

Recent empirical work shows that a combination of behavioural and institutional theories of saving promises to shed more light on financial behaviours of low-income individuals. Behavioural economics analyzes economic processes as manifestations of human behaviours. It distinguishes ability to save from willingness to save and argues that motives, attitudes and expectations of consumers play a significant role in determining financial behaviors (Katona 1975). Modern behavioural economics emphasizes that individuals infinitely postpone decisions to defer consumption now and save for the future because they show a very sharp impatience for short-term horizons and request an immediate reward. Therefore, saving is a result of behavioural incentives and constraints created by individuals (Thaler and Shefrin 1981, Shefrin and Thaler 1988, Laibson 1996, Barberis and Thaler 2003). According to institutional theories, saving is shaped by institutional arrangements through which saving occurs involving explicit connection, rules, incentives and subsidies (tax deductions, housing subsidies, etc.) (Sherraden 1991, Beverly and Sherraden 1999).

The research framework differentiates between proactive and reactive financial behaviours. Proactive financial behaviours should lead to asset accumulation in the future. Individuals or households behaving in a proactive way have a positive attitude towards managing their finances, take longer horizons in financial planning, save systematically, try to insure or at least prepare for risks, and borrow in a responsible way. The reactive financial behaviours are the opposite – they do not see much sense in managing money, tend to live from hand to mouth and respond spontaneously to risks.

Analysis of financial tools used by individuals is usually the easiest way to learn about financial strategies in use. There is an important distinction between formal and informal financial services. Formal financial services are current and savings account, money transfer, debit and credit cards, consumer, housing, working capital and investment loans, loans, health, property and life insurance that are provided by financial institutions (including banks, credit unions and microfinance institutions). Rutherford (1999) says that good financial services for the poor are those that turn savings into lump sums for a wide variety of uses in the safest, most convenient, most flexible and most affordable way. One can imagine many informal tools like saving at home, saving in groups of friends or colleagues, borrowing from family and friends, contributing small amounts of money to informal insurance funds. There is a growing

understanding that informal mechanisms developed by the poor offer them short-term protection at long-term costs – preventing any escape from poverty (Morduch 1999).

3 Methodology and Data

This study explores links between financial behaviours and vulnerability to poverty in the unique transition context of Eastern Europe by applying the conceptual framework presented above to data from Poland. Research approach combines both quantitative and qualitative methods. Two qualitative and two quantitative datasets are used:

1) *MFC dataset* - cross-sectional household data collected in Poland in 2006 on a representative sample of 1020 low-income household heads for one of the projects of the Microfinance Centre (MFC) for CEE and this NIS. Designed by the author and conducted by Ipsos, the survey aimed to capture financial capability, financial behaviours, asset possession, exposure to risks and vulnerability to poverty. Only low-income households were surveyed; defined as living below a median equivalized income (set at 850 PLN, close to social minimum in Poland). Sample structure was determined using data from Ipsos surveys. A total of 100 clusters were randomly selected controlling for the size of the location, with 10 face-to-face interviews per cluster with household heads in units meeting the income criterion, which were identified using a random walk technique.
2) *SD dataset* - panel household and individual data collected in Poland in 2000, 2003, 2005 by Social Diagnosis longitudinal project (Czapinski and Panek 2005) designed by a team of academics and administered by national office of statistics (GUS). The comprehensive questionnaire collects detailed data on various aspects of living conditions of Polish households. Sampling techniques are similar to those applied for MFC survey. The total samples are as follows: 3006 households, 9996 individuals (2000), 3962 households and 9597 individuals (2003), 3858 households and 8790 individuals (2005). In 2003, there are 60% of households interviewed in 2000. In 2005, there are 64% of households interviewed in 2000 and 81% of households interviewed in 2003. For the analysis the low-income population is defined in the same way as for the MFC dataset.
3) *Research on financial education* - designed and conducted by the author and other MFC experts in 2004, this qualitative study aimed at identifying and understanding key gaps in financial education of low-income households in Poland (Matul et al 2004). The research was conducted mainly in small towns and rural areas. It comprised 11 focus group interviews with 5-10 participants each and 23 in-depth individual interviews conducted in the following districts: Nowe Miasto Lubawskie, Ilawa and Rypin. The interviews discussed seasonality of income and expenditure, household budgets vis-à-vis life cycle events, and strategies to cope with unexpected emergencies.
4) *Research on entrepreneurship and financial practices* – designed by the author and conducted jointly with Ipsos in 2006, this qualitative study aimed at exploring various issues related to entrepreneurship, financial capabilities, financial and risk-management behaviours of low-income households in Poland. It also helped to inform design of the MFC quantitative survey mentioned above. It consisted of 6 focus group discussions, with 6 participants each in Lodz (bigger town) and Rypin (smaller town).

Low-income household is a primary unit of analysis (actor). The unitary model of a household is applied. This choice implies the following assumptions: 1) all household resources are pooled and the processes by which the assets are distributed within households are non discriminatory; 2) most of the financial decisions are taken jointly by household members, thus displayed financial behaviours do not differ much between household members. Those assumptions significantly simplify the reality and should be unpacked in future research on this topic.

Both datasets have slightly different sample structure and a set of available variables. That is why, within same conceptual framework different approaches are used for measurement of asset ownership and vulnerability to poverty. This helps to triangulate findings and increases reliability of final conclusions. Gamanou and Morduch (2002), Hoddinott and Quisumbing (2003), Ligon and Schechter (2004) provide an overview of practices in measuring vulnerability. In this study two approaches are used: 1) for the SD data, a measure for vulnerability draws from consumption variability approach but uses patterns of subjective evaluation of purchasing power instead of consumption expenditures, 2) for MFC data, an 'ability to cope' approach is used to construct two measures: a) indicator based on potential impact of health risks on household finances, and b) indicator based on actual impact of six bigger emergencies identified as the most important in the focus groups. Asset indexes are built based on equal weights of four asset groups: financial, physical, social and human. For financial behaviour indexes two different approaches are used. For MFC dataset it is based on segmentation by financial behaviours done using cluster analysis on all available financial behaviour/capability indicators. For SD dataset, it is a simple index counting symptoms of proactive financial behaviours. Qualitative data collected informed development of the accurate measures. More on measurement is presented in Annex.

The relationship between financial behaviours and vulnerability to poverty is modelled using a basic multiple regression equation:

$$Y = \alpha + \beta_i * X_i + \gamma_i * Z_i + \varepsilon$$

where *Y = dependent variable (vulnerability index as specified in Annex)*
X_i = predictor variables (financial behaviour dichotomous variables/indexes as specified in Section 5)
Z_i = predictor variables (asset index as specified in Annex and other control livelihood variables as specified in the conceptual framework (Section 2), mostly dichotomous)
α, η_i, β_i, γ_i = respective parameters
ε = random error component.

Similar model is used to specify impact of financial behaviours on asset accumulation, asset index is taken as dependent variable. As linear regression assumptions are met, the equation is estimated using linear model (least squares), which provides a reasonably good fit.

4 Transition and Vulnerability to Poverty

Context of Eastern European countries from late 80s till now has been shaped by unprecedented political, economic and social changes displayed during the move from communism to democracy accompanied by a

shift from centrally planned to market economy. Golinowska et al (2002), World Bank (2000 and 2005), Braithwaite et al (1999), among others, discuss key characteristics of the transition context that shape the post-communism livelihoods, constitute causes of dramatic increase in poverty and distinguish the transition context from other environments. These are: loss of income security, erosion of accustomed supports and safety nets, growing income and spatial inequalities, inadequate professional education and low adaptive capacities of middle-aged people, ongoing rapid institutional changes and rising social disintegration. On the top of it, restrained reforms in social protection, health and education in many countries slow down progress.

The transition resulted in a dramatic rise in poverty. The total estimated number of the poor in the eighteen countries of the region has raised twelve fold from nearly 14 million before the transition (1987-88) or about 4 percent of the population, to 168 million in 1993-95, or approximately 45 percent of the population (Milanovic 1998).[2] World Bank (2000) absolute poverty estimates show that in 1998 20% of people survived on less than USD 2.15 per day. Slight improvements in human development and poverty reduction were observed in the late 90s. UNDP human development index rebounded in 1995 for the Eastern Europe and Central Asia region after decrease in early 90s (UNDP 2006). According to World Bank (2005) roughly 21% lived below the extreme poverty line in 1998, it was 12% in 2003. Generally, the changes for vulnerable populations (living below 4 USD) were in the same direction but weaker. While much of this poverty reduction has occurred in the populous Kazakhstan, the Russian Federation, and Ukraine, poverty has fallen almost everywhere, except for Poland, Lithuania and Georgia. In Poland, one of the wealthiest countries in the region, the poverty has been steadily increasing. In 1997 13.3% people were estimated to live below official poverty line, while in 2005 the rate increased to 18% (GUS 2005). The poverty increase resulted in a significant wave of the "new poor" and so called, pockets of poverty, strong regional disparities in poverty levels.

In the beginning poverty was thought to be transient. Those who were persistently poor in late 90s were estimated at only 3.4% of Russians, 5.9% of Poles, and 8.8% of Hungarians (World Bank 2000). In 2000s there has been growing evidence that these transitory shocks have led to growing long-term poverty (World Bank 2005). In some countries the share of those in permanent poverty has grown, Poland being a good example. In Poland, as many as 10-15% of households live at risk of chronic poverty, as they stay in poverty for 2-5 years (Okrasa (1999a), Panek in Czapinski and Panek (2005), Topinska in Golinowska et al (2005)). Tarkowska (2000, in Golinowska et al 2005), Domanski (2002), Okrasa (1999b) show that this is still to early to talk about the formation of 'underclass' or about 'welfare dependency syndrome', however the cultural aspects are becoming so strong that it is unlikely that the chronic poverty can be eradicated only through economic growth.

There is substantial knowledge on who is poor, how poor they are, and why they are poor. However, few studies researched explicitly vulnerability to poverty in transition settings, and if so their approach was

[2] Using official statistics Milanovic underestimates level of poverty during communist times. Historical analyzes show a declining trend of the experience of poverty and relative deprivation during socialism. However, there is evidence that in most

limited to income mobility or consumption shocks. Those studies draw a general picture of high vulnerability context in transition countries. Panel survey data from Russia, for example, shows that the share of the population that has experienced poverty is more than double the fraction of the population in poverty in any one year; for Poland and Hungary the share is slightly less than a double (World Bank 2000). On the basis of four-year panel data from Poland's Household Budget Survey Okrasa (1999a) reveals high mobility of income in Poland as more than 70% of households changed their positions in plus and in minus (income deciles) between two consecutive years during 1993-1996. Based on relative poverty measures Szukielojc-Bienkunska (1996) provides evidence of high household turnover among the poor as 43% of households who were poor in 1993 were not poor in 1994.

The vulnerability analysis based on 'ability to cope' and asset ownership, conducted for this study shows that more than half of low-income households in Poland (approximately one-fourth of total population) is vulnerable to poverty. For as many as 61% of low-income households a series of three minor sickness of any household member during one month causes significant or dramatic decrease in financial standard of living in the given month[3]. Only 7% of households do not feel any financial pressure associated with series of minor health problems. 94% of low-income households experienced downturn changes of affordability of satisfying basic or luxurious needs over 2000-05. The analysis shows also the importance of education, modern life skills, employment and adequate level of income in reducing vulnerability.

What is more, the vulnerability analysis conducted for this study confirms that household vulnerability to poverty is linked strongly to low ownership of household financial, physical, human and social assets. The analyzes run on both SD and MFC datasets yield similar results that:

- Financial, physical, human and social assets are interdependent, thus building assets is the most effective when it balances building all the assets at the same time.
- Vulnerability of households is closely linked to their asset ownership. Assets describe vulnerability better than any other context, socio-demographic, psychographic, income and employment indicators.

Besides asset ownership the observed general increase in vulnerability can be attributed to an occurrence of significant gaps in effective risk-management mechanisms. On one hand, the social safety nets and free public services have collapsed in most of the transition countries, which resulted in low effectiveness of social protection systems in reducing poverty during transition (Fox 2003, Okrasa 1999b, World Bank

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CE countries there was on average 10-20% of the population living below poverty rate (5% extreme poverty) in late 80's (Ladanyi and Szelenyi (2000), Golinowska (2002), Tarkowska (2000) and Domanski (2002)).

[3] In most of the qualitative research health comes as the major risk for low-income households during the transition period (Matul et al 2004). Palska (2002) qualitative analysis of lifestyles of poor people in Poland confirms that for the poor series of health problems constitute serious financial crisis because there is no money set for emergencies in household budgets. Health risks are important also because they are one of the most frequent risks, in most cases they cannot be postponed (illness must be cured), low-income households have more members than average (that can be affected by the risks) but also because access to health care and medicines has become expensive. In most of the transition countries free public health services exist in theory. Access to healthcare is more and more dependent on whether a household can afford the informal payments to doctors and others practicing in collapsed public institutions (the share of patients making informal payments: Armenia – 91%, Poland – 78%, Slovakia – 60% (World Bank 2000, p. 9)). Lower access and quality of health system, together with a psychological stresses and changes in life style associated with transition, impacted on health indicators. The male life expectance decreased by 4 years in Baltic states and by 5 years in Russia, Ukraine and Kazakhstan. Cases of tuberculosis and malnutrition were identified in the Caucasus and Central Asia (World Bank 2000).

2000). There was a significant leakage to non-poor (like subsidizing fuel prices) and low coverage (in Latvia or Bulgaria only 2% of those covered by assistance were poor). On the other hand, the "new poor" have not yet developed their own coping mechanisms, therefore their current risk-management practices are far from being optimal.

5 Financial Behaviours

Reactive financial behaviours are widespread in the transition context of Poland. Majority of low-income people save money very rarely, insure to limited extent and borrow extensively. Only 15% of low-income households in Poland declare regular saving.[4] One-third of low-income households have significant difficulties with budgeting and cash-flow management. People do not plan ahead, 87% do not plan beyond one-month horizon. Only 21% save for old-age provision. They very often borrow to meet emergency expenses and subsistence needs. 47% have taken a loan in the last 5 years. They rarely use financial services to realize their financial goals. 33% still do not have a bank account. In summary, only 28% of low-income households can be classified as proactive money managers. This reflects the ingrained practices of communist times, when people had limited incentives to pay attention to managing their household finances. It was useless to be a proactive money manager while consumption opportunities were limited, income was low but relatively stable, wide range of in-kind supports was delivered by the state, pensions were guaranteed, private property was restricted, so-called 'culture of waste' was widespread, and there were few standard retail financial products available to general population. As a result of communist institutional arrangement, in transition context there are virtually no informal savings and credit groups, which are so widespread in other developing countries (Bouman and Hospes 1995).

The transition triggered changes that affected financial behaviours of households. Many households have lost their monetary savings in the first years of transition due to hyperinflation, introduction of real exchange rates or collapse of financial sector institutions. This heavily undermined trust to financial sector in the beginning of transition and is still fresh in people's minds almost 20 years after these reforms. What is more, pension system reform and quick developments of retail financial products shifted responsibility and risk for financial decisions from the state to individuals and made choices more abundant but also more difficult to make.

Why people do not save?

Saving behaviours are central for understanding financial behaviours. This research shows that attitudes and more broadly financial capability have more explanatory power than household age or income level when it comes to explain low saving rates of low-income households.

The analysis of saving behaviours does not support neo-classical economic theories of saving. Neither life cycle hypothesis by Modigliani (1954) nor permanent income hypothesis by Friedman (1957) have any explanatory power with regards to saving by low-income households in Poland. Instead of an inverted U-

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[4] This is confirmed by other research. Czapinski and Panek (2003, 2005) show that almost 80% of Polish households do not save in any form and half of them are currently repaying a loan. IPSOS (2004) reports that in 2003 only 12% of Poles managed to put aside some money; while this figure was at 25% in 1999.

shaped age pattern saving follow a U-shaped pattern, when youngest and oldest groups save more than middle aged ones. With regards to permanent income theory it is hard to imagine that young and elderly people (for different reasons) may consider a chunk of their income as transitory. Both theories fail to explain saving because low-income households in transition context do not project their future.

Low capacities to save are not a predominant factor explaining limited saving behaviour among low-income households. Low income level explains to a significant extent low savings only for the poorest group. This is approximately one-fourth of the low-income population under this study. These are those 12% of households in Poland who live below minimum subsistence level, in chronic poverty. Low saving among 'richer' low-income households cannot objectively be explained by limited income.

Institutional theories of saving (Beverly and Sherraden 1999) do not explain it either. Institutional arrangements put into practice in 90s and 2000s in Poland play a negligible role in determining financial behaviours of Poles, especially low-income people. This is reflected in low take up figures for third pillar pension products and individual retirement account. Similarly, there is no evidence that using financial services stimulates saving.

Behavioural theories of saving seem to better reflect the reality. Figure 2 gives a snapshot of predominant attitudes towards saving in low-income households. Three main types of attitudes are as follows:

- Approximately 20% of low-income households do not believe in saving at all. They do not see benefits of saving for their future well-being and strongly feel it is not worth to save at all.
- There is a widespread attitude that saving is only for rich and with low income at disposal it is not possible to save. 80% of non-savers do not save because they say they have not enough capacities to do it. 72% of them argue that higher income is the most important incentive to save. 48% of all low-income households agree with the statement that saving is possible only by rich people.
- 25% of low-income households are not willing to save because they are impatient to wait so long to see the results. Even if they started saving they got quickly discouraged by lack of immediate effects and used their savings for other instant needs. This confirms human tendency to procrastinate. Additionally, as many as 58% of low-income households think they will manage to save in the next 12 months. In general, these are the households that rarely save, have relatively higher income and better jobs – they are willing to save, they are able to save but do not start saving.

These three attitudes are strongly correlated with each other and explain saving practices of low-income households to the greatest extent from all the analyzed factors. This research confirms a central hypothesis of behavioural theories of saving that individuals show a very sharp impatience for short-term horizons and request an immediate reward (Shefrin and Thaler 1988, Laibson 1996). Therefore, they infinitely postpone decisions to defer consumption now and save for the future.

Figure 2: Attitudes towards saving

	definitely agree	agree	disagree	definitely disagree	difficult to say
It is worth saving even if your income is low	20	51	15	6	8
It does not make sense to save since you do not know what tomorrow will bring	7	19	46	21	7
Only the rich can afford to save	23	25	38	11	3
Everybody can save these days, even if these are just small amounts	12	38	27	16	7
Even small savings can improve your stability and security in the future	17	56	15	5	7
It doesn't make sense to save because you need to wait so long for your goals to be achieved	6	19	43	22	10
It is impossible to save because there are always expenses coming up that force you to use your savings	15	33	34	7	10
We wanted to save, but we were not successful	13	33	35	11	8
It pays to keep money in the account because you are less tempted to spend it	16	42	22	8	13

Source: Own calculations on MFC dataset. Statements developed based on qualitative research.

Low financial capability is another important factor explaining low saving among low-income households. It refers mostly to inability to develop coherent savings plan, with well established goal(s) and instruments to realize them. Almost half of low-income households attempted to save but failed. The qualitative research revealed that people either did not adopt any goals ("*I wouldn't be saving even if I could because there is nothing to save for*"; "*what's the use of setting goals if every now and then something goes wrong*") or, if they did, they were unable to keep to them ("*[you can't keep money] there is always something that comes up*").

Planning ahead and preparing for risks

Two fundamental areas of the financial capability framework: planning ahead and preparing for risks – depend dramatically on saving behaviours. Hence, reasons for lack of long-term financial planning and limited preparation for risks are similar to determinants of saving described above.

Planning ahead is probably the most important dimension and the biggest gap in financial capability in many countries today (Atkinson et al 2006). Two key attitudes of low-income households limit long-term financial planning. As many as 80% of low-income households do not believe that saving small amounts can help them to reach their financial goals in the future. 73% of low-income households do not think it is realistic to plan anything for such long terms like 5 or 10 years. Low financial capability is another important factor limiting long-term planning among the low-income households. Firstly, they are unable to set their financial goals. For example, half of households cannot identify important life cycle events, which constitute their most important financial needs. Secondly, households are lost in the world of strategies and tools that might be used to realize financial plans. What is more, it is not only about one financial goal but about many interlinked financial needs that are spread over time. Low-income households in transition

concext do not have skills to manage such a dynamic portfolio of financial needs, strategies and tools to realize them.

Low financial capability and negative attitudes are major determinants of limited preparation for risks among low-income households. As many as 41% of households do not see benefits of proactive risk-management and say there is no need to worry in advance to budget for emergencies. This was well described by one of the respondents of qualitative research: *"People don't worry that something unfortunate will happen. They say that when it happens they will manage somehow. And when it happens, they learn it's not that easy at all".* As many as 64% of low-income households believe they do not have capacities to save for emergencies. However, majority of low-income households who participated in financial education workshops organized by MFC in 2005 discovered that the amounts of money needed for emergencies are within their capacities and there are simple methods to manage emergency risks (Matul and Pawlak 2005).

Borrowing and debt

Seeking immediate award explains also quite impressive propensity for debt. Despite shame, negative attitudes towards borrowing and low capabilities to take right credit decisions, low-income households in transition context borrow more and more.[5] The analysis provides evidence that low-income people do not borrow smartly; for the things that will yield returns in the future. They borrow either to buy consumer durables or to face emergencies or subsistence needs. Very often borrowing is spontaneous without much thinking about its consequences. All these behaviours reflect their low financial capability.

5% of low-income households in Poland have too much debt.[6] 17% of those who repay a loan/credit now are over indebted. These are mostly those in chronic poverty. It is in line with other studies, which found out that a majority of the poorest is in debt all the time. They mastered living in permanent debt, paying off one loan with another, and saw no reason to change that (Palska 2002, Matul et al 2004).

Use of financial services

67% of low-income households have a bank account, 16% use any formal saving services, 24% use any formal credit services, 14% have a credit card, 52% use insurance services. A division on those using financial services and not using them is not so straightforward. Once again income level and price of financial services are not the most important determinants. It is true only for one-fourth of low-income households, who have positive attitudes towards financial services and institutions and do not use the services as much as they want because they are excluded by providers, mostly due to high prices.

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[5] According to MFC data 47% of low-income households have taken a loan for household needs (not to finance enterprise and other economic activities) in the last 5 years. 27% of low-income households repay a loan now. 23% of all households repay now a loan/credit from formal sources (17% hire purchase agencies) and 10% an informal loan (family, friends, private moneylender company, etc.). SD data reports much higher share of low-income households repaying a loan and a declining trend over 2000-05 – 49% (2000), 45% (2003) and 43% (2005). Interestingly, low-income households borrow as frequently as better off households.

[6] Over indebted households are defined as those whose monthly installments of all debts, without mortgage loans, are higher than 25% of monthly disposable income. Given the fact that too much debt is a sensitive issue (hard to capture in surveys) it can be assumed that in Poland there are more over indebted households.

However, almost half of the low-income households self exclude themselves either due to scepticism, claiming no needs for financial services or due to low financial capability.

Household profiles by financial behaviours

A segmentation of households by financial behaviours helps to reduce this complex issue into few most important dimensions.[7] Figure 3 presents four main segments identified through this segmentation:

- 'Smart planners' (28%) are proactive in all the dimensions of the financial behaviour framework, save and plan ahead as well as use effectively financial services to build assets.
- 'Traditional planners' (24%) save and plan but using mostly informal ways. They are sceptical about financial services and rarely use them. Regarding risk-management they consider themselves as self-sufficient and do not use/believe in formal insurance services. They are indifferent with regards to borrowing, neither consider is as a shame nor as a good solution. They borrow rarely and rather carelessly.
- 'Reactive borrowers' (25%) have cash-flow difficulties, do not save and plan. They got discouraged from saving due to past failures. On the other hand, they have positive attitude towards borrowing and financial services that pushes them in the direction of debt trap.
- 'Uneducated survivors' (23%) segment scores negatively on all the dimensions of financial behaviour framework. They do not plan and do not save and have very negative attitudes towards it. They are afraid of borrowing and avoid it. On the top of it, they are total opponents of financial institutions and their services.

Figure 3: Segmentation by financial attitudes / capability

	Traditional planners	**Uneducated survivors**	**Reactive borrowers**	**Smart planners**
Share	**24%**	**23%**	**25%**	**28%**
Profile	Central region; Not big cities; older; Smaller households (singles, without children); Primary education; Low modern skills; Middle income groups; Not self-employed; Head unemployed; Self-confident law-abiders	Big cities; Aged 50+; Neither primary nor higher education; Low modern skills; Lowest income; Less wage employment, more social transfers; Head unemployed	Not Central region; Female headed households; Aged 40-59; Fatalists	Aged 30-49; 3-4 member households; Secondary and higher education; High modern skills; Highest income; Wage and self-employment; Not fatalists (either self-confident law-abiders or risk-takers)
MONEY MANAGEMENT				
Share of those having difficulties with budgeting and cash-flow	18%	56%	54%	4%
SAVING				
Share of those who save regularly or often	16%	4%	2%	35%
Share of those who keep savings at home	48%	21%	18%	24%

[7] Segmentation done using cluster analysis (k-means method) on all the financial behaviour/capability indicators (all transformed into dummies).

PLANNING AHEAD				
Share of those who believe in planning ahead and plan	44%	14%	13%	40%
RISK-MANAGEMENT				
Share of those saving for emergencies	27%	12%	3%	52%
Share of those borrowing for emergencies	12%	31%	46%	7%
Share of those having insurance policy	33%	34%	56%	80%
BORROWING				
Share of those repaying a loan/credit now	11%	15%	39%	41%
Share of those repaying a loan and being over indebted	2%	1%	9%	6%
USAGE OF FINANCIAL SERVICES				
Share of households possessing a bank account	34%	46%	88%	93%
Share of households possessing a credit card	4%	4%	13%	32%
Share of households using formal saving services	5%	5%	8%	43%
Share of households using formal credit services	23%	32%	82%	99%
Share of households using 3 and more financial services	5%	3%	30%	62%

Source: Own calculations on MFC dataset.

In summary, this segmentation reveals that two dimensions – attitudes towards planning ahead and attitudes towards financial services - seem to be the most important in analyzing financial behaviours of low-income households in Poland (Figure 4).

Figure 4: Two dimensions of household financial profiles

		Attitude towards planning ahead	
		+	-
Attitude towards financial services	+	*Smart planners*	*Reactive borrowers*
	-	*Traditional planners*	*Uneducated survivors*

6 Financial Behaviours and Vulnerability to Poverty

Impact of financial behaviours on asset accumulation

Link between financial behaviours and asset accumulation is important to understand the relationship between financial behaviours and vulnerability to poverty. Given that asset possession is a proxy indicator for asset building, it is assumed that higher possession of assets now can be partly explained by a good level of financial capability and proactive financial behaviours. One may argue that inverse causal link might be more relevant. Those who have low base of assets have difficulties in adopting and do not benefit from proactive financial behaviours. This hypothesis is also tested by analyzing the relationship between assets and financial behaviours for low asset sub-groups only.

Bivariate analysis proves that all the dimensions of financial capability are important for asset building as those more financially capable in each of the main areas (money management, planning ahead, saving, preparing for risks, smart borrowing and usage of financial services) score higher in terms of asset accumulation. It is worth to note a significant leverage of credit. This is in line with key messages of the 'microcredit revolution'. Even those who are over indebted are more likely to possess more assets. It is a strong relationship considering that debt is a liability, thus lowers the value of financial asset index. Smart and reactive borrowing is to be distinguished again. Those who borrow for emergencies do not get the asset-building bonus. Last but not least, relatively higher effects of usage of financial services on asset building confirm the importance of access to finance for asset accumulation.

Figure 5 presents three multivariate models that were the most powerful in predicting asset accumulation. For all the models the coefficients for financial behaviour variables/indexes are significant and have expected signs. What is more, when coefficients of all predictor variables are standardized the coefficients of the financial behaviour variables have the highest values, meaning that financial behaviour determines asset accumulation to the strongest extent from a rich menu of all predictor variables. Being a 'smart planner' provides the highest return in terms of asset accumulation. Three other groups are much more distant from 'smart planners'. 'Uneducated survivors' are in the most difficult position. 'Reactive borrowers' are slightly more successful in asset accumulation than 'traditional planners'.

Several other variables have also significant influence on asset building. Among those relatively the strongest determinants are: income source (incl. dependence on social transfers, unemployment), age and location. Those households relying on wage income and on self-employment are more successful in asset building. It is more difficult to build assets for those households living in small towns and rural areas as well as among those headed by elderly people.

The indicator of asset change, available on the SD dataset, is a more credible measure of asset accumulation (Model 3 in Figure 5). Once again financial profile is the strongest determinant of asset building. Other strong predictors are location, income source, age and gender. But results are opposite to the ones obtained using asset possession indicator. Those households relying on temporary jobs and on social welfare, living out of big cities, female-headed and young-headed households are more likely to have

better results in asset building. One explanation might be that it is easier to achieve higher growth of assets on low levels of asset possession.

Figure 5: Multivariate analysis of impact of financial behaviours on asset accumulation

		Model 1 (MFC)		**Model 2** (SD)		**Model 3** (SD)	
		Coeff.	*Stand Coeff.*	Coeff.	*Stand Coeff.*	Coeff.	*Stand Coeff.*
	(Constant)	12.31**		3.33*		-0.16	
Financial profile	Traditional planners	0.36	*0.04*				
	Uneducated survivors (ref.)						
	Reactive borrowers	0.47*	*0.06*				
	Smart planners+	2.82**	*0.37*	0.21**	*0.48*	0.03**	*0.16*
Region	Central (ref.)						
	Southern	-0.25	*-0.03*	-0.71**	*-0.09*	0.26	*0.07*
	Eastern	0.44	*0.05*	-0.59*	*-0.08*	-0.09	*-0.02*
	North western	-0.62**	*-0.07*	-0.6*	*-0.08*	-0.2	*-0.05*
	South western	0.18	*0.02*	0.21	*0.02*	-0.04	*-0.01*
	Northern	-0.41	*-0.04*	-0.37	*-0.04*	0.1	*0.02*
Location	Rural	-0.18	*-0.03*	-0.98**	*-0.16*	0.45**	*0.15*
	Small towns	-0.67**	*-0.08*	0.04	*0.01*	0.62**	*0.2*
	Medium towns	-0.43	*-0.05*	0.81*	*0.06*	0.6**	*0.09*
	Big cities (ref.)						
Gender	Female	0.22	*0.03*	-0.49**	*-0.08*	0.24*	*0.08*
Age groups	Up to 29 (ref.)						
	30-39	-0.5	*-0.05*	1.46**	*0.19*	-0.64*	*-0.17*
	40-49	-0.08	*-0.01*	1.6**	*0.25*	-0.39	*-0.12*
	50-59	-0.55	*-0.07*	0.67	*0.1*	-0.66*	*-0.2*
	60+	-0.89**	*-0.11*	0.49	*0.06*	-0.95**	*-0.23*
Number of household members	1	-0.68**	*-0.08*	ref.		ref.	
	2	ref.		2.21**	*0.22*	0.2	*0.04*
	3	-0.27	*-0.03*	1.86*	*0.23*	0.53	*0.14*
	4	-0.17	*-0.02*	2.51**	*0.37*	0.45	*0.14*
	5+	-0.83**	*-0.08*	2.2**	*0.35*	0.34	*0.11*
Main income source	Wage employment	1.26**	*0.18*	2.86**	*0.45*	0.99	*0.33*
	Self-employment	1.3	*0.06*	3.16**	*0.23*	1.17	*0.18*
	Agriculture	1.31**	*0.06*	1.36	*0.1*	0.64	*0.1*
	Old-age or disability benefits	ref.		1.84	*0.24*	1.13	*0.31*
	Temporary jobs	-0.68	*-0.04*	1.92	*0.16*	1.55**	*0.28*
	Social welfare benefits++	-0.73	*-0.04*				
Unemployment status	Having unemployed members	-0.99**	*-0.12*	-0.03	*-0.01*	-0.14	*-0.05*
	Unemployed household head	-0.34	*-0.03*				
	Share of income from social transfers in total household budget	-0.02**	*-0.18*				
R^2		0.43		0.5		0.09	
N		911		524		593	

Model 1: on MFC dataset; total household assets index as dependent variable. Model 2: on SD dataset; total household assets index as dependent variable. Model 3: on SD dataset; change of total household assets as dependent variable. For the sake of presentation few psychographic variables (e.g. attitude to risk) that entered those models are skipped because they did not have a significant impact on asset building.
** p<=0.1, **p<=0.05, + on SD dataset a different measure is used for financial behaviours – high values for the index should be similar in meaning to 'smart planners' group on the MFC dataset, ++ on SD dataset temporary jobs and social welfare benefits are combined into one category.*

Additional multivariate analysis has been done on different sub-groups by income, modern life skills, asset possession.[8] The impact of financial behaviours on asset building is independent from the level of income and the level of modern skills. Analyzes on both datasets yield similar results. In other words, among lowest income/modern skills groups proactive financial behaviours give same returns with regards to asset building as for highest income/modern skills groups. Regarding differences by asset sub-groups the results are mixed. SD data shows that financial behaviours impact asset accumulation to the similar extent among low-asset and high-asset groups. Results obtained on MFC data (Figure 6) show that impact of financial behaviours on asset building among two lowest asset groups is insignificant. Interestingly, proactive financial behaviours have the highest impact on human and financial assets and the lowest on social and physical assets accumulation. The impact of financial behaviours on human capital accumulation is significant at all asset possession levels.

Figure 6: Significance of impact of financial behaviours on asset accumulation by asset possession levels (low-income households)

	Groups by:			
Impact on financial behaviours on:	**Lowest total assets**	**Low total assets**	**High total assets**	**Highest total assets**
Total assets			**	**
Financial assets		**	**	**
Physical assets		*	**	*
Social assets			**	
Human assets	**	**	**	**

Source: Own calculations based on MFC dataset.

Impact of financial behaviours on vulnerability to poverty

Figure 7 summarizes multivariate analyzes and presents four regression models used to investigate the impact of financial behaviours on vulnerability reduction. The coefficients for financial behaviour variables/indexes are significant for Model 1 and 2 ran on the MFC dataset and have expected signs. What is more, when coefficients of all predictor variables are standardized the coefficients of the financial behaviour variables have the highest values, higher than coefficients for asset indexes, which are the second strongest. Being a planner, either 'traditional' or 'smart' significantly reduces vulnerability to poverty among low-income households. 'Reactive borrowers' and 'uneducated survivors' are more vulnerable to poverty. Even if results on SD dataset are less significant[9], it can be concluded that financial behaviours are strong determinants of vulnerability.

Once again asset indexes (possession and change) are the second strongest determinant for vulnerability to poverty. Not so many other predictor variables have significant influence on vulnerability. Despite some

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[8] That way, it was possible to check the importance of income and education on asset building (not possible in the models presented above because both variables were used to compose the asset indexes so that they were not included as predictor variables). This allowed also testing the inverse hypothesis by analyzing if impact of financial behaviors on asset building is significant for those who have low and high asset base.

[9] The results on the SD dataset are less significant (for Model 3 and 4 ran on SD dataset p=0.15), though in the same direction. It is due to the fact that the vulnerability indexes on SD dataset have higher power requirements and need bigger sample as they are based on actual subjective observations of purchasing power of those affected by risks (there is a group of 'lucky' ones that might have been vulnerable but were not affected by risks so that they are categorized as not vulnerable).

differences between the models, factors decreasing vulnerability are as follows: higher asset base, positive change of assets, living in small towns. Factors increasing vulnerability are: primary/vocational education, unemployed members, living in medium towns, older household head. Vulnerability to poverty is independent from income levels and education of household head.

Figure 7: Multivariate analysis of impact of financial behaviours on vulnerability to poverty

		Model 1 (MFC)		**Model 2** (MFC)		**Model 3** (SD)		**Model 4** (SD)	
		Coeff.	*Stand Coeff.*	Coeff.	*Stand Coeff.*	Coeff.	*Stand Coeff.*	Coeff.	*Stand Coeff.*
	(Constant)	3.39**		2.86**		7.92**		6.28**	
Assets	Total assets (high)	-0.04**	*-0.17*	-0.04*	*-0.14*	-0.11	*-0.07*	-0.19	*-0.16*
	Asset change (positive)					-0.39**	*-0.11*	-0.31**	*-0.12*
Financial profile	Traditional planners	-0.49**	*-0.25*	-0.42**	*-0.18*				
	Uneducated survivors(ref.)								
	Reactive borrowers	0.15**	*0.08*	0.12	*0.06*				
	Smart planners+	-0.39**	*-0.21*	-0.37**	*-0.17*	-0.06	*-0.1*	-0.05	*-0.09*
Region	Central (ref.)								
	Southern	-0.03	*-0.01*	-0.15	*-0.06*	0.78	*0.06*	0.65	*0.06*
	Eastern	0.05	*0.02*	-0.09	*-0.04*	0.4	*0.03*	0.13	*0.01*
	North western	-0.11	*-0.05*	0.01	*0*	1.1	*0.09*	0.33	*0.03*
	South western	0.09	*0.04*	-0.16	*-0.05*	0.95	*0.06*	0.61	*0.05*
	Northern	-0.1	*-0.04*	-0.12	*-0.05*	1.67**	*0.12*	1.05*	*0.1*
Location	Rural	0.03	*0.02*	-0.18	*-0.1*	-0.4	*-0.04*	-0.15	*-0.02*
	Small towns	-0.17**	*-0.08*	-0.61**	*-0.27*	-0.02	*0*	0	*0*
	Medium towns	0.16*	*0.07*	-0.25*	*-0.09*	2.33**	*0.11*	1.5*	*0.09*
	Big cities (ref.)								
Gender	Female	0.05	*0.03*	0.03	*0.01*	0.04	*0*	-0.07	*-0.01*
Age groups	Up to 29 (ref.)								
	30-39	0.14	*0.07*	0.29	*0.11*	1.16	*0.1*	1	*0.11*
	40-49	0.02	*0.01*	0.02	*0.01*	1.36	*0.13*	1.05	*0.13*
	50-59	0.11	*0.05*	0.22	*0.1*	1.67	*0.15*	1.44	*0.17*
	60+	0.19	*0.1*	0.3	*0.14*	3.02**	*0.22*	2.57**	*0.24*
Number of household members	1	0.04	*0.02*	-0.34**	*-0.15*				
	2 (ref.)					-0.72	*-0.04*	-0.81	*-0.07*
	3	-0.17**	*-0.09*	-0.03	*-0.01*	-0.83	*-0.07*	-0.86	*-0.09*
	4	-0.11	*-0.05*	-0.27*	*-0.11*	0.35	*0.03*	0.24	*0.03*
	5+	-0.09	*-0.04*	-0.21	*-0.08*	-0.46	*-0.05*	-0.27	*-0.04*
Household head education level	Primary (ref.)								
	Vocational	-0.02	*-0.01*	0.29**	*0.15*				
	Secondary	-0.04	*-0.02*	0.15	*0.07*	-0.47	*-0.03*	0.34	*0.03*
	Higher	-0.15	*-0.05*	0.1	*0.03*	-0.98	*-0.04*	-0.91	*-0.05*
Modern life skills+++	Low (ref.)								
	Average	0.06	*0.03*	0.11	*0.06*				
	High	0.07	*0.04*	0.21	*0.09*				
Income level	1st quartile (ref.)								
	2nd quartile	-0.01	*0*	0.1	*0.05*				
	3rd quartile	-0.12	*-0.06*	-0.01	*-0.01*				
	4th quartile	-0.24*	*-0.12*	-0.24	*-0.11*				
Main income source	Wage employment	-0.08	*-0.05*	0.03	*0.02*	ref.		ref.	
	Self-employment	-0.4*	*-0.07*	0.04	*0.01*	0.79	*0.04*	0.56	*0.03*
	Agriculture	-0.06	*-0.01*	0.45*	*0.09*	-0.83	*-0.04*	-0.95	*-0.06*

		Model 1		Model 2		Model 3		Model 4	
	Old-age or disability benefits	ref.		ref.		-1.17	*-0.1*	-1.3**	*-0.14*
	Temporary jobs	0.22	*0.05*	0.06	*0.01*	-2.71**	*-0.15*	-1.61**	*-0.11*
	Social welfare benefits[++]	0.18	*0.04*	0.56**	*0.13*				
Unemployment status	Having unemployed members	0.13*	*0.07*	0.06	*0.03*	0.4	*0.04*	0.08	*0.01*
	Unemployed household head	0.08	*0.03*	0.29	*0.09*				
	Share of income from social transfers in total household budget	0	*-0.07*	0	*0.04*				
R^2		0.28		0.26		0.13		0.15	
N		878		791		456		480	

Model 1: on MFC dataset; vulnerability indicator based on potential impact of health risks as dependent variable. Model 2: on MFC dataset; vulnerability indicator based on actual impact of six bigger emergencies as dependent variable. Model 3: on SD dataset; vulnerability indicator based on downturn changes in subjective evaluation of affordability of basic and luxurious needs as dependent variable. Model 4: on SD dataset; vulnerability indicator based on downturn changes in subjective evaluation of affordability of basic needs only as dependent variable. See Annex for more information on vulnerability measures. For the sake of presentation few psychographic variables (e.g. attitude to risk) that entered those models are skipped because they did not have a significant impact on asset building.
** p<=0.1, **p<=0.05, [+] on SD dataset a different measure is used for financial behaviours – high values for the index should be similar to 'smart planners' group on the MFC dataset, [++] on SD dataset temporary jobs and social welfare benefits are combined into one category, [+++] modern life skills defined as computer and foreign language skills.*

Additional multivariate analysis has been done on different sub-groups by asset possession and vulnerability levels in order to see if impact of financial behaviours on vulnerability to poverty is significant for the most destitute groups (lowest level of assets, very vulnerable to poverty). Results are mixed. According to the MFC data this relationship is significant no matter the asset/vulnerability levels. According to SD data same relationship is not significant for those who are vulnerable and/or have low level of accumulated assets (Figure 7)

Figure 7: Significance of impact of financial behaviours on vulnerability by asset and vulnerability levels.

	Groups by:			
Impact on:	**Lowest total assets**	**Low total assets**	**High total assets**	**Highest total assets**
Total vulnerability index			**	**
Basic vulnerability index		**	**	**
	High level of vulnerability			**Low level of vulnerability**
Total vulnerability index				**
Basic vulnerability index				**

Source: Own calculations based on SD dataset.

7 Conclusions

To conclude, reactive financial behaviours hamper asset accumulation and consequently significantly increase vulnerability to poverty in low-income households in transition context. Financial capability and behaviours seem to be instrumental in explaining vulnerability to poverty as they are the strongest predictors from a wide menu of other livelihood and asset variables included in various analyzes on two different datasets. These findings are even more reliable in the light of a strong relationship between proactive financial behaviours and asset building. Again, financial behaviours are the strongest predictors of asset accumulation. This supports the conceptual framework proposed in this study and the causal chain: financial capability-financial behaviours-assets-vulnerability.

A segmentation of low-income households in Poland by their financial behaviours identified four main groups: 1) 'smart planners' – those the most proactive in financial planning, using sophisticated financial services; 2) 'traditional planners' – those that save and plan but use mostly informal financial services; 3) 'reactive borrowers' – those that borrow a lot, use formal financial services, but do not have sound saving and planning habits; and 4) 'uneducated survivors' – those that have the lowest financial capabilities, do not plan at all and have very negative attitudes toward formal financial services. Regarding asset accumulation and vulnerability to poverty, proactive 'smart planners' are very distant group compared to others. Interestingly, 'reactive borrowers' are slightly more successful in asset accumulation than 'traditional planners'. This shows the importance of borrowing and using financial services for asset accumulation. It is different when it comes to vulnerability reduction. Being a planner, either 'traditional' or 'smart' significantly reduces vulnerability to poverty among low-income households. 'Reactive borrowers' and 'uneducated survivors' are more vulnerable to poverty. Therefore, the dimensions of financial capability that are the most important for vulnerability reduction are good money management, planning ahead, saving and preparing for risks. Whereas, borrowing and debt do not influence much vulnerability to poverty. Effects of using financial services are lower for vulnerability reduction than with regards to asset accumulation.

This is an important insight for microfinance (financial inclusion agenda), which assumes that by giving access to financial services it provides low-income households with better tools to manage their finances in order to help them build and protect their assets (Helms 2005). This analysis proves that access is indeed important when it comes to asset building as households using financial services get an asset-building bonus. On the other hand, there is no bonus for using financial services when it comes to vulnerability reduction. What is more important is the proactive risk-management, no matter if supported by use of financial services ('smart planners') or not ('traditional planners'). As microfinance wants to achieve both goals – facilitating asset accumulation as well as asset protection and vulnerability reduction, it seems that achieving vulnerability reduction only through access agenda is not straightforward in the context where individuals have low financial capabilities. What is more, responding to clients wants and desires and giving them access to some consumer products might even have adverse effects by strengthening reactive financial behaviours rather than providing long-term value for the target clientele (i.e. 'I do not like to save, but I would love to take a short-term credit to pay for children education'). This is one important caveat

that is not really considered in microfinance. Summing it up, this paper provides evidence that microfinance might not reduce vulnerability to poverty if it does not consider promoting proactive financial behaviours.

This research provides also interesting insights with regards to the poorest groups. They rarely display proactive money management approaches and debt is an integral part of their life. It is common to assume that for destitute households basic needs indicators should play a more important role in determining their asset building potential and levels of vulnerability. In other words, if somebody is starving or has no shelter it does not matter if the person is a proactive financial planner or not. According to the analysis, the relationship between financial behaviours and asset building and vulnerability reduction is also important, though weaker and less significant, for the poorest groups (those with low asset base or being already vulnerable to poverty). Therefore, proactive financial behaviours can benefit all, including those from destitute groups, at least in the transition context of Eastern Europe. For this group, risk-management is an important start because without a proper management of emergencies they cannot realize more sophisticated financial goals and seize economic opportunities.

These are all important findings for development policy in Eastern Europe as virtually nothing has been done to improve financial capabilities of households and individuals and promote proactive financial behaviours during the transition process. Out of 156 financial literacy schemes identified in EU27 only 14% are located in 10 Eastern European countries (mostly in Poland, Lithuania, Hungary) (Habschick et al 2007). The main challenge for microfinance industry and policy makers is to decide how to best promote proactive financial behaviours. Each of the individual solutions has its own advantages and limitations, being it financial education or better product design (i.e. default options as suggested by Holzmann and Pallares-Miralles (2005)). Beverly and Sherraden (1999) provide a useful framework that identifies key elements that are necessary to be successful in switching people from the reactive to proactive mode: information, access to good financial services, incentives and ongoing facilitation. However, it is useful to talk not only about information transfer but also about education to increase knowledge and skills as well as change attitudes, so important in shaping financial behaviours in low-income households in transition context. Incentives and ongoing facilitation are crucial success factors as shown by recent research by Ashraf et al (2006). It shows that commitment savings devices help people to save more but if communication and promotion efforts are stopped low-income households tend to return to previous low-saving equilibrium. Only those solutions that integrate all the key elements and are long–term in nature should result in lasting changes.

Lastly, evidence presented in this paper calls for a necessity to include to a greater extent financial behaviour/capability framework in further research on risks, poverty, microfinance and development.

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Annex: Measurement

Measurement of key variables used in this study (asset ownership, vulnerability to poverty as well as indexes of financial behaviours) is driven by the conceptual framework discussed in Section 2 as well as the understanding gained through qualitative research.

Measuring asset ownership

Asset possession is a proxy indicator for asset building. SD dataset allows also to create an indicator of asset change, which is a more reliable measure of asset accumulation. Composite indexes for financial, physical, human and social assets were computed as explained in Figure A-1. All the indexes have a relative value. Outliers were cut for all four asset measures and values were converted into percentages to obtain a common range (when 0 means worst assets and 100 best assets). Indicator for total assets is a sum of financial, physical, human and social assets possessed by a household. It is assumed that financial, physical, human and social assets are of the same importance for the household well-being and security, thus all four main categories of assets have the same weigh in the total score. That is why, all four asset variables were converted into 5 similar-size groups each. That way, all four asset variables distributions were approximated to the normal distribution and then added up to compose the final score.

Differences between the two datasets:

- financial and human indexes are very similar;
- physical index is weaker for the MFC database as the list of items is very short
- social indexes are similar but in the MFC dataset we use a proxy for social capital that should better fit the topic under investigation (question: *'from how many people you can borrow?'*).

Figure A-1: Asset measures

	SD dataset	MFC dataset
Financial assets	For each year = yearly household equivalent income per capita + possession of savings (in relation to the household equivalent income per capita) – debt (in relation to the household equivalent income per capita). Mortgage loans excluded for the list of debts. Final variable = average of 2000, 2003, 2005 (5 equal groups)	=monthly household equivalent income per capita + monthly saving capacity – monthly debt installments Mortgage loans excluded for the list of debts. Final variable - 5 equal groups
Financial assets change	= Financial assets 2005 – financial assets 2000. (3 groups: negative, no change, positive)	na
Physical assets	For each year = scoring 1 for each asset possessed from the list: garage, washing machine, freezer, refrigerator, dishwasher, micro wave, TV set, Sat/cable TV, video player, DVD player, DVD recorder, CD player, MP3 player, computer, car, Internet access, fax, boat, recreational plot, summer house. Final variable = average of 2000, 2003, 2005 (5 equal groups)	= scoring on each asset from the list (in brackets score range): old or new computer (0-1-2), old or new car (0-1-2), internet access (0-1), owning house or flat (0-2). Final variable - 5 equal groups
Physical assets change	= Physical assets 2005 – physical assets 2000.	na
Human assets	Combination of education and health of household members (equal contribution to the final score), final	Combination of education and health of household members (equal contribution to the

	score is a sum of scores from the following variables (in brackets score range): - Education – maximum education level of household head and spouse (0-6); for each year if the education level is primary or vocational -0; secondary – 1; higher – 2. - Education – modern basic skills (computer and foreign language) (0-3) - Education – investment in education of one of the household members in the last year (0-3) - Health – disability of household members in productive age (-6–0); for each year if in the household there are disabled members but they constitute less than a half of adults the household gets -1; if there are more than 50% of adults disabled the household gets -2. - Health – major and minor health problems experienced in the last 12 months (0-6) Final variable = average of 2000, 2003, 2005 (5 equal groups)	final score), final score is a sum of scores from the following variables (in brackets score range): - Education – modern basic skills of household head (using office equipment, using computer, writing on a computer, writing official letters, writing a letter in foreign language, speaking foreign language, managing a team, having a driving license) (0-8) - Education – maximum education level of household head and spouse (0-8); for each year if the education level is primary -0, vocational -1; secondary – 2; higher – 4. - Health – disability of adult members (in percentage of adult members affected, divided into equal groups for scoring; permanent disability (0-8), temporary disability (0-4). - Health – prolonged illnesses of adult members (0-4) Final variable - 5 equal groups
Human assets change	= human assets 2005 – human assets 2000.	na
Social assets	Combination of social capital variables for the household head only, final score is a sum of scores from the following variables (in brackets score range): - feels loved/respected by others (0-1) - number of friends (0-2) - trust other people (0-2) - is a member of any association, has important function in this association, initiates local actions (0-3) - involved in local initiatives over the last 2 years (0-2). Final variable = average of 2000, 2003, 2005 (5 equal groups)	Combination of social capital variables for the household head only, final score is a sum of scores from the following variables (in brackets score range): - breadth and wealth of kinship/friend networks - number of friends from whom the household can borrow 100, 1000, 10000 zl for one month without interest (total score = number of people multiplied 1, 2, 3 depending on amounts – divided in 7 groups; score range 0-6) - trust other people (0-3) - is a member of any association (0-3). Final variable - 5 equal groups
Social assets change	= social assets 2005 – social assets 2000. Variable name: socchgr	na
Total household assets	= sum of values of the above variables for financial, physical, human and social assets. (range 4-20) Final variable - 5 equal groups	= sum of financial, physical, human and social assets. (range 4-20) Final variable - 5 equal groups
Total household assets change	= sum of values of the above variables for change of financial, physical, human and social assets. (range -4 – 4)	na

Vulnerability measures

I believe that asset holding approach is the most promising to measure vulnerability at the micro level in a specific context, albeit the most demanding regarding the data. This is also in line with this study conceptual framework. However, there is a need first to conceptualize the link between assets and vulnerability, which goes beyond the scope of this study. An alternative is to use the approach of risk of

change in relative poverty status, which evidently has fewer limitations compared with other methods. This is not feasible due to lack of consumption data in the panel dataset to be used in this study.

Given differences in availability of relevant variables I took two different approaches to measure vulnerability for Social Diagnosis and MFC datasets (Figure A-2). For the SD I develop a proxy measure for vulnerability that draws from variability approach but uses patterns of subjective evaluation of affordability of consumption instead of consumption expenditures.[10] For MFC I use an 'ability to cope' approach by constructing a proxy indicator using potential impact of health risks and a second indicator based on actual impact of 6 bigger emergencies identified as the most important in the focus groups[11].

Figure A-2: Vulnerability measures

SD dataset	MFC dataset
1st indicator: Created index that tracks downturn changes in subjective evaluation of affordability of satisfying basic needs (nutrition, children education, healthcare) and satisfying more sophisticated needs (culture and holidays). The question – "could you afford last year…"[12] - is subjective but tracking the same households over time control for psychographic differences. I control for caveats regarding direction and strength of variability by taking into consideration only negative changes (at least once in 2003 or 2005 compared to previous measurement points) and defining strength of variability on the basis of number of years and basic/sophisticated need areas, where the negative change occurred.[13] Taking into consideration basic and more sophisticated needs opens up analysis to both poor and non-poor groups.	1st indicator: Based on a simple, ordinal four-item scale question: *Imagine the situation that family members caught some common illness three times in a single month (had to see a doctor and buy medicines). To what extent would it impact the financial situation of your household?* **1**. No impact **2**. Slight impact on our financial situation **3**. Significant impact on our financial situation **4**. Drastic impact on our financial situation
2nd indicator: The same index but calculated only on the basis of basic needs (food, health, education).	2nd indicator: Another variable refers to those who were affected by six main risks in the past 5 years: **A)** Accident resulting in temporary or permanent disability, **B)** Illness requiring hospitalization, **C)** Death of a close relative, **D)** Loss of equipment, a car or other durables (worth more than 1,000 zloty) due to a defect, accident or theft, **E)**

[10] In summary, I assume that if a household is vulnerable it has to reduce consumption on basic and/or more sophisticated needs in response to any type of risk, depending on the current economic threshold. Inevitably, some households, which are vulnerable might be not included in the vulnerable group because of good luck (nothing serious happened to them in the given period). However, identifying those vulnerable who were exposed to risks should be enough (given also three data points of measurement) to study the link between financial behaviours and vulnerability. If the hypothesis is not true for this group it will probably not be true also for the wider group of vulnerable households (including lucky ones).

[11] The first indicator is relevant for all the respondents. This variable has been proposed based on the results of the focus groups, which in Poland like in many countries in transition prove that health problems are one of the most important shocks for low-income households. One illness is not a big issue but a series of small shocks very often lead to a decrease in living standards for a certain period of time. Another advantage of this variable is that it refers to the entire population and not only to those who were recently affected by shocks. Small illnesses happen to everybody and their impacts are easy to remember (costs of buying medicines and paying a doctor).

[12] Questions for food: 'could you afford last year…' - list. Questions for other categories: 'do you have to resign from the given expenditure due to lack of money?'…list.

[13] For example, if in 2003 and in 2005 the household cannot afford meat it is not identified as vulnerable (stable situation, even if in poverty). If the household can't afford meat in 2003 but was able to satisfy these needs in 2000 it is perceived as vulnerable (situation worsened over time). It scores 1 in this category and year, then points from all the categories from the two measurement points are added up.

	Loss of a job or other source of income, **F)** Crop failure or death of livestock. The impact of the risks is evaluated using the same scale as above. The vulnerability measure = average of scores for all the risks. Those who were not affected by any of the risks are not part of any analyzes using this variable.

Segmentations and indexes used to describe financial behaviours

On both datasets I took a different approach to describe financial behaviours as the set of available variables is much different. For the MFC dataset I profiled households by financial behaviours using a segmentation by attitudes/capability in the following key areas: saving, preparing for risks and insuring, borrowing and debt, usage of financial services and attitude towards institutions. Segmentation was done using cluster analysis (k-means method) on all the financial behaviour/capability indicators (all transformed into dummies) and resulted in 4 main segments, which were then further used in studying the relationship between financial behaviours and vulnerability to poverty.

On SD dataset I created simple composite indexes by summing up positive/negative scores on responses to financial behaviour questions in the following areas: saving for specific goals (range from 0-12 where asset building goals get higher scores), borrowing (-7 to 10, where being late with utility payments and borrowing for pleasures and emergencies get negative scores and asset building borrowing get positive scores), using saving and credit services (0-8), using insurance services (0-10).