



Living on the Edge: Analyzing Economic Vulnerability and Quality of Life in Switzerland in the Early 2000's

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by

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Summary

This thesis focuses on the concept of economic vulnerability and mainly on the analysis of a group, or a specific socio-economic position of the population, people vulnerable to poverty. Indeed, scientific literature has extensively investigated people in poverty or those with the highest concentration of wealth, but those who suffer to maintain decent living conditions, without any help from the welfare state, are often overlooked by research. This thesis analyzes the effects of this socio-economic position on two concepts: firstly, the subjective well-being and secondly, the quality of life in times of crisis.

The first part of this thesis explores the issue of identifying those who are vulnerable to poverty. The emphasis is placed on the various options available to researchers to identify, using a quantitative approach, people vulnerable to poverty and thus, to better target the group that may face difficulties in maintaining decent living conditions. The first article of the thesis compares four indicators which are poverty, precariousness, deprivation and vulnerability in order to show the different possibilities that exist to identify people belonging to this specific group.

The second part of the thesis combines two approaches that have never been jointly studied, the vulnerability to poverty and the subjective well-being. Indeed, the objective is to assess whether the subjective well-being of our interest group is different or similar to those defined as being in poverty and who are then recognized as such by the society as a whole.

Finally, in the third and last part of this thesis, our attention shifts towards a set of vulnerable groups defined as such by either the scientific community or public policies, and we assess the impacts of the economic crises of the early 2000s on four quality of life indicators. This third article combines subjective and objective indicators and gives a clear overview on how vulnerable groups in Switzerland fared during the last two consecutive economic downturns.

The database used for the analyses in this thesis is the Swiss Household Panel (SHP). This longitudinal database started in 2000 and contains rich information, both objective and subjective, about households living in Switzerland. Each of the three articles follows its own methodology. The first article compares four indicators and their methodological construction, in the perspective to use them to identify people vulnerable to poverty. The second paper first uses the vulnerability to poverty method to define the analysis group and then, the subjective well-being is estimated using a linear regression model (OLS). Finally, the third paper uses different models (binary regressions, multilevel models, fixed-effects and random effects) to estimate which vulnerable groups were affected by economic crises, but also whether there is a recurrent effect following these two crises close in time, on four quality of life indicators (two subjective and two objective).

The results show that there are different possibilities for identifying people who are vulnerable to poverty, but that more complex indicators, such as the precarious prosperity or the material deprivation approaches, seem to estimate a larger part of the population compared to the relative poverty or vulnerability to poverty approaches. Their subjective well-being appears to be higher than that of people experiencing poverty, but the difference is very small. This group therefore has a satisfaction with life close to that of the most deprived in society. Finally, the analysis of the effects of the different economic crises on quality of life indicators for vulnerable groups showed that the first crisis of the 2000s (the Dot.com Bubble) had a greater negative impact on the quality of life of these groups than the Great Recession. People experiencing long periods of unemployment, large families, people with a low level of education and the solo self-employed are the groups most affected, in terms of quality of life, during consecutive economic crises.

Keywords: vulnerability to poverty, subjective well-being, quality of life, inequalities, economic crises.

Résumé

Cette thèse se concentre sur le concept de la vulnérabilité économique et principalement sur l'analyse d'un groupe, ou d'une position socio-économique spécifique de la population, à savoir les personnes vulnérables à la pauvreté. En effet, il existe de nombreuses recherches sur les personnes en situation de pauvreté ou celles concentrant le plus de richesses, mais celles qui souffrent à maintenir des conditions de vie décentes, sans aucune aide de l'Etat de droit, sont souvent oubliées par la recherche. La présente thèse analyse les effets de cette position sociale sur deux principaux indicateurs : tout d'abord le bien-être subjectif et ensuite la qualité de vie en temps de crises.

La première partie de cette thèse explore la question de l'identification des personnes vulnérables à la pauvreté. L'emphase se situe clairement sur les différentes options qu'ont les chercheurs afin d'identifier, selon une approche quantitative, les personnes vulnérables à la pauvreté et ainsi mieux cibler ce groupe qui peut faire face à des difficultés pour maintenir des conditions de vie décentes. Ainsi, le premier article de la thèse compare quatre indicateurs que sont la pauvreté, la précarité, la privation et la vulnérabilité afin de montrer les différentes possibilités existantes pour identifier les personnes appartenant à ce groupe.

La seconde partie de la thèse combine deux approches qui n'ont jamais été étudiées de manière conjointe, la vulnérabilité à la pauvreté et le bien-être subjectif. En effet, l'objectif est d'estimer si le bien-être subjectif de notre groupe d'intérêt, est différent ou similaire à ceux qui sont définis comme étant en situation de pauvreté et qui sont alors reconnus comme tels par la société dans son ensemble.

Finalement, dans la troisième et dernière partie de cette thèse, notre attention se déplace sur des groupes vulnérables définis comme tels soit par la communauté scientifique, soit par les politiques publiques, et nous évaluons les impacts des crises économiques du début des années 2000 sur quatre indicateurs de qualité de vie. Ce troisième article combine alors des indicateurs subjectifs et objectifs et vient ainsi enrichir la littérature scientifique.

La base de données utilisée pour les analyses effectuées dans le cadre de cette thèse est le Panel Suisse des Ménages (PSM). Cette base de données longitudinale a débuté en 2000 et contient de riches informations tant objectives que subjectives sur la situation des ménages en Suisse. Chacun des trois articles suit une méthodologie qui lui est propre. Le premier article compare quatre indicateurs et leur construction méthodologique, en vue de leur utilisation pour identifier les personnes vulnérables à la pauvreté. Le second papier utilise tout d'abord la méthode de la vulnérabilité à la pauvreté pour définir le groupe d'analyse et, ensuite, le bien-être subjectif est estimé grâce à un modèle de régression linéaire (OLS). Finalement, le troisième article utilise différents modèles (régressions binaires, modèles multiniveaux, modèles à effets fixes ou à effets aléatoires) afin d'estimer quels sont les groupes vulnérables touchés par les crises économiques, mais aussi s'ils existent un effet récurrent suite à ces deux crises proches dans le temps, sur quatre indicateurs de qualité de vie (deux subjectifs et deux objectifs).

Les résultats montrent qu'il existe différentes possibilités pour identifier les personnes qui sont vulnérables à la pauvreté, mais que les indicateurs plus complexes, tels que la précarité prospère ou la privation matérielle semblent estimer une part plus importante de la population que les approches de la pauvreté relative ou la vulnérabilité à la pauvreté. Leur bien-être subjectif apparaît comme étant supérieur à celui des personnes en situation de pauvreté, mais la différence est faible. Ce groupe a donc une satisfaction avec la vie proche de celui des plus démunis au sein de la société. Finalement, l'analyse des effets des différentes crises économiques sur des indicateurs de qualité de vie pour les groupes vulnérables a montré que la première crise des années 2000 (la Dot.com Bubble) a eu un effet négatif plus important sur la qualité de vie de ces groupes que la Grande Récession. Les personnes qui connaissent de longues périodes de chômage, les familles nombreuses, les personnes avec un bas niveau d'éducation et les indépendants sont les groupes les plus affectés, en termes de qualité de vie, lors de crises économiques consécutives.

Mots clés : vulnérabilité à la pauvreté, bien-être subjectif, qualité de vie, inégalités, crises économiques.

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1 Introduction

In international comparison, Switzerland is in a good position among several dimensions of quality of life such as health, life expectancy, “happiness”, but also in terms of Gross National Product (Suter et al. 2015, Budowski & Scherpenzeel 2005, Veenhoven 2013). However, important social inequalities are persistent and are widening for several individuals or households, with regards to their social strata, and thus affecting their overall quality of life and subjective well-being (Zimmermann & Weiss 2004).

This thesis aims to explore the question of vulnerability and its impacts on both the level of subjective well-being and in a broader sense, the quality of life. Before going any further we should clarify what we mean by vulnerability. Indeed, there are many types of vulnerabilities (i.e. medical vulnerability, mental vulnerability or economic vulnerability) and we make no claim to address all of them in this dissertation. We focus our research on the issue of economic vulnerability. What we are interested in here is the vulnerability of an individual or household to fall into poverty. Focusing our research on Switzerland one could be surprised that in such high-income country, it is worth the research. It is true that Switzerland is generally ranking in the top five of various indices such as the World Happiness Report (see Suter et al. 2015). However, poor people have always existed as well as those experiencing economic vulnerability without being poor. In fact, there is a growing attention to those of the bottom of the middle class (OECD 2019). In the present thesis, the term middle class refers to the concept of income class (upper, middle, and lower classes). They appear to suffer more and more to maintain decent living conditions. In Switzerland, the overall economic prosperity does not benefit all the population, and the portion of low-income people that cannot support themselves, without any external assistance, is growing (Caritas 2020a). Those people often must cumulate jobs and they are particularly suffering from heavy burden such as the health insurance (which is compulsory in Switzerland).

Everyone is using the term *vulnerable* or those *vulnerable people*, but who are they? How are they defined conceptually? There is an important lack in the empirical literature about this topic and we find important to bring new insights. Even if we are not developing new theories or concepts of economic vulnerability, we aim to provide an interesting perspective on how we can measure those people using well-known indicators. Also, what the literature misses are the socio-demographic characteristics

of people being vulnerable to poverty. In fact, previous researches have provided information about a typology of vulnerable *groups*, but do people on the edge of poverty share some similar characteristics or are they completely different one from another? Yet, we know that lone parents are at risk of poverty so do those with a low educational level. But do we find more women, or is an age group more represented? Thus, more information about those people is needed, to better target this group.

On one side, we have a lack of information about who those people living on the edge of poverty are and how we measure them. On the other side, we find another issue: what is their general level of subjective well-being? In fact, it is well recognized now that one's society main goal is to pursue a high level of satisfaction. Such indicator as the Gross National Product is not enough anymore to evaluate a society, and we are now concerned with the subjective well-being and more generally, the quality of life, of individuals. Again, only scarce literature is found about this specific topic in Switzerland but also at an international level that is combining the two concepts, vulnerability to poverty and subjective well-being. However, the literature about the determinants of subjective well-being is rich and this may serve as a basis estimating the level of self-reported life satisfaction compared to other groups of the population.

Switzerland is also known for its prosperous and sustainable economy. However, it also experienced, to a lesser extent compared to other countries, the effects of the economic crises of the early 2000s. Its economy is intrinsically connected to the global economy and it may suffer from possible economic downturns. How did vulnerable groups fare during those troubled times? How was their quality of life impacted? In fact, quality of life, as a holistic concept, can be estimated by mixing both objective and subjective indicators, but very few studies have used this approach to analyze the effects of economic crises (except Somaribba Arechavala et al. 2015 and Gudrun Gudmundsdottir 2011), and not for vulnerable groups. However, we argue that it is essential to know more about how vulnerable groups fared during the economic recessions in order to prevent them from a loss of quality of life, which may already be lower than the general population. In fact, as those people are not poor, they are not targeted by any public policies and thus they may endure hardship and various struggles to maintain their living conditions in time of economic downturns, that are even not at a high level during "normal" periods. Thus, research on the effects of economic crises on the quality of life of vulnerable groups, is missing in the empirical literature and we intend to fill up the gap in this dissertation.

The next section gives deeper insights on the main objectives this present dissertation has.

1.1 Objectives

According to our willingness to go beyond mere defined vulnerable groups, we decide to explore indicators which are available and commonly used in poverty research to identify and measure those living on the edge of poverty but experiencing economic difficulties. Two indicators were found, specifically developed to measure this specific group (the vulnerability to poverty and the precarious prosperity concepts) and two others, initially developed to measure poverty but adaptable to our research (the relative poverty and the material deprivation concepts). Thus, the first paper of this dissertation explores the existing indicators that are suitable to identify those living on the edge of poverty, and question the definition of setting thresholds. It compares four indicators of economic *vulnerability* and shows differences and similarities between the four measurements and the group they identify. Then, we focus our attention to a more micro level and aim to analyze what the impact of being in this specific economic position, namely vulnerable to poverty, is on the level of subjective well-being for people living in Switzerland. In our second article, we present the difference in terms of self-reported satisfaction for the population divided in four categories: those in a secured position, the middle class, those vulnerable and finally the poor. To do so, we used the indicator of vulnerability to poverty, in order to define who belongs to this category, and we have measured the level of self-reported well-being for this particular group, compared to those belonging to the middle class or those in a secured position as well as the poor. To open-up our topic, our third and last paper analyzes the effects of belonging to a defined vulnerable group (by either the scientific community or social policies) on various quality of life indicators during the last two economic recessions (the Dot.com Bubble and the Great Recession). We aim to measure if: 1) such vulnerable groups are disadvantaged compared to the general population, 2) which crisis had the most negative effect, and 3) if buffering effects of two consecutive economic crises can be observed.

Therefore, objectives of this thesis are three-folds: first, to compare existing indicators available to the scientific community in order to identify those vulnerable to poverty (do they identify the same individuals, if so who are they). Second, to analyze the impact

of being vulnerable to poverty in Switzerland on the level of subjective well-being. Third, to evaluate the impacts of the Dot.com Bubble and the Great Recession economic crises on four variables of quality of life on recognized vulnerable groups in Switzerland. By doing so, we can present a broad picture on the meaning of being vulnerable to poverty and the effects on both subjective and objective indicators, in Switzerland. Table 1 below describes the three articles representing the core of the present thesis.

Table 1: Description of thesis's articles

	Article 1: Who are those in between poverty and security? Comparing four concepts: poverty, material deprivation, precariousness and vulnerability.	Article 2: The Subjective Well-being of those Vulnerable to Poverty in Switzerland	Article 3: From one recession to another: Longitudinal impacts on the quality of life of vulnerable groups
Objectives	Identify and compare the different indicators that allows the identification of those people vulnerable to poverty and the socio-demographic characteristics of this group according to each indicator.	Evaluate a socio-economic position and its impacts on the level of subjective well-being.	Analyze the impacts of two economic crises on the quality of life of vulnerable groups.

Each of those papers have been written to respond to three main research questions, which can be formulated as followed:

- 1) What are the existing indicators for measuring people being vulnerable to poverty? Are they similar or dissimilar in identifying individuals, in other terms, do measures overlap?

- 2) At the individual level, what are the effects on the level of subjective well-being of being vulnerable to poverty, using a dynamic approach of economic vulnerability?

3) How two economic crises of the beginning of the XXI century have affected the quality of life of vulnerable groups in Switzerland? Do we observe similar or dissimilar effects of both economic crises on the quality of life for those vulnerable groups? Finally, are there long-lasting negative effects of economic crises for these groups?

1.2 Structure of the thesis

To answer those questions, we first present the key concepts that are presented and used throughout this dissertation, which are the following: the concept of poverty, the concept of vulnerability, the subjective well-being and finally, the quality of life. This section also clarifies the relation between the concepts and the empirical literature. The next section contextualized the economic situation of Switzerland in the early 2000s, mentioning especially the various economic recessions that the country has faced. Then, we provide the reader with the main contribution to the empirical literature, for each of the article presented in the thesis. Chapter 2, gives a full description of the data used as well as advantages and inconvenient inherent of the data chosen for the analysis. It also clarifies the different terms that are used generically throughout the articles of the dissertation and it explains the methodological choices and the limitations encountered for each of the three papers. It provides information on the design of the analysis, the characteristics of the data, and especially on the methods used for the main analyses presented in the articles. Chapter 3 consists of the first article of the dissertation: “Who are those in between poverty and security? Comparing four concepts: poverty, material deprivation, precariousness and vulnerability”. Chapter 4 consists of the second article of the dissertation: “The Subjective Well-being of those Vulnerable to Poverty in Switzerland”. Chapter 5 consists of the third article of the dissertation: “From one recession to another: Longitudinal impacts on the quality of life of vulnerable groups”. Finally, chapter 6 summarizes and concludes the dissertation by presenting the main results previously presented in the three articles of this dissertation, and provides insights on the contribution to the empirical literature on economic vulnerability, quality of life and subjective well-being. It also questions the relevance of the results in a broader context and provides new avenues for future research to fill existing gaps in the scientific literature or observed during the analyses presented in this thesis.

1.3 Concepts

This section provides a review of the key concepts used in this thesis: first the concept of poverty, second the concept of (economic) vulnerability, third the concept of subjective well-being, and four the concept of quality of life.

1.3.1 Poverty

The concept of poverty has been investigated for centuries now and has been extensively discussed, shedding lights on the relevance of this topic for past and modern societies. This concept has been even more important with the advent of the industrial era and the emergence of new social groups.

Tocqueville (1835) was one of the first author to question the concept of *poverty* not independently but by studying it in relation with the surrounding context. According to him, poverty does not exist in its own but is created through relationships that someone is making with its socio-economic environment. He recognized the existence of two kinds of benefits for poverty: one comes from the Christianity and encourages everyone to help, according to their means, others in need, and second, coming from the Protestantism, to lead the society itself to take care of those in needs. Still according to Tocqueville (1835), social assistance is necessary. However, this situation creates a relationship of dependency that is detrimental to individual freedom. In fact, the poor accept *de facto*, and become inferior human beings among the society. The author agrees on the fact that there is various existing type of charity: individual charity, association of charitable persons and public charity, each of them providing beneficial effects for the general population. However, he warns against every system (here social assistance to the poor) that would be permanent, administrative and regular, to do more harm than good in the society. Tocqueville finally questions the ability of the population to *prevent* people of falling into poverty rather than *fixing* the situation for those poor. The latter is a very interesting point concerning the focus of this dissertation and we can underline that it is still accurate in our modern society. Nowadays, we still have difficulties to grasp those who are vulnerable to poverty and finally, we still observe in general *ex-post* rather than *ex-ante* measures to prevent people from falling into poverty.

In 1872, Karl Marx discussed in his book called "the Capital" different topics including class struggles. According to him, there are several classes among the society and

among those classes, the poor are exploited by both the society and the capitalist system in place, to enrich and enable the accumulation of capital and wealth to the higher classes of the society. Again, like Tocqueville, Marx (1872) defines those poor according to their relationship with the whole society. It is not a category per se, but they do exist because other groups do exist as well.

Simmel realized an important research about poverty, and according to him an individual has rights but also obligations towards those around him, so he is a social being (1998 (1908), 39). Furthermore, the author describes two kind of poverty, on one hand the individual poverty and on the other hand the social poverty; the latter appearing when the poor accept social assistance (Simmel 1998 (1908), 42). Finally, the question of the recognition of the needs, of the necessity of the poor to be assisted, is fundamental here in the very definition of this social category. What is interesting is, as Tocqueville (1835) and Marx (1872), poor people are poor because they are social being integrated in their surrounding society and because they are recognized as such because of their acceptance or their right to benefit from social assistance. Still according Simmel (1998(1908)), the concept of poverty is not a phenomenon that is worth to study as a group itself but more the social representations and the processes set by the society to respond to it. Paugam (2005, 66) explicitly wrote in his paper that "Poverty [...] is always the expression of an inequality, if not acceptable, at least not tolerable in a globally rich and democratic society where real equality is a priority [...]"¹. This is true when it comes to poverty, but isn't it true when coming to those living on the edge of poverty and thus not considered as poor? And by being considered as poor and defined as such by arbitrarily thresholds, does it make a difference in terms of quality of life in general, and especially on the level of subjective well-being compared to those vulnerable to poverty (who might also be struggling in their daily life but not labelled as poor)? Poverty thresholds are useful to help focusing on those who need the most social assistance. However, those living on the edge of poverty may endure similar difficulties while not having the right to receive assistance. This situation may cause negative feelings such as being left behind by the welfare state, raising inequalities and especially inequality of opportunity (Ravazzini & Wendelspiess Chávez Juárez 2018), as well as being socially and economically excluded. Following

¹ Translate from the French by the author. Here is the original text : "La pauvreté [...] est toujours l'expression d'une inégalité, sinon acceptable, du moins peu tolérable dans une société globalement riche et démocratique où l'on recherche de manière prioritaire l'égalité réelle [...]"

their interactionist approach, mentioned by either Tocqueville (1835), Marx (1872) or Simmel (1998 (1908)), people experiencing poverty, receiving one or more forms of assistance, are de facto recognized and integrated into the society.

Another concept of poverty that is important within the sociological debate is the three definitions of poverty given by Paugam (2005) in his book *Elementary forms of poverty*². According to the author, poverty could be either *integrated, marginal, or disqualifying* within the society. Interestingly, the latter definition relates to those people that are socio-economically insecure and who fear social exclusion. This poverty is especially feared because it could affect people who have lived until now, in good living conditions. This is also true with our group of concerns in this dissertation, people that are on the edge of poverty, as we assume that they do fear to fall into poverty.

The concept of social exclusion has been well documented for the past decades and has replaced more traditional concepts such as poverty or social inequality, especially in sociological debates (see Budowski et al. 2010). In fact, there is not a single definition of what is social exclusion. In their report, Levitas et al. (2007, 25) have defined social exclusion as: “Social exclusion is a complex and multi-dimensional process. It involves the lack or denial of resources, rights, goods and services, and the inability to participate in the normal relationships and activities, available to most people in a society, whether in economic, social, cultural or political arenas. It affects both the quality of life of individuals and the equity and cohesion of society as a whole”. Concepts of poverty or social exclusions presented above tend to indicate that even if they do not focus on those just not considered as poor by some measurements or thresholds, their definitions could also be applied, to some extent, to people living on the edge.

Moving to more empirical concepts of poverty, and following what have been previously presented, we can first state that poverty could be a lack of economic well-being. As our interest in this dissertation is to analyze people who are on the edge of poverty, we focus on poverty indicators that are widely used in political or scientific debates³. The coming part will focus on how poverty is measured, using which

² Translate from the French by the author. The original title is : « Les formes élémentaires de la pauvreté ».

³ Our aim here is to present the literature associated to the development of poverty indicators that are used in western economies essentially by first, political spheres and second, researches communities. Thus, we are not presenting a full review on either concept of poverty or indicators that are yet developed and important for a full comprehensive approach of poverty.

indicators. Initially, poverty has been conceptualized only through economic or income indicators (generally relating on consumption capacity or income), but researches have showed their limits. Thus, one can find in the literature, other concepts of poverty such as the capability approach or the social inclusion (which is related to social exclusion) (Wagle 2009).

Despite all the limits found using income-based indicators, almost all indicators of poverty are related to the economic well-being approach (Wagle 2009). One could say that there are three main indicators for measuring people living into poverty, those using a *relative* approach, those using an *absolute* definition and, finally, those measuring *material deprivation*. All three concepts are widely used either for national or international comparisons or for political debates and social policies assessment. The first approach, the *relative concept of poverty*, is generally measured by the sixty (or in some cases the fifty) percent of the median income. This concept considers people in poverty when they do lack an amount of income regarding the income distribution among the society. Therefore, as already said previously, the latter concept is defined as a comparison to the general income level. The *absolute concept of poverty* relates to basic needs that are not fulfilled for a living (Wagle 2009). In Switzerland, it is the Swiss Conference for Social Welfare that defines the minimum social subsistence, which is an amount of income necessary to live a decent life (it accounts for compulsory health insurance, accommodation costs and a flat rate for other general expenses). Finally, the concept of *material deprivation* is used in poverty research since the late 1970s and was initiated by Peter Townsend (1979) who considered a list of approximately 60 items (both goods and activities) that were commonly spread among British households of that time. This concept relates more to social exclusion as it is based on items of the usual daily life. This list was then reduced to twelve items and then to nine (Gazareth & Suter 2010, Guio & Marlier 2013). Various domains of life are measured through different items such as accommodation, social contacts, health and more (see appendix 1 for the list defined by Eurostat). This indicator is interesting in the sense that it brings other aspects of poverty that were neglected for a long period. Moreover, the material deprivation index has been developed over time, and measures that are more refined have been proposed such as the Consensual Deprivation Index (CDI) (Mack & Lansley 1985), which overcomes criticisms made to the first item-list by Townsend, by considering items that are only considered as essential by at least fifty percent of the population. The Proportional

Deprivation Index (PDI) developed by Halleröd (1995) based its indicator by weighting each item of the list by the importance given to it to maintain a decent life by all the respondents. However, in practice, it is difficult to calculate each of these indices (CDI or PDI) as very few datasets contain all the information needed. However, one can easily calculate the weight for each item using the prevalence weight, which is a weight given to each item according to how many people have it among the population. This method is also very interesting, and it considered someone missing a largely spread item among the population as more deprived (Gazareth & Suter 2010).

There are other existing poverty indicators that are interesting as they consider other dimensions or perspectives and thus are complement to the discussed indicators, such as the multidimensional poverty index (Alkire & Foster 2011). However, as previously mentioned, we kept this section to the most common used poverty indicators and we do not propose a complete review of poverty indicators.

Nevertheless, another important aspect of those poverty indicators are the poverty lines or thresholds that are set or chosen. Indeed, as well discussed by Gordon and Spicker (1999), poverty thresholds are set to distinguish people having sufficient income to maintain decent living conditions from those lacking resources. Nevertheless, how were those thresholds, either for the relative approach, the absolute or for the material deprivation indicators, decided? Knowing that income-based indicators are useful to have a broad but not a refined picture of poverty, the arbitrary nature of such thresholds could be questioned. The relative poverty line may change with the evolution of the income distribution. In the USA, Fuchs (1967) proposed in the early 1960s a threshold at the fifty percent of the median income to distinguish the poor from the non-poor. Since then, this threshold has been used for the relative approach of poverty. However, the sixty percent of the median income is preferred in European countries. About the absolute poverty threshold, it varies from countries or international organizations (Wagle 2009). In Switzerland, in 2015 for example, the minimum income for a household of four members (two adults with two children) was set at 2'600.- SFrs per month (after subtracting accommodation rent, health insurance and a flat rate for other general expanses). Finally, for the material deprivation index, most scientific organizations and communities (Guio & Marlier 2013; SFOS 2019) adopted a threshold of a lack of three items over the nine-item list (because of financial reason). However, my colleagues and I had the opportunity in a previous research to show that this

threshold is arbitrary. Using a Poisson distribution and its properties to assess the “right” threshold, we showed that a threshold of two was more adequate in Switzerland. Moreover, this approach allows adjusting for the socio-economic context and thus the threshold to vary, which would be more accurate as not every country is similar in terms of socio-economic and structural contexts (Babones et al. 2015).

Based on what we have just presented, we can say that there are three poverty indicators commonly used by public policies and by the scientific community. We can also say that despite the lack of conceptual bases, different thresholds are associated with them. Following this, we assume that if thresholds were used to define people in poverty using their relative concepts, they should be also adaptable to identify people living on the edge of poverty and who are facing difficulties to maintain good living conditions.

The following section develops the topic of vulnerability and specifically vulnerability at the economic level, which is an important aspect of social declassification as seen above.

1.3.2 Vulnerability

At the very beginning, the question on *how* people being vulnerable (and not poor) could be identified aroused. In fact, the scientific literature has extensively analyzed categories at the bottom or at the top of the income distribution, but researches on those people on the edge of poverty in high-income countries, possibly going in and out of poverty, is scarce. In the globalized world and especially within the capitalism model that characterized western economies, economic security is no longer guaranteed and one may experience economic vulnerability at some point in his life due to various unexpected events such as a job loss, a change within the household unit, a health problem or for many other reasons. In the scientific community and political spheres, there is a common language and an explicit will to both identify and set measures for people living under a commonly accepted poverty threshold, defined either in an absolute or relative way. Another way to consider people being vulnerable is by focusing on specific groups of the population, like the unemployed, single parents or low-educated individuals.

The concept of vulnerability is an important concept and was already important in ancient Greece. Indeed, at that time, the concept of vulnerability did not refer to suffering from pain or being hurt. As its etymology indicates, vulnerability is the capacity to be wounded (McCoy 2013). The temporal dimension is also central for this concept: in fact, vulnerability refers not only to the present but also to the future, and thus it has an important longitudinal dimension (McCoy 2013). Nonetheless, the historical use of the term vulnerability is long and complex, as mentioned by Wisner (2016). Several bibliometric analyses found that the term is used in many disciplines and that a high volume of work was found in geography, natural resources, environmental management, sociology, and public health (Wisner 2016).

Like the definition proposed by Spini et al. (2013), Chambers (2006, 1) defined vulnerability as followed: "Vulnerability, though, is not the same as poverty. It means not lack or want, but, defencelessness, insecurity, and exposure to risk, shocks and stress". Thus, vulnerability can be defined as a dynamic process in which, individuals or households are facing external risks. An external event may lead to a loss in resources or a fall in social status.

Even though the development of the concept of vulnerability is complex, the following paragraph gives an overview on its history. The concept of vulnerability as it is used nowadays has really emerged during the 1970's in the medical field. At that time, the term was a synonym to frailty (or social frailty), meaning a cumulative process of negative events. In fact, this process represents what constitutes a vulnerable person (Thomas 2008). In the 1980's the term started to spread to other fields of research and finally, since the 1990's the concept is largely adopted by both scientific and non-scientific communities. However, differences in meanings can be found depending on the field of research. In geography, the concept of vulnerability was and is still strongly linked to the notion of risk (ecological, disasters, hazards) and it is recognized that risks are exacerbated by the world globalization (Bresson et al. 2013; Bankoff et al. 2004). Vulnerable groups tend to live in places where disasters or hazards are more prone to happen (due to their capital or human assets) and therefore to suffer greater loss. The notion of hazard is essential in environmental sciences, to which disasters are associated. Despite great technological advancement, it is still difficult to prevent or predict an event with absolute certainty (Cardona 2003). Vulnerability of individuals is seen as the propensity to welfare loss due to risk from natural hazards (Dwyer et al. 2004; Cardona 2003; Bankoff et al. 2004). Therefore, vulnerability is, in this domain,

considered as an on-going and forward-looking process. The social vulnerability index was developed by the Center for Disease Control and Prevention in the USA, as an aid to local disaster management and is based on a set of variables that focus their attention on four dimensions: socioeconomic status, household composition, language/minority status and housing (see Wisner 2016). Still according to Wisner (2016), the latter approach was found to be useful in explaining other events such as patterns of mortality during hurricanes. This is interesting as some natural hazards seem to occur more frequently nowadays compared to previous periods, which is also mentioned by the work from the World Bank. This may be effectively due to general global warming which is itself induced by human activities.

In sociology, the concept of vulnerability was well studied by Castel (1999). He distances himself from the notion of risk while studying the concept of vulnerability. Indeed, Castel refused to reduce individuals to risk factors only, thinking that it is more important to identify a sphere of collective existence according to the society's integration (Martin 2013). Vulnerability corresponds to two zones of fragility: 1) fragility of the integration in the labor society; 2) fragility of the insertion in socio-family and community sociability (Martin 2013). The living conditions are marked by uncertainty about the future. Therefore, an individual is considered as vulnerable if he is not integrated in those two spheres.

In economic sciences, scholars have become more aware of the need to study and analyze the concept of vulnerability since the publication of the World Development Report (WDR) in 2000/1. Indeed, this report highlights the relationship and interconnection between poverty, risk, security, and empowerment (Alwang et al. 2001). According to Alwang et al., vulnerability refers to "(...) the relationship between poverty, risk and efforts to manage risk." (2001, 1). Since then, the World Bank has developed a new domain of research, the social risk management (SRM), to analyze and protect vulnerable groups to welfare losses (they are concerned with the vulnerability to economic poverty).

In parallel to the ongoing debate about the definition of vulnerability are three taboos mentioned by Wisner in his paper (2016). Those three taboos are the following: 1) the asymmetry between the United Nations and the national governments discourses that are advocating for risks reduction (i.e. disasters, poverty). But creation of risks is done by these institutions themselves: by creating development processes intend to benefit

all, new risks are generated. 2) To criticize the development. In fact, not all people benefit from development and vulnerability is sometimes induced in maldevelopment processes. 3) The last taboo mentioned by Wisner (2016) is the security. He argues that in each state, institutions are intended to protect human lives and thus no country or state would be credible without them. However, according to Foucault's theory of biopolitics, one could question " [...] whether and how technocratic management of risk and fear have become a dominant mode of governing or controlling populations." Even if many people are aware of this and tend to resist by any means, some of them, with less empowerment may fall into dependency, apathy and passive resistance. We can therefore say that according to these three taboos mentioned by Wisner (2016), the debate on vulnerability is still far from over, both in terms of terminology and its definition, as well as its origins and the real desire to put an end to vulnerabilities.

Nevertheless, what is obvious after this brief overview on the concept of vulnerability according to different fields of research is that there is no single definition but a plurality. In the literature, we also have noticed that differences and similarities between the concept of vulnerability and resilience are growing since the last decade. However, we do not propose a review on that subject as we do not address directly the concept of resilience in the present thesis. The latter point emphasizes the fact that vulnerability can be seen as a *living* concept that is changing and evolving with its surrounding context. However, we can note some important points that are common in every definition: first, the notion of risk (or the non-integration in sociology) is very important. It relates to the principle of an external shock, which can be very different (economic, social, political, etc.). Second, it may lead to a loss of welfare. Third, it is an *ongoing* and *dynamic* process; it is not fixed in time and may change due to the direct surrounding context. Those three aspects are considered in the present thesis.

The following paragraph focuses on the importance of the middle class (as an income class), and difficulties to grasp them as a heterogeneous group and for which, some may be considered as vulnerable to poverty.

It is somewhat amazing to see how far economic developments have reached during the last century, but one could ask the question about who benefit the most from these progresses. In fact, in western countries, only those at the top, accumulating wealth

and richness, largely enjoyed those developments. Economic inequalities have endured throughout time and the most important group of the population (in terms of number), known as the middle class, has supported the whole economy. According to the OECD (2019), a strong and prosperous middle class is of absolute necessity for an economy to succeed, as well as bringing cohesion within the society. In fact, it is the middle class that support the whole economy as it represents the largest part of consumers, people paying taxes (and thus financing the educational system, the health system, social protections, roads networks and many more). The OECD (2019, 3) has highlighted in its report “Under pressure: the squeezed middle class”⁴ that about 10 percent of those at the top of the income distribution owned about half of all the wealth and 40 percent at the bottom owned the last 3 percent. Still according to the OECD (2019, 3) one out of three individuals is vulnerable to poverty on the economic level. There is no consensual definition of the middle class and definitions are changing according to the perspective adopted. In fact, some are using only income-based indicator, whereas others consider more information such as wealth (Atkinson & Brandolini 2011). Economists mainly use the two latter definitions but sociologists disagree about definitions that are considered as reductive and put the emphasis on the social stratification of a society. As previously mentioned, both extremes of the income distribution, the poor and the rich, have concentrated all the research in economic studies, and investigations about the “in-between” group are forgotten or at least put aside. Maggino and Fattore (2019) proposed in their research different indexes to measure such a polarization, that are different from economic inequality indicators, however they underlined a lack of satisfactory measures for multidimensional polarization. Atkinson and Brandolini (2011) have well discussed the question on *how* to define the middle class using income indicators such as the median disposable income. They have shown that this group could be comprised, in general, between 75 percent of the median income and 125 percent. However, the authors are clear about the fact that any cut-offs are arbitrarily set and thus are subjects to some limitations. However, taking the 75 percent of the median income as the lower limit to set the middle class lead to another question: who are those in between the well-recognized 60 percent of the median income and the 75 percent threshold? There are two possibilities: the first is to set the lower threshold at 60 percent of the median

⁴ Translate by the author from the French original title: “Sous pression: la classe moyenne en perte de vitesse”.

income and thus lead to the beginning of the middle class when poverty ends (see Ravallion 2010), or to define the middle class when cleared of being at risk of poverty and keep the 75 percent of the median income (Atkinson & Brandolini 2011, 8). This discussion highlights the eternal problem with setting thresholds, as it is *always* arbitrarily to certain extent and thus comes with limitations. However, all those thresholds are useful for analyses, for internal and international comparison and for public policies in general. The evolution of those being at the bottom of the said middle class has also specifically emerged in a context where the global economy was facing important issues such as global financial crises.

Conversely, compared to poverty researches, there is lacking information about those just above the poverty line and who may struggle to maintain their living conditions. Hübinger (1966), was the first to identify and discuss the adjacent position of those nor in poverty nor in security. The assumption that a person can belong to only one of the following class: rich, middle or poor, is no longer valid. Streuli and Bauer (2001), in their study, shed lights on the working poor in Switzerland. Researchers (see Whelan & Maître 2007 and Castel 2000) have also questioned the question of social vulnerability. Budowski et al. (2010) have conceptualize this specific socio-structural position combining indicators of relative income and material deprivation.

There is also a growing interest and researches conducted on vulnerability used as core concept. However, is this concept completely different from social exclusion, precariat or precarious prosperity? There is no consensual definition of vulnerability and different definitions have emerged through different disciplines since the beginning of the 1970s, emerging from the medical field and reaching the geographical, economical and sociological spheres (Thomas 2008; Brodiez-Dolino et al. 2014).

What emerges from the literature is that economic vulnerability is at least as much important as social vulnerability (Whelan & Maître 2005). In fact, it is a fundamentally right for every human being to have or access sufficient resources to live a decent life, and this is especially true in western economies (which are mainly high-income countries). Thus, each financial contribution for a household could be essential, and vulnerability occurring at this level may lead to scarce economic resources. However, the labor market and its forms have evolved and changed rapidly for the past decades, with the feminization of the occupation and the changes in wages (Murphy & Oesch 2016) and the occupational upgrading since 1990 is matching the educational expansion of that time (Oesch & Rodríguez Menés 2010). The latter coupled with

changes in families' structures and growing variety of households' units may lead to increasing vulnerabilities for those people living in households suffering from economic vulnerabilities inherent of their socio-economic status.

1.3.3 Subjective well-being

Researches on subjective well-being started in the early 1940s and continued until now. Scholars have shown that well-being appears to be constructed through two main aspects: in one hand the cognitive aspect and in the other hand the affective aspects (Davern et al. 2007). In fact, one can distinguish between emotions, which can be either positive or negative (affective patterns), and satisfaction with life (Diener 1984). Nowadays, it is recognized that subjective well-being corresponds to the cognitive and emotional assessment that a person makes of his or her life (which includes emotional reactions to various situations as well as cognitive assessment) (Diener 2000; Helliwell & Barrington-Leigh 2010). The literature about satisfaction with life and more generally on the subjective well-being has grown significantly since the late 1980s with the publication of numerous scientific contributions (Iglesias et al. 2015). The satisfaction with life is generally considered as a cognitive component of the more general subjective well-being (Stutzer & Frey 2010). However, in the present thesis, those aspects, both the affects (positive and negative) and the satisfaction, are considered altogether.

The subjective well-being is thus defined by the evaluation of people's general life or in specific domains. In scientific community, terms of satisfaction, happiness and subjective well-being are often used interchangeably and are all referring to subjectivity (Diener et al. 2003; Veenhoven 1993; Frey & Stutzer 2002; Michalos 1983). These terms, life satisfaction, subjective well-being or happiness, are often measured by a single general question and by supplementary questions about domains' specific satisfaction (family, leisure, work, housing, etc.) (Michalos 1983). Indicators of subjective well-being are considered as reflecting objectives conditions, expectations, aspirations, or are used as a comparison with peers such as relatives, friends or family. Well-being is a concept that relates to several domains, with important social, economic, physical, environmental and administrative issues (Paim 1995). Moreover, it worth to mention that different types of subjective well-being have been identified by the scientific community. Noll (2002) stresses the qualities of societies, as much

important factors as individual indicators. In their study, Suter and Iglesias (2005) distinguish between the individual subjective well-being (which includes personal and individual aspects of happiness) and societal well-being (the satisfaction with the social environment in a broader sense).

In general, sociodemographic characteristics are largely used in well-being analysis; however, they can barely explain its variation (Diener et al. 2003). Dolan, Peasgood, & White (2008) have reviewed the main determinants of the subjective well-being and they propose seven categories to gather them: 1) individual characteristics; 2) income; 3) socially developed characteristics; 4) social activities; 5) attitudes and beliefs; 6) social relationships and 7) environment. About those domains, and specifically to the determinants of well-being, literature provides important findings. The relation between age and subjective well-being is curvilinear (Easterlin 2002; Clark & Oswald 2006). The civil status and especially those married or in a relationship are known to report higher levels of subjective well-being whereas divorced and separated individuals tend to report lower levels of subjective well-being (Ambrey & Fleming 2014; Blanchflower & Oswald 2005). Status on the labor market is also known as an important determinant of the subjective well-being, in fact, being unemployed is importantly correlated with lower levels of well-being (Oesch & Lipps 2012; Suter et al. 2015). According to Michalos (2008), the religious status has almost no impact. Effect of education are unclear: some researches showed higher levels of education associated with higher levels of well-being (Blanchflower & Oswald 2005), but some other found a negative association between levels of education and levels of subjective well-being (Clark & Oswald 1996). The latter could be explained by people's aspirations. In fact, those with higher levels of education may expect to have better jobs and thus higher pay, and if those expectations are not fulfilled, they could report a lower level of subjective well-being. Therefore, if the subjective well-being is thought as the result of changes across the life course and expectations, adjustments made by the individuals facing their reality and their real-life evaluation, stability and security of socio-economic positions should also be taken into account (Searle 2008). Thus, contextual elements in subjective well-being and subjective evaluation should be distinguished.

International research has largely debated on the relationship between socio-economic inequalities and subjective well-being. However, only few researches have investigated changes across time, and particularly in Switzerland. Theories of adaptation allow explaining why differences in subjective well-being are occurring but

not why they are persisting (Brickman & Campbell 1971; Diener et al. 2006; Lucas et al. 2003). This led to the assumption that individual's well-being stays at a stable level, whereas individuals' reference points may change across time, periods (Helliwell & Putnam 2004; Diener et al. 2003; Frey & Stutzer 2007) or cultural contexts (Oishi et al. 1999). Some alterations to those points of reference may appear following specific events. Michalos and Kahlke (2010), underlined in their study that subjective well-being measurements are sensitive to changes of living conditions over a certain time frame and those changes may be considerable. However, in Switzerland, subjective well-being is known to remain relatively stable over time, with reference points changing over time (adaptation phenomenon) (Lucchini et al. 2014; Frey & Stutzer 2007), and when a critical event occurs, level of well-being seems to go back rapidly to its initial point. Crettaz and Suter (2013, 149) showed in their paper that the general life satisfaction is not affected by poverty-related adaptation processes, compared to other subjective indicators.

Only few analyses, using a longitudinal perspective, have been carried out to investigate changes in subjective well-being across time, in relation to the socio-economic status and the surrounding economic context (see i.e. Bachelet et al. 2019 who analyzed the sustainability of the human well-being as whole through subjective indicators). This is nevertheless fundamental when dynamics of inequalities and their respective impact on both subjective well-being and quality of life are studied. It is true that considering time allows to understand the links between social inequalities and the subjective well-being. Public policies, facing new socio-economic categories among the population, need to better understand the backgrounds of these vulnerable groups in order to better target their politics. Thus, both our second and third articles give important insights on the level of subjective well-being in Switzerland. The second paper investigates the level of self-reported satisfaction with life and its determinants for those living on the edge of poverty. Whereas the third paper considers the subjective well-being as one of the measure used to monitor the quality of life of vulnerable groups in Switzerland, during two economic recessions.

1.3.4 Quality of Life

For several years now, one can find a plethora of indexes to rank countries in terms of well-being, quality of life and social or economic progress such as the Better Life Index,

the Human Development Index, the Progress Index and many more (see Suter et al. 2015). In fact, the emergence of many indicators or indices comes from the need to both evaluate and compare countries in the frame of more and more complex economies. Following the Stiglitz-Sen-Fitoussi's report, we know that for measuring the quality of a society, one must go beyond unique, objective economic indicators and should include in the analyse subjective measurements (Stiglitz et al. 2009). Switzerland generally stands in the top five and if not in the top ten countries when it comes to quality of life or subjective well-being (Suter et al. 2015). However, only few researches have investigated the evolution of subjective well-being and its issues, especially in time of economic crisis. The third article of the present thesis follows the recommendation of mixing objective and subjective indicators, to monitor the effects on the general quality of life in the frame of two consecutives economic downturns.

Quality of life is a holistic concept that considers all important dimensions for one's life, that is to say, opportunities that a society is giving to individuals as well as one's own life circumstances. The term of quality of life has emerged during the 1960s. Both, subjective and objective aspects are at the center when coming to the quality of life as it includes objective material and non-material living conditions as well as subjective self-evaluation of these circumstances (Suter et al. 2015). According to Marginean and Balasa (2005, 33), quality of life is defined by « [...] the ensemble of elements regarding physical, economical, social, cultural, political and health situation in which people live; the content and nature of activities they carry out ; characteristics of social relationships and process they engage in, goods and services, consumption models, mode and life style ; evaluation of circumstances and activities according to their own expectations as well as subjective states of satisfaction/dissatisfaction, happiness, frustration, etc. ». Since the beginning, the use of the term 'quality of life' also referred to a political category (Noll 1999). Moreover, in some strands of research, the term quality of life is used interchangeably with the term welfare. Noll (1999) underlines the differences of uses, according to each discipline, whether quality of life is a component of welfare or a variation of it.

As mentioned previously, Switzerland is one of the best-rated country when it comes to subjective well-being or quality of life (Suter et al. 2015). In 2015, Switzerland was the country with the highest level of happiness among 156 nations, according to the World Happiness Report, which is made by the United Nations for the Sustainable

Development Solutions Network (UNSDSN). Nonetheless, as mentioned by the Swiss Social Report of 2004, an increase in social inequalities has been noticed in Switzerland. In fact, most international rankings are based on mean values of either quality of life or subjective well-being indices. However, even if those values are useful for international comparison purposes, they do not say much about the internal distribution of the level of quality of life or subjective well-being among the population, which is the aim of this thesis. Several researches are underlying increasing inequalities in domains such as health, income and education, all having an impact on subjective well-being. Our thesis and the focus of our research is thus part of this desire to explore effects of economic inequalities on a selected part of the population that is subject to greater vulnerability and insecurity. In the present thesis, our third article follows the conceptual approach of quality of life according to Fahey et al. (2003), which consists in a three points approach : 1) quality of life is a research that focuses its attention on living conditions at the individual level, using a micro perspective; 2) quality of life is an encompassing concept that includes various domains of life; 3) quality of life is measured using both subjective and objective indicators, thus it can reflect living conditions as well as the subjective well-being.

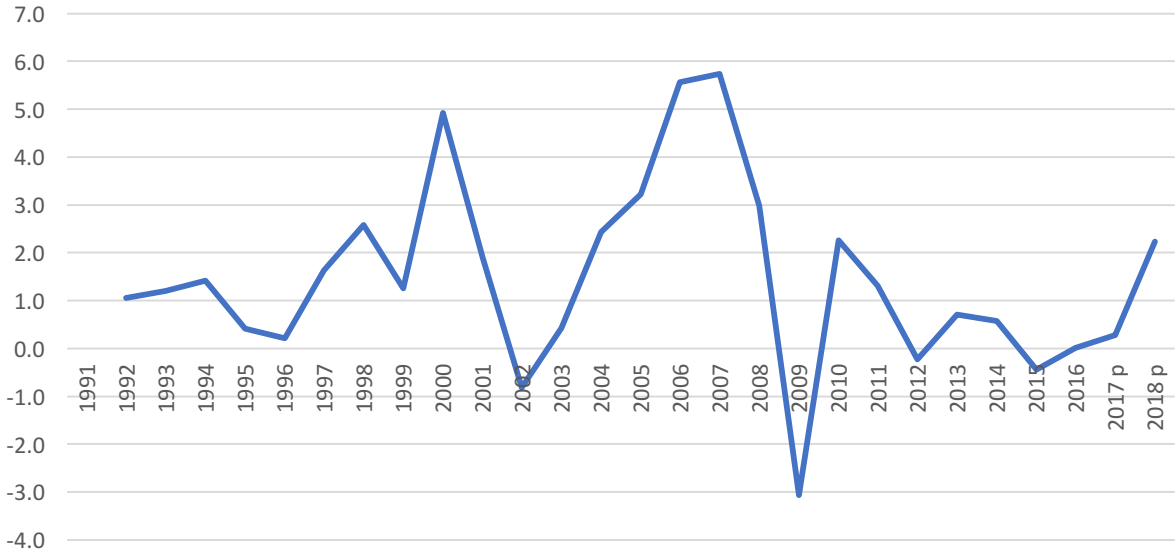
1.4 Socio-economic context in Switzerland

Switzerland, a small country in the middle of Europe but not part of the European Union, is always referred as a rich, stable and prosperous country. Nonetheless, due to its set of numerous bilateral agreements, the country is in a similar position as other European countries and similar rules apply to it (i.e. free movements of individuals, social security). However, even if it is true that this country encountered fewer external negative shocks, the world economic climate has not always been favorable. It is worth reminding that Switzerland (as well as many other countries) faced various economic crises or recessions⁵ during the last decades. First in 1991, then in 2002-2003 and the last one, the Great Recession, that occurred in 2008. Even if the last two crises had fewer impacts in Switzerland compared to the one of the early '90, it is still worth investigating their potential impacts on both the quality of life and the general subjective well-being. At first, we can expect economic recessions to have a direct impact on levels of income, poverty rate and level of unemployment. GDP is a commonly

⁵ In the present thesis both terms are used equally. A definition of economic crisis is presented in section 2.2.

accepted indicator used to monitor economic crises (Jenkins et al. 2012). Thus, Figure 1 below presents the GDP per capita in percentage change over the previous year for Switzerland, since 1991. Two deep drops can easily be observed and correspond to the negative effect of the 2002-2003 and 2009 crises using this macro measurement. The economic stagnation of the first half of the 1990s is due to the economic recession of that time, which was the deepest crisis among the three (but not analyzed in the present thesis due to a lack of information on subjective variables).

Figure 1 : GDP per capita in percentage change over previous year in Switzerland

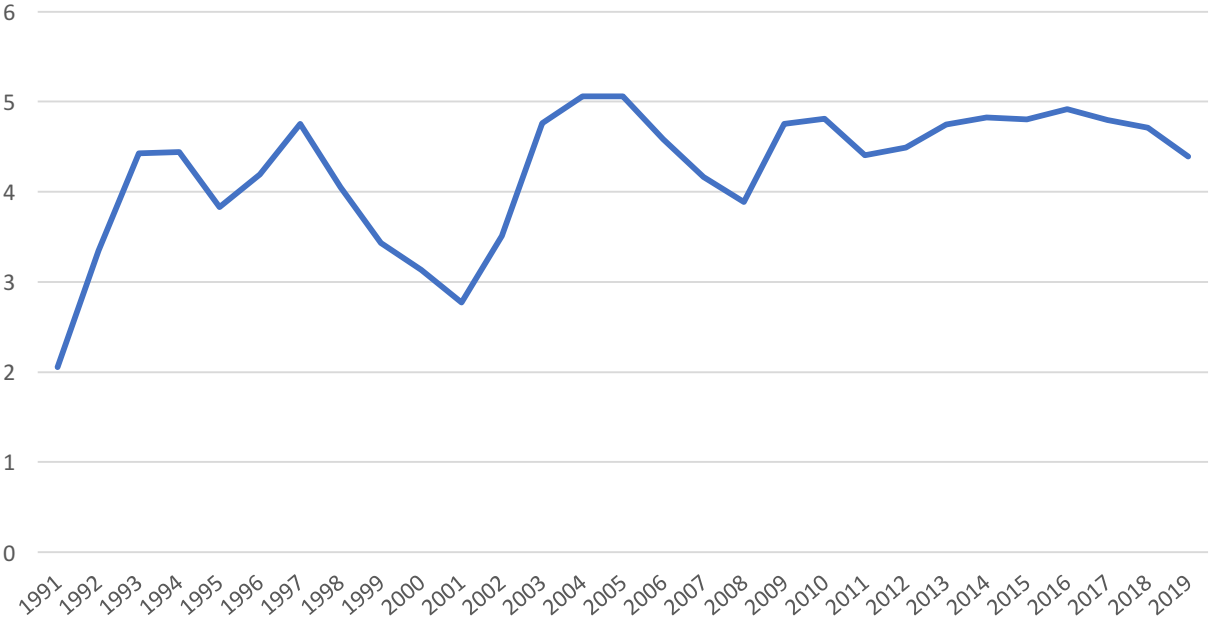


Source: SFOS (ESPOP (1991-2009), STATPOP (since 2010)) 2019. Note: p= provisional values.

Economic crises had negative repercussions on various daily aspects for the Swiss, but mainly on the labor market with a rise of unemployment (Oesch & Lipps 2012). Figure 2 below gives indications on the level of unemployment in Switzerland since 1991 onwards. The definition of unemployment is based on the definition used by the International Labor Organization (ILO), which is the following: “persons in unemployment are defined as all those of working age who were not in employment, carried out activities to seek employment during a specified recent period and were currently available to take up employment given a job opportunity.” (ILO 2019, 6). We observe three main bounces in terms of unemployment that corresponds to the various economic crises. First, the crisis of the early 1990s, then the Dot.com crisis of 2002-2003 and finally, the Great Recession in 2009. What is interesting in putting

figures 1 and 2 in perspective is that we can note a faster reaction from GDP to external negative shocks than level of unemployment, which is not surprising. Indeed, the labor markets takes more time to adapt to negative economic shocks than GDP.

Figure 2: Unemployment rate in Switzerland (ILO-based)



Source: Unemployment statistics, 1991-2019. SFOS.

These effects are not limited to the labor market and consequences of the crises have contributed to the creation of a climate of uncertainty and have had an impact on the increase of social inequalities. In a globalized and capitalist world, structures of labor markets are changing rapidly and expectations towards the employees are always rising. The Swiss labor market can be described as mainly producing goods and services on the tertiary sector, and is largely composed by small and medium sized enterprises. The economic philosophy is largely liberal, defending free-trade and competitiveness. However, Switzerland’s welfare regime cannot be defined as liberal nor conservative (Suter et al. 2015). In fact, Switzerland is a more hybrid system in the sense that it combines both liberal and conservative models. On one hand, it has an important liberal sector providing welfare, and on the other hand, it includes measures such as the conservation of low-level of unemployment and mandatory health insurance (Bonoli & Kato 2011). The government subsidizes the agriculture sector and only few others. In this context, the Swiss economy is one of the most performant in

the world, but is strongly dependent of its exportation. Switzerland is also known for its important banking sector, and its presence outside the country especially in the United States of America during the subprime Bubble could have led to severe negative economic impacts (Mombelli 2018). In fact, the country suffered from the pressure on its currency, as the Swiss Franc is a safe-haven currency. This is the reason why when economic crises hit Europe, even if Switzerland knew less direct effects, it suffered from indirect consequences such as a drop-in exportation levels (Mombelli 2018).

What economic crises underlines is that things are no longer what they used to be, and people are expected to adapt to these changes. However, all adaptations may take some time and, in some cases, it is not possible at all.

A recent publication by the SFOS (2020) showed, using EU-SILC data, that about 6.7 percent of the general population were affected by poverty according to the absolute poverty threshold, and about 9.8 percent using the relative concept of poverty, for at least one year over a four years' period (2015-2018). The latter shows that even if Switzerland has, in general, a low poverty rate, there is an existing mobility in and out of poverty. Gazareth and Suter (2010) have already highlighted in their paper, in which analyses are focused on material deprivation and risk of impoverishment in Switzerland over the period 1999 to 2007, that there is an existing "area" of vulnerability. In fact, the authors showed that an important number of people are moving in and out of material deprivation.

Following all changes on the labor market of the last decades, we testimony the increase of new social groups, as for example the working poor (Crettaz 2011) or people living in a "precarious prosperity" (Budowski et al., 2010). Even if the feeling of insecurity is inherent from deep structural changes at play for the last decades (with deindustrialization and the move towards a post-industrial society, and thus long-term ongoing processes), it is also due to specific social changes that occurred during economic crises. Indeed, during these periods individuals or households have seen their feelings of insecurity and vulnerability increased, as well as the fear to face social declassification. These phenomena have been well-described and analyzed within the contexts of social inequalities (Atkinson 2008; Salverda et al. 2009; Suter 2010; OECD 2008), social exclusion (Paugam 1996, 2005), precarity (Paugam 2000; Barbier 2005; Kraemer 2008, 2009), the working poor (Ragni, 2003; Masia & Budowski 2009; Crettaz 2011), material deprivation (Townsend 1979; Fahey et al. 2005; Boarini & Mira d'Ercole 2006; Nolan & Whelan 2010), or within the context of social vulnerability (Castel 1995;

Castel & Dörre 2009). There is room for further investigation in the frame of the economic crises of the last two decades and their effects on level of quality of life for individuals that are especially vulnerable on the labor market.

1.5 Contribution

This section presents the main contributions of each of the three articles' thesis to the literature on vulnerability to poverty, quality of life in a broad sense and the subjective well-being.

The first paper of this thesis contributes to the literature on the availability of indicators to measure people living on the edge of poverty. In fact, there is a growing interest in such groups (Hübinger 1996; Budowski et al. 2010; Watson et al. 2015). However, there is no clear definition on who those people are and how we measure them. Thus, this first contribution of the dissertation proposes four indicators of poverty, precariousness, material deprivation and vulnerability to poverty, and uses or modifies them in order to identify those vulnerable to poverty. In fact, we show that each of the four indicators allows identifying individuals who are just above the common poverty line and who are facing a downside risk. We wanted to present and compare four indicators that are, or could be used, in vulnerability to poverty approach and thus to provide new insights about this specific group of the population. There is a plethora of poverty indicators, but the most common and largely used (especially for comparison purpose) is the 'at-risk poverty', which usually corresponds to the 60 percent (or 50 percent but this cut-off was mainly used in the past) of the disposable median household income, for which the income is adjusted for the household size⁶. The main advantage of such indicator is the comparability over time and countries. However, it is more subject to median income fluctuations (Jenkins et al. 2012). The absolute poverty threshold corresponds to the minimum of income amount one needs to live a decent life. In Switzerland, such threshold is defined by the Swiss conference of social welfare institutions (SKOS). In 2018, the poverty threshold was set at 2'293 Sfrs per month for a single household and at 3'968 Sfrs per month for a household of two adults and two children (SKOS 2020). In Switzerland, this absolute threshold defines the right to benefit from social assistance or not. As a complementary measure to income-based indicator, material deprivation is another used indicator of poverty. This non-monetary

⁶ The scale is, in general, 1 for the first adult, 0.5 for another adult and 0.3 for each child (OECD 2008).

concept of poverty was initially based on a list of items commonly available to British households during the 1970s (both material and non-material) (Townsend 1979; Mack & Lansley 1985). As a commonly used measure, we now use a nine-item list based on the OECD indicator of material deprivation. Budowski et al. (2010) propose a combined approach to precariousness mixing the 60 percent median equivalized income and the material deprivation indicator. Finally, we add in this paper a measure developed by economists of the World Bank, proposing a dynamic measure of vulnerability to poverty. By doing so, we provide an interesting comparison of four measurements, each of them allowing to identify those above poverty thresholds and suffering to maintain their living conditions. Moreover, this first paper provides important information about the socio-economic characteristics of those identified as vulnerable to poverty. We are thus able to compare if there is an existing *profile* of people vulnerable to poverty using those four indicators. There is missing information about the socio-economic characteristics of people being on the edge of poverty and this paper helps fulfilling this gap. In addition to this, we can state on the number of people identified using each of the four indicators as well as overlaps between them.

The second paper presented in this thesis brings interesting insights on the level of subjective well-being of those vulnerable to poverty. The main contribution of this thesis article is twofold. First, it estimates people living on the edge of poverty using panel data from the SHP by using a dynamic measure of vulnerability to poverty and, second, it provides information about the level of satisfaction with life of those being in this vulnerable situation. This paper is also innovative in the sense that it combines two approaches that were never used together before: vulnerability to poverty and subjective well-being; and it produces interesting results. Moreover, this paper contributes to the literature on the level of subjective well-being in Switzerland for a specific group of its population. By doing so, we could show that the difference, in terms of subjective well-being, between those poor and those vulnerable to poverty is very small and thus, similar levels of reported well-being are found between the two groups. This contributes to the knowledge about the complexity of a high-income country and its population.

The third and last article of this thesis is, to our best knowledge, the only research in Switzerland that investigates the effects of two consecutive economic recessions on indicators of quality of life, both objective and subjective, for a set of vulnerable groups. By doing so, we contribute to the literature on the effects of economic crises using both

types of indicators (objective and subjective), whereas literature tends to limit its analysis to one or the other of these indicators (except Somaribba Arechavala et al. 2015 who based their analysis on 27 indicators and Gudrun Gudmundsdottir 2011). For example, objective indicators retained for analysis are mainly the poverty rate (Gábos et al. 2015), unemployment rate (Hoynes et al. 2012; Smeeding et al. 2011), material deprivation (Eurofound 2013) and a combination of poverty rate and material deprivation (Whelan & Maître 2012a, 2012b; Addabbo et al. 2012; Watson et al. 2015; Guio et al. 2016; Saltkjel & Malmberg-Heimonen 2016). On the other side, we found numerous researches investigating the effects of the economic downturns on subjective indicators and what was found is that, when objective indicators tend to highlight the negative impacts for people on the labor market and thus focus its attention on the unemployed group, subjective indicators tend to shed light on other groups of the population (Arapazi et al. 2015). Therefore, our research provides new insights on the various potential vulnerable groups among the population that may have been affected by economic crises. Conversely to existing researches which generally focus their analysis to one group (i.e. effects on the unemployed, on young adults, on families) (see Gábos et al. 2015; Bell & Blanchfower 2011; Chzen 2016), our contribution provides interesting results for several vulnerable groups during economic crises but also for the following years. The latter is another important aspect of the contribution that we make: the longitudinal aspect of the analysis. We found no research investigating the recurrent effect of economic crises (and especially those two crises that have occurred in less than a decade). Exploiting all the possibilities of panel data analysis, this third paper contributes to the literature by assessing which economic crisis hurts the most vulnerable groups, and then if groups that were negatively affected during the first crisis, were more affected by the second crisis, or if resilience effects could be notice in some cases.

2 Data and Methodology

In this section, information about the database used for the analyses and the reason behind methodological choices are given. Further details about the methodologies followed throughout the three articles of the present dissertation, as well as the definitions chosen, are also presented. We first start with the data, followed then by the definitions and the sample used and we finish with the methodological choices and the encountered limits.

2.1 Data

The Swiss Household Panel (SHP) was considered and chosen for all the analyses presented in the three papers of the present thesis. As its principal aim is to observe social changes and social dynamics of changing living conditions, this longitudinal survey perfectly suited our purpose (SHP 2018). The database is based on a very rich core questionnaire with rotating modules on specific research themes each year, such as social networks, social participation or politics. This Swiss longitudinal database contains information on both objective and subjective aspects of quality of life and thus fits the aim of this thesis, which is to define and describe those vulnerable to poverty, analyze the effects of this socio-economic position on the level of subjective well-being, and finally, to explore the effects of economic recessions on vulnerable groups of the population using quality of life indicators.

The survey started in 1999 on a yearly basis, interviewing the same individuals over time (all members of a household unit) and is based on a stratified random sample of private individuals. The sample is stratified by the seven major's geographic regions of Switzerland. Refreshment samples were added in 2004 and 2013 for two main reasons: first, to compensate the attrition phenomenon (due to deaths, migrations, drop out), and second to still be representative of the Swiss population. The Swiss Federal Office of Statistics (SHP 2018) drew all three samples. The first two samples were selected using a list of people who had telephone connection (fixed or mobile) registered in the Swiss directory. However, the third sample was not based on the telephone connection and listed all individuals living on the Swiss territory. Three important points are worth to be mentioned concerning the selection sample process, especially for the first two samples (SHP 2018). First, there is an under coverage, as

not everyone had a telephone connection at the time of the sample selection, and those in a precarious situation may thus be underrepresented. Second, some households or individuals may appear more than once in the sample if multiple telephone connections existed. This problem could not be resolved before the selection process. Third and finally, the selection of units that are not considered as the target population (such as prisons, homes, collective households or businesses). The latter has been corrected in the first wave of the panel and addresses were not used anymore (SHP 2018).

Data are collected at two different levels: at the household and individual level. Data collected at the household unit (for which one individual of reference is responding) give information about the household composition, the type and size of the accommodation, standards of living (such as possession or activities and the reasons of not possessing these items or not doing those activities (financial or other)), the financial situation of the household (both objective and subjective questions are asked), the household and the family (like the division of households chores). Data collected at the individual level refer mainly to socio-demographic characteristics, information about the family (i.e. number of children, satisfaction with the partner, the life), health and general quality of life, education, employment, income, social participation, leisure, religion, and many more. For this research, we are using information at both levels, from the household and individual questionnaires.

Another database was considered when starting this thesis, the Survey on Income and Living Conditions (SILC), which is part of a larger European survey (SILC-EU). This survey contains important and interesting variables. Unfortunately, we encountered two principal limitations: first, data collection started in 2007 onwards and thus no information was available with regards to the first economic crisis of the 2000s; second, longitudinal data were not available to researchers at the time when we started our research and thus we could not run the analyses we wanted for all three papers.

In all three articles, the sample is relatively similar. Children have been excluded from the population of analysis, and only individuals aged 18 years old and over are in the sample. As our aim is to capture the various effects of being vulnerable to poverty, it is thus related to the economic market and this is the reason why children are excluded. As the third article analyzes the effects of the economic crises on a set of vulnerable groups, we have excluded retirees of the analysis only for this specific research. In fact, pensions are not subject to be negatively impacted by economic recession as

income are. However, individuals in retirement are included in the analysis of the first and second paper, as the aim is to analyze the effect of being vulnerable to poverty, and this is related to a certain extent to the level of income.

2.2 Definitions

Economic crises

As mentioned previously, the economic crises periods have been defined for the third article, by using two economic indicators considered as good measures of economic downturns (Jenkins et al. 2012), namely the GDP per capita and the unemployment rate. Following those measurements, we can assess that the negative effects of the Dot.com Bubble occurred between 2002 and 2005 and for the Great Recession from 2009 to 2010 (see Figure 1 and Figure 2) in Switzerland.

Vulnerable groups

In this section, we present the definition of vulnerable groups we have followed for the analysis in the third paper. In fact, there is no consensus on the definition of what is vulnerability and thus of who is vulnerable and who is not. However, researchers have identified some groups that are often facing either economic or social difficulties within the society. Rumo et al. (2015) have shown in their study that migrants are a social group that is more at risk compared to nationals. This is especially true when coming to the integration on the labor market where they be expose to discrimination (Haug & Wanner 2005). In Switzerland, recent researches (see Fibbi et al. 2019; Zschirnt & Fibbi 2019) have shown that even being Swiss does not protect from discrimination if one has a family name that sounds from the Balkans, Turkey or the Middle East. Those people are therefore discriminated on the labor market and are not contacted for job interviews, even when their objective qualifications meet the job requirements.

Concerning household units with children, lone parents and large families (with three children and more) are considered as more economically vulnerable. In the first situation, it is mainly due to the dependence on one single income with no alternative. In Switzerland, large families are also more at risk of economic vulnerability according to the results presented by Guggisberg et al. (2013). The authors showed in their paper that this specific group has an above-average poverty rate. The retirees, are also considered as vulnerable and they generally have an above-average poverty rate in

Switzerland. However, this group (the retirees) is excluded from the analysis in the third paper because it is not directly concerned by economic crises as their income are not subject to changes. Unlike some other European countries, there were neither indexation of public pensions nor cuts in public pensions and the retirement age did not increase. However, they are included in the first and second paper as their socio-economic position is willing to modify their reported subjective well-being and their satisfaction with different life domains. Young people are defined as economically vulnerable due to the difficulties encountered while entering the labor market (Bell & Blanchflower 2011; Smeeding et al. 2011). This is also true for low-educated individuals, who recurrently face higher level of poverty. Bonoli (2006) defines new social risks as those risks faced by young generations, low-educated workers, single mothers and families with children in post-industrial societies. Finally, the last group considered as vulnerable to poverty in the analysis of the third paper is the solo self-employed. Leu & Burri (1997) already noted this group as vulnerable due to their specific position within the labor market. They are independent and they do not benefit from safety nets that generally covers workers on the labor market in case of unemployment.

Vulnerability to poverty

The vulnerability to poverty indicator aims to measure a specific group of the population, those who are on the edge of poverty. However, the question on how to measure those individuals is crucial. One could argue that such indicators do already exist. Indeed, measure of the “at-risk of poverty” is generally defined by the 60 percent of the median equivalent household income and is used to evaluate people that are at risk of poverty. However, it is not a dynamic measure (as it does not take into account contextual elements) such as vulnerability to poverty measurement. Moreover, it is recognized that such measure is especially useful for international comparison purpose as it is not dependent of countries-specific factors (Guggisberg et al. 2013). Moreover, this indicator is sensitive to income fluctuations and thus less reliable to a certain extent. The indicator of vulnerability does not only refer to “the risk” of falling into poverty but also includes contextual elements that define this vulnerability to fall into poverty. The methodology chosen to apply the concept of vulnerability to poverty in the first and second articles of this thesis is in line with the economic vulnerability concept, as it defines vulnerability as a lack of resources (that refer not only to income)

to face unexpected risks (López-Calva & Ortiz-Juarez 2014). In this sense, the vulnerability to poverty goes further than the relative poverty approach. Moreover, the traditional view of the concept of vulnerability to poverty specifically differentiates between people in poverty from people living just above any poverty lines. In the US literature, we can find the concept of “near-poverty”, which focuses its attention on those living near poverty, but not below official poverty thresholds (Hokayem & Heggeness 2014). In this specific case, the family income considered is between 100 and 125 percent of the poverty thresholds. Few scientific researches, apart those from the World Bank, have examined the social group living just above any poverty thresholds. Budowski et al. (2010) looked at people who are struggling to maintain a sufficient level of quality of life, and define them as those living in precarious prosperity, combining indicators of relative income (60 percent of the equivalized median income) and material deprivation. However, their indicator is applied at one point of time and only combines two indicators commonly used in poverty research, namely the relative income indicator and the material deprivation index. One could also ask about the difference between the at-risk poverty, defined by the relative income approach that correspond to the 60 percent of the median income, and the vulnerability to poverty. Do those two concepts refer to the same category? In fact, the 60 percent of the median income threshold is largely used by the international community to identify those people that are at risk of poverty. The 50 percent of the median income refers to the persistent poverty. However, it is assumed that those people living between the 60 percent and the 50 percent are already experiencing poverty to some extent. Furthermore, we think that focusing only on people ranging between the 60 and the 50 percent of the median income is too limited. Moreover, as mentioned by Gornick and Jantti (2009), the 50% threshold is mostly used by the OECD and in the Luxembourg Income Study literature and the 40% threshold is often used to capture what is referred to as ‘severe poverty’. The 60% threshold is used as the main EU-indicator of poverty. In this sense, the vulnerability to poverty is a more encompassing concept that includes other aspects of risks and vulnerabilities that may be inherent within a household or a unit. Finally, we can mention that the relative poverty approach is an ex-post measurement where the vulnerability to poverty aims to be an ex-ante measure.

The first and second articles of the present dissertation follow the methodology proposed by López-Calva & Ortiz-Juarez (2014), which is a dynamic longitudinal panel

data analysis, in order to determine the amount of household income below one is considered as vulnerable. It considers a five years' time span and includes variables of changes within the household such as the occurrence of health problem, change in the numbers of members working or change in the household size, among other variables. This method allows to define the household income associated with each level of probability to fall into poverty. It finally provides an upper threshold to define those being vulnerable to poverty and to distinguish them from those in a more secured position. As a lower threshold, we are using the absolute threshold define at the Swiss national level and set by the SKOS.

Subjective well-being

As mentioned previously, various definitions and uses of the term subjective well-being are used in the literature. However, in the present dissertation, we assume the self-reported life satisfaction question to be a good indicator of the general level of subjective well-being (Cummins 1996).

In the first paper, we use the question of the satisfaction with life in general as well as nine other questions of satisfaction with different life domains. For Cummins (1996), although the life satisfaction and the life-domain approaches are not perfectly related, they can be considered equivalent.

In our second paper, we follow the assumption made by Cummins (1996), and we consider the satisfaction with life in general as good predictor of the general subjective well-being for those vulnerable to poverty.

In the third paper, we use two subjective indicators: first, the satisfaction with life and second, the satisfaction with the financial situation, for which we think it can provide an interesting insight and complement to the more general question. This may especially be true in period of economic downturns and it may provide complementary information to income-based indicators.

Quality of life

The concept of quality of life is used only in the third paper of the present dissertation, in which we aim to monitor its level, for several vulnerable groups throughout economic crises. As mentioned in the literature review, the overall quality of life is in general measured through both objective and subjective indicators. In the case of analyzing the effects of economic downturns on the quality of life, we used four indicators:

economic well-being (being poor or not), material well-being (material deprivation), satisfaction with life and satisfaction with the financial situation. Thus, we have two objective and two subjective indicators to evaluate the quality of life for a set of vulnerable groups.

2.3 Methodological choices and limitations

The methodologies implemented in all three papers are different as all of them served different research questions. They are presented in consecutive order in the present section.

The methods used in the first paper of the dissertation are more related to the construction of the four indicators of poverty, deprivation, precariousness and vulnerability themselves. In fact, we follow methodologies commonly used for each of them and then, compare the socio-characteristics of our sample of interest, those vulnerable to poverty. However, for each indicator compared in this analysis we need to define both the upper and the lower thresholds of our vulnerable group.

For the first indicator, the relative poverty indicator, we have calculated the 60 percent of the equivalized median income as the lower threshold, which is the official relative poverty measure used by statistical and scientific institutions (Guggisberg et al. 2013). To estimate the upper threshold, we rely on the literature about middle class, and according to Atkinson & Brandolini (2011), middle class are comprised between 75 and 150 percent of the equivalized median income. For now, there is no existing method to define those vulnerable to poverty using the relative poverty approach. Nonetheless, we can argue that this group of the population is in-between those poor and those defined as middle class. However, we decide to set the upper threshold at 80 percent of the equivalized income, to also include in the estimation those people at the tail of the middle-class distribution and who may not be that comfortable. Those two thresholds, 60 and 80 percent, are also proposed by Budowski et al. (2010) when defining those in precarious prosperity.

Coming to the second indicator used in the analysis, material deprivation, the concept was first developed by Peter Townsend (1979) who distinguish income poverty from material deprivation. The latter referencing to deprivation in activities or living

conditions in the daily life. As the concept has evolved since then, we calculate the index of material deprivation based on a nine-item list:

- 1) Ability to save minimum 500 SFrs monthly
- 2) Ability to afford one-week holidays outside the house per year
- 3) Ability to eat a complete and hot meal at least every two days
- 4) Ability to go to the dentist if needed
- 5) Having a computer
- 6) Having a TV
- 7) Having a car for personal use
- 8) Having a washing machine
- 9) Ability to invite friends at least once per month

The items considered may change according to the data and the availability of items included in the datasets. It is also part of the researchers or statistical institutions, but in general, there are common items (Boarini & Mira d'Ercole 2006). We considered negative responses to the question: "do you own/possess/have the ability to...", asked for each item, only when the reason for not having it was because of financial reasons. In fact, some people may choose not to have one or the other item for other reason than financial restrictions. People are said to be deprived if they lack three or more items. However, some items may not be that relevant for such a high-income country such as Switzerland. Thus, we decided to apply what is called the prevalence weight. This weighting allows to give a deeper deprivation value if the item in question is largely spread among the overall population. Indeed, our interest is to estimate people who may feel left behind, thus estimating an index based on the prevalence weight seem to be more adequate. Moreover, Fusco et al. (2013) describe the prevalence weight as relating to the subjective perception of people. While treating the responses to the question "do you own/possess this item", we have decided to apply the weight of 0.5 (instead of a 0 or a 1) if the response was "I don't know" or if the person didn't respond. This allows us to compute, to a certain extent, people who may be ashamed of their precarious situation and thus did not respond. Crettaz and Suter (2013) showed in their paper the tendency of deprived people to avoid stigmatization and to adjust their aspirations so that they no longer mention lack of money as the cause of lack of items. Therefore, if a person cannot tell if it is because of a lack of money, it is either because

he or she is unfamiliar with the household situation (e.g., if a teenager answers), or because it is not too much to think that it is out of embarrassment or denial to talk about consequences of financial difficulties. Hence, the weight of 0.5 marks at least a slight deprivation. To estimate a lower and upper threshold (to identify those vulnerable to poverty), we standardized the index to have values ranging from 0 to 100. Observing the distribution of the data, three main blocks appeared and could match the poor, vulnerable and secured positions. The first group, ranging from 0 to 13, are those in a secured position. Then for the second group (those vulnerable), values are ranging from 0 to 30. Finally, for the poor or those materially deprived, values are ranging from 31 to 100.

The third indicator comes from the concept of precarious prosperity developed by Budowski et al. (2010) who aimed to evaluate those people in an in-between situation, people who are nor poor nor rich, but struggling to maintain their living conditions or live a decent life. Their approach is a combination of material deprivation and relative poverty. It is thus very interesting as we know that poverty is multidimensional and researchers should consider more than one indicator and go beyond only income-based indicator (Boarini & Mira d'Ercole 2006). This will also be true for analyzing people who are just above any poverty lines. According to the definition of Budowski et al. (2010), people are in precarious prosperity if they are:

- 1) Under the relative poverty line which set at the 60 percent of the equivalized disposable median income and with one or no deprivation;
- 2) Between 60 and 80 percent of the equivalized disposable median income with no deprivation;
- 3) Above 80 percent of the equivalized disposable median income but with two or more deprivations.

The same item list is used as for the material deprivation index presented previously. However, we do not apply prevalence weight to respect the definition proposed by Budowski et al. (2010). This indicator contributes to the literature by adding a new perspective in estimating people that may suffer from downward social mobility using a combined approach based on relative income and material deprivation.

The last measure used for our comparison purpose is the indicator that is used to estimate people who are vulnerable to poverty in the second paper of this dissertation.

In fact, this last measure comes from the field of economics and is mainly exploited in developing researches, especially from the World Bank. As mentioned previously in the literature review, the concept of vulnerability is closely linked to the notion of risks. In this framework, we aim to estimate the threshold under which people in Switzerland are vulnerable to poverty. To do so, we are using the approach developed by López-Calva & Ortiz-Juarez (2014). In their paper, they have developed a dynamic measure of vulnerability to poverty for the middle class in three countries of Latin America. We found their approach very interesting as they use a five years' time span to estimate a level of household income that will correspond to a probability to fall into poverty and thus of being vulnerable to poverty. By focusing our attention on people living just above a poverty line, we are thus looking at social mobility, but mainly for those who face a downward risk of their socio-economic status. Thus, we replicate the model proposed by López-Calva & Ortiz-Juarez (2014) and first, we construct poverty transition matrices to evaluate those people who are entering or exiting poverty during the five years' period analyzed. At this point, one could be interested by three different information provided by the transition matrices: first, those who remain poor during the whole period, those exiting poverty and, finally, those entering poverty. Our interest goes for the latter group. The second stage of the analysis is to estimate a logistic regression model to estimate the correlates associated with probabilities to fall into poverty over the period, which expression is written as followed:

$$P_{it} = E(\text{poor}_{it+1} | \mathbf{X}_{it}) = F(\mathbf{X}_{it} \cdot \beta_t)$$

Control variables included in the model are the general socio-characteristics included in such analysis (i.e. sex, age, level of education, civil status, region, sector of activity). However, we have replaced two control variables which were not replicable in a high-income country and thus have included two variables of the nine-item list of material deprivation (the ability to save at least 500.- Sfrs per month and the ability to go for one week holiday outside the home per year). What is interesting here is the inclusion of three variables of changes in the regression model: 1) occurrence of a health shocks (measured by a long-term health problem); 2) a change in the number of household members working; and 3) a change in the number of people living within the household. Then, we calculate averages of each independent variables for an array of probabilities to fall into poverty.

Following to this, we estimate an income regression model, which is log-scale based with the same control variable as in the logistic regression model, and which is expressed as followed:

$$\ln Y_{it0} = \alpha + \mathbf{X}_{it} \cdot \beta_t + \varepsilon_i$$

Coefficients obtained from this equation are used, as well as the averages of the independent variables, to produce a predicted income associated to each probability to fall into poverty. Following this method, we set a threshold at 20 percent of the probability to fall into poverty as the upper threshold for our vulnerable group. This corresponds to a disposable household median income of 3'121.5 Sfrs. We use the absolute threshold defined by the SKOS as the lower threshold, which is set at 2'600 Sfrs. Thus, people are considered as vulnerable to poverty, when their respective disposable household median income is ranging between 2'600 Sfrs and 3'121.5 Sfrs. Compared to other measures presented in this thesis, this approach is interesting as it uses a dynamic and longitudinal perspective. It relies on a predicted income that is set for a probability to fall into poverty according to a set of common socio-economic characteristics and includes variables of changes over a period.

The second paper of our dissertation is based on the method presented just above, the vulnerability to poverty. In fact, the indicator is used to estimate the upper threshold to distinguish those vulnerable to poverty from those in the middle class. We then estimate the subjective well-being of this group compared to other social groups of the population: the poor and those secured. We chose to apply an ordinary least square model for the estimation. Even if the dependent variable, the life satisfaction question based on a 0 to 10 scale, and thus an ordered probit model seemed to be more adequate, there is a consensus in the literature that differences between the two models are small and the OLS model is preferred (see EuroStat 2016, Ferrer-i-Carbonell & Frijters 2004, Stevenson & Wolfers 2008). This is especially true when the dependent variable had more than five categorical responses and if they are clearly ordered, which is the case with our dependent variable. The OLS model allows to quantify the significance of different determinants of the subjective well-being, here modeled through the life satisfaction question, and thus to determine which determinant is important in the subjective well-being analysis. To decide which determinants will be included in the analysis, we followed the concept of Dolan,

Peasgood and White (2008) which concept is based on seven domains: 1) individual characteristics; 2) income; 3) socially developed characteristics; 4) social activities; 5) attitudes and beliefs; 6) social relationships; and 7) environment. We included in the analysis control variables for the first six dimensions but did not control for the seventh dimension, as the analysis is at the micro level, and thus we intended not to include macro variables.

The third paper investigates effects of the two economic crises of the 2000's century on various vulnerable groups. To monitor those effects, four indicators (two objective and two subjective) were considered. First, we had to define the periods of crisis and the non-crisis periods. As not all countries were hit by the economic crises at the same time, we decided to look at the GDP and the unemployment rate, following the recommendations of Jenkins et al. (2012). Two periods were easily identifiable: the first, the Dot.com crisis, lasted from 2002 to 2005 and the second, the Great Recession, lasted from 2009 to 2010. The ILO-based unemployment rate increased by 1.6 percent between 2002 and 2005, and remained at 4.8 percent during the Great Recession (in 2008 the rate was at 3.8 percent). We observed not only the effects of the respective crisis but also the negative buffering effects of a second crisis for groups already affected during the first economic downturn. We wanted to explore the longitudinal effects of these specific economic crises. However, several issues aroused while treating the data.

First, we had to define how to treat the subjective variables, which values are ranging from 0 to 10. Following the approach proposed by Ferrer-i-Carbonell and Frijters (2004), we treated the two subjective questions (the satisfaction with life and the satisfaction with the financial situation) as cardinal and not as ordinal. Second, we had to standardized the four indicators' outcomes, so that a negative coefficient means a negative outcome. To do so, we have constructed binary regressions for the economic well-being (being poor or not) and material well-being (being materially deprived or not), and multilevel models corrected for the individual correlations. To rescale the answers, we have subtracted the mean outcome to have either positive or negative values. The model is written as followed:

$$y = c + \beta_{1,h}h + \beta_{2,h}h * t_1 + \beta_{3,h}h * t_2 + \varepsilon$$

where y is the outcome either ordinal (subjective well-being and financial security) or binary (economic poverty and material well-being). $\beta_{1,h}$ identifies the normal outcome of a vulnerable group compared to the rest of the population in periods of no economic crisis, whereas $\beta_{2,h}$ and $\beta_{3,h}$ show the effects of the first and the second crisis on the outcome variable for our selected vulnerable groups. h represents the 7 factors of vulnerability: the unemployed, the low-educated, migrants, single parents, large families, young people and the solo self-employed. t_1 and t_2 are both the two-time periods of economic recessions (the Dot.Com crisis and the Great Recession).

There is one issue with the unemployed group. As the number of unemployed people changes over time of crises, we decide to disentangle this effect of those who are changing employment status (either going unemployed or employed) from those experiencing long-term unemployment. We follow the model applied by Oesch and Lipps (2012), and use a fixed-effects model to estimate both the effects of changing employment status and the average number of years spent in unemployment. Thus, we take advantage of the panel structure of the data and apply a *hybrid* model combining fixed-effect estimators for those unemployed with random-effects estimators for the other vulnerable groups analyzed.

To monitor the negative buffering effects of the crises, we created an identifier for those households that reported either low income, high material deprivation, low subjective well-being and low financial well-being in the first crisis. Then, the sample is selected based on this identifier and we can apply the same hybrid model for the 2006-2013 period. This method allows to verify how vulnerable groups negatively affected by the first crisis fared in the following years- before, during and after the second crisis.

This method is innovative and contribute to the literature on the quality of life from longitudinal perspective.

3 Article 1: Who are those in between poverty and security? Comparing four concepts: poverty, material deprivation, precariousness and vulnerability.

Single authored-article.

3.1 Abstract

This paper aims to compare four measurements, namely of poverty, deprivation, precariousness, and vulnerability, to assess whether they are suitable to, first, identify people being vulnerable to poverty and, second, to analyze the sociodemographic characteristics of people living in this particular socio-economic position. Is there a common typology of people being vulnerable to poverty? Individuals living at top or the bottom of the income distribution are regularly studied and analyzed, but this is not the case for those in an in-between position. These four indicators are conceptually and methodologically different one from another; however, they may be suitable to identify people living above a specific poverty threshold. Indeed, each concept was initially designed to define a certain group of the population concerned by poverty or vulnerability. The main hypothesis of this paper is that only small differences in term of group composition will be observed. As the four concepts should overlap, about the same people should be included in this group. Therefore, similarities in sociodemographic characteristics within this specific group will be observed. The Swiss Household Panel (SHP) serves as database for the empirical analysis. In this paper, we run our analysis on the 2015 wave. For the construction of the fourth indicator, which is vulnerability to poverty, we will be using data from 2011 to 2015 as some variables of changes are included in the analysis.

Key Words: vulnerability to poverty, income poverty, material deprivation, precariousness, socio-demographics characteristics

3.2 Introduction

It is important to compare four different measures (some usually used for poverty analysis and some other for vulnerability research) to distinguish people living in an adjacent position and who may be moving in and out of poverty or struggling to maintain a sufficient level of resources. Indeed, research usually focuses on the top or on the bottom of the income distribution, but rarely on those in an in-between position. Despite the relative dearth of such studies, there is a growing interest in analyzing people in an “in-between” economic position, and this paper contributes by investigating and remarking on the importance of choosing carefully which indicator to use to identify this group. In fact, in time of economic uncertainty and raising economic inequalities, there is a need to know and to define the quantity of people from the lower-middle class, facing struggles to maintain a decent level of living. In his book, Chauvel (2006) already questioned the definition of the middle class as this group faced important changes since the Second World War. The Swiss Federal Office of Statistics (2016) published a report on the level of quality of life of the middle class and it showed no homogeneity among this specific social group. The Social Protestant Center (2017) reported the precariousness faced by an important proportion of people belonging to the lower part of the middle class, mentioning how heterogeneous this group is. In fact, as our group of interests is situated almost at the limit of the income distribution and even if a distinction is made between the lower and the upper middle class in empirical analyses, these two groups are generally considered to be part of a same category. Thus, this limitation does not allow specific analyses of the inherent difficulties encountered by those vulnerable to poverty.

This article is innovative in the sense that it compares four concepts and measurements commonly used in poverty and vulnerability domains, which are those of vulnerability, precariousness, deprivation, and poverty. These indicators allow the analysis of a population's specific group, but these measurements have never been compared while studying this specific position. One could argue that using a poverty indicator and changing the cut-off would be sufficient. However, we would like to show and compare in this paper that those four measurements, that are used by the scientific community, may be relevant to analyze those being vulnerable to poverty. This study sheds light on the relevance of knowing what are the impacts using these indicators and to which extent we obtain similar or dissimilar results, looking at socio-

demographic characteristics. Each of them being substantially different, but aiming at identifying the same individuals, we expect similar results in terms of group's characteristics.

The paper is structured as followed: first a theoretical framework is presented for each indicator compared in this paper. Then, the following section presents the data used in the empirical analysis as well as the methodology used to construct each indicator. The third section presents the socio-demographics characteristics of people being vulnerable to poverty according to each concept. Finally, the fourth section discuss the results and conclude.

3.3 Theoretical Framework

As previously shown (see Simona-Moussa 2020), vulnerability is not the exact same concept as poverty. It is, to a certain extent, a broader concept as it refers not only to an economic situation but more to a larger socio-economic context. In fact, in this paper, we would like to focus our attention to the different definition generally used and accepted by scientific and political communities to identify people that are “at risk of poverty” or who are “vulnerable to poverty”. There is a current growing attention to this group and despite large efforts, there is no consensus on how to measure and identify people at the edge of poverty thresholds. Thus, we are reviewing and comparing four different indicators, some used specifically for vulnerability to poverty and some generally used in poverty analysis.

In this section, we will present briefly each of the four indicators, starting with the monetary poverty approach, then reviewing the material deprivation index, the precarious prosperity concept, to conclude with the concept of vulnerability to poverty.

3.3.1 Monetary Poverty

First, the relative income approach, called the “at-risk-of-poverty rate”, is the main poverty indicator used by the European Union (EU). It estimates people being poor as the share of population living in households where the equivalized disposable income⁷ is below the threshold of 60 percent of the national equivalized median income after

⁷ The equivalized household size is calculated by applying the following weights: the first adult member of the household is weighted by 1. Every following adult receives a weight of 0,5 and children until 13 years of age receive the weight of 0,3 each (Eurostat 2013).

social transfers (Eurostat 2013). Major authors and a large part of poverty analysts agree on the fact that the objectivity of relative measurements fits better comparative approaches. Certainly, this measurement presents two main advantages: first, it is easily calculable and data are often available; second, it allows comparison across countries. Atkinson (1991), in his paper, compares methods used in poverty studies realized in different OECD⁸ countries. He observes that poverty analysis in advanced countries is more based on income than on consumption. This choice is made primarily because income better represents living standards, although it can understate (people can borrow or apply some economies of scale) or overstate (when money is not sufficient to buy something or goods are not available) the real level of living. Secondly, income is a preferable indicator of economic resources than consumption: if the latter reflects a household's choice and behaviors, income is an objective measure of opportunities not influenced by individuals' decisions. However, even if this indicator is still largely used, scholars have clearly showed that it could not represent all aspects of poverty, as the latter is multidimensional (Alkire & Foster 2011).

3.3.2 Material Deprivation

As previously said, several criticisms are addressed to use only income as a measure of poverty. Using a monetary approach does reflect enforced lack of access to resources required to enjoy a good standard of living and to be able to participate in societies in which people live. The relative deprivation approach is thus a non-monetary concept of poverty, and was initially based on a list of items commonly available to British households during the 1970s (both material and non-material) (Townsend 1979; Mack & Lansley 1985).

Since then, this measure has been widely used but has also been evolving. In fact, several studies have dealt with the improvement of measurement, of item list, of choices of domains, of construction of indexes and on weighting (Halleröd 1994, 1995; Boarini & Mira d'Ecole 2006; Eroğlu 2007; Nolan & Whelan 2010). A common nine-item list is used and accepted by the European community. It is a useful indicator, which enables comparison among countries. Some criticisms emerge however about the accuracy of the item list, which seems no longer to fit the western European

⁸ The countries used for the international comparison of poverty rates are Great Britain, France, Germany, Ireland, Finland, Sweden, United States, Canada, Australia and Greece. They cover a period from 1959 to 1987 (Atkinson 1991).

societies. Some studies showed that the defined threshold, set at a lack of three items out of nine to define those suffering deprivation, is arbitrary (Babones et al. 2015). Recently, the EU as well as the Swiss statistics often use a combination of poverty based indicators (such as the median household income) and material deprivation indicators (SFOS 2016).

3.3.3 Precarious Prosperity

Hübinger (1996) was the first author to introduce the precarious prosperity concept, as referring to a specific structural position. Following his definition, Farago and al. (2005) have identified in their study a part of the Swiss population living just above or around the Swiss poverty threshold. The precarious prosperity concept has been developed by Swiss sociologists and refers to the analysis of a group that is in-between the poor and the non-poor (Budowski et al. 2010; Amacker et al. 2011). The precarious prosperity concept aims therefore at identifying people living above or adjacent to a poverty threshold, and has been developed for comparison purposes. Amacker et al. (2008) argue in their paper that the concept of precarious prosperity is different from other concepts, such as social exclusion, vulnerability, marginality, underclass, and culture of poverty (Amacker et al. 2008). Compared to those concepts, the concept of precarious prosperity relates to economic deregulation and to insecure forms of labor that may lead to poverty. This conceptualization is an inclusive measure of people being vulnerable to poverty, as it combined measures of both income and material deprivation.

3.3.4 Vulnerability to Poverty

This last concept retained for the empirical analysis is mainly developed by economists from the World Bank, but it is now expanding to other scientific domains (see Simona-Moussa 2020 for a complete review). This concept is based on a longitudinal perspective, assuming that some changes occurring within a household, for a period of time, may lead the whole unit in or out of poverty. In fact, following the methodology used by López-Calva and Ortiz-Suarez (2014), one is able to identify the monetary threshold that separate those belonging to the *middle class* and those who are *vulnerable to poverty*. Based on a five years' period, it is possible to determinate the predicted income associated to each probability to fall into poverty.

3.4 Data and Methodology

3.4.1 Data

The Swiss Household Panel (SHP) serves as database for the empirical analysis. The SHP is a longitudinal survey that started in 1999, in which people participate every consecutive year. Panel data have both advantages and disadvantages: on the one hand it allows longitudinal analysis, which is useful to capture dynamic changes over time and, on the other hand, panel surveys usually face a phenomenon called attrition, meaning that the panel is losing people every year (due to mortality, people changing address and people who stop responding to the questionnaire). In this paper, we run our analysis on the 2015 wave. For the construction of the fourth indicator, the vulnerability to poverty, we will be using data from 2011 to 2015. The 2015 sample represents 10'346 individuals and 4'369 households. This paper focuses, as mentioned previously, on four specific measurements: 1) the relative poverty; 2) the material deprivation; 3) the precarious prosperity; and 4) the vulnerability to poverty. All indicators presented in this paper are calculated at the household level and are applied to all household members. We present descriptive socio-demographic characteristics about people being vulnerable according each concept and perform correlation tests by measuring the association of being vulnerable with several domains of quality of life (only with subjective variables). In this section, we start by presenting the methodology followed for the construction of each of the four indicators of vulnerability.

3.4.2 Indicators Methodologies

3.4.2.1 Monetary poverty

The relative income poverty, which is the first measure compared, needs two thresholds to identify the vulnerable population. The lower cut point is the 60 percent of the equivalized disposable median income (according to the OECD (Eurostat 2013) and the Swiss Federal Office of Statistics (SFOS 2014)) and, in order to identify the population we are interested in, which is people being vulnerable to poverty, we need to set an upper threshold to distinguish them from those in a secured position. Several studies discuss thresholds to distinguish people being a) in severe poverty; b) those in relative poverty; c) those in poverty; d) people who are associated to the middle class;

and e) those who are rich (Budowski et al. 2010; Atkinson & Brandolini 2011). According to Atkinson & Brandolini (2011), middle classes are comprised between 75 and 150 percent of the equivalized disposable median income. As people being in vulnerability are conceptually between the middle class and those in poverty, we set an upper threshold at 80 percent, in order to capture people being at the bottom of the middle class and who might be struggling. Therefore, by definition, people being vulnerable to poverty are those having an equivalized disposable median income between 60 and 80 percent.

3.4.2.2 Material Deprivation

The measurement of material deprivation has been regularly on the agenda of the European Union. In 2009, an agreement on two indicators (the material deprivation index based on the nine-item list and the intensity of the deprivation), originally proposed by Guio (2009), was found. This list is based on various items and, for each item, a question is asked if the household possesses it. In case it does not, it is asked if financial reasons are the cause. The material deprivation index is based on a nine-item list according to Eurostat⁹. However, by using the Swiss Household Panel Data, we do not have access to the exact same variables as in EU-SILC (European Survey on Income and Living Conditions). Therefore, we keep the nine-item list but replace three unavailable items with other items found to be used in a Swiss study on material deprivation (Gazareth & Suter 2010). Each question of possession or ability is asked to each household. In the case one's answer is no, it will be asked if it is because of financial reasons or for other reasons. Indeed, not everyone may want to have a TV at home or a washing machine if there is one in the building where they live. The items list considered here is the following:

- 1) Ability to save minimum 500 SFrs monthly
- 2) Ability to afford one-week holidays outside the house per year
- 3) Ability to eat a complete and hot meal at least every two days
- 4) Ability to go to the dentist if needed
- 5) Having a computer

⁹ See Appendix 1.

- 6) Having a TV
- 7) Having a car for personal use
- 8) Having a washing machine
- 9) Ability to invite friends at least once per month

Households are said to be deprived if they are missing at least three items, and are in severe deprivation if they are missing four or more items. However, instead of measuring simple material deprivation, we applied a social prevalence weight to each item. The prevalence weight is calculated by the prevalence of each item among the population analyzed, on a country-basis. Indeed, it suggests that if an item is widely spread among the population, people lacking this item will feel more deprived than if they lack an item possessed only by a small percentage of the population; we attribute therefore more weight to items possessed by almost everyone in the country (Willits 2006; Whelan & Maître 2010). The use of weighting depends on the question addressed by the research, consensual weight looking at “absolute” differences in living standards, while prevalence weight is used when looking at “relative” differences. In this paper, we apply prevalence weight to our list of items as it is related to subjective perception of the population (Fusco et al. 2013). This means that importance is given to items that are in this case widely spread among the Swiss population.

We applied a weight of 0.5 to households that have answered: “I do not know” or to those having not responded. Some households may be ashamed to recognize their financial struggle and might not respond. The index is then standardized in order to have values ranging from 0 to 100. Looking at the distribution of the index, three main blocks appear (see Appendix 2). This help to determine the thresholds to distinguished people from being in a secured position from those who are vulnerable and those who are deprived. The first group ranges from 0 to 13 and corresponds to people being in a secured position. The second category ranges from 14 to 30 and this group is the category of vulnerable people. Finally, the last group ranges from 31 to 100 and refers to those who are affected by deprivation and therefore poverty.

3.4.2.3 Precarious Prosperity

For the measurement of people living in a precarious prosperity, we follow the definition adopted by Budowski et al. (2010). Three definitions are used to identify people in an

in-between position: 1) people under the relative poverty line set at the 60% of the equivalized disposable median income and with one or no deprivation; 2) individuals between 60 and 80% of the equivalized disposable median income and who have no deprivation; and 3) people with more than 80% of the equivalized disposable median income but with two or more deprivations. Deprivation is measured according to the same item list presented for the material deprivation and follows an identical construction, meaning we only consider items not possessed because of financial reasons. However, we do not apply any weight here.

3.4.2.4 Vulnerability to Poverty

This measurement was first introduced by López-Calva and Ortiz-Suarez (2014) to explore the vulnerability to poverty of the middle class of three Latin American countries (Chile, Mexico and Peru) and was taken up by Simona-Moussa (2020) for her analysis of people vulnerable to poverty in Switzerland. For a detailed methodology see Simona-Moussa (2020) and López-Calva and Ortiz-Suarez (2014). This method estimates the predicted income for each probability to fall into poverty, using coefficients from an income equation as well as averages of independent variables. The threshold is set at 20 percent of the probability to fall into poverty and thus absolute thresholds are set at 3'121.5 Sfrs. Using the SKOS definition to set the lower threshold (or the absolute poverty threshold), we consider people being vulnerable to poverty that have a household disposable median income ranging from 2'600 Sfrs to 3'121.5 Sfrs (at the individual level) (Simona-Moussa 2020).

3.5 Measures comparison

Table 2 below presents the population structure according to three categories (secured, vulnerable and affected by poverty) and for each indicator in wave 2015 of the SHP. Being in a secured position is relatively consistent among the four measures; around 70 percent of the Swiss population is in this category, with a peak at 80 percent using the vulnerability to poverty approach. Dissimilarities occur when observing the two other categories. Indeed, the part of the population being vulnerable to poverty varies from 7 percent according to the vulnerability to poverty concept, to about 25 percent according to the precarious prosperity measurement. This is a first important point: by choosing one or the other measurement, the rate of people considered

vulnerable to poverty increases or decreases by almost three times. This may have a serious impact on political debates and thus, one should be cautious while using one or the other indicator. Dissimilarities also occur for the affected category. The highest proportion of the population being in poverty is observed with the relative poverty indicator (more than 12 percent), then respectively lower proportions with the vulnerability to poverty measure, the material deprivation index, and finally, the precarious prosperity indicator. Therefore, the part of the population being vulnerable is higher when using indicators accounting for material deprivation.

Table 2: The structure of the population according to the four measures

Categories	Secured	Vulnerable position	Affected	Total
Relative Poverty	73.8%	13.6%	12.6%	100%
Material Deprivation	71.1%	20.5%	8.4%	100%
Precarious Prosperity	71.1%	25.3%	3.6%	100%
Vulnerability to Poverty	81%	7.2%	11.8%	100%

Source: SHP, 2015. Data are weighted.

Table 3 below is interesting as it presents different overlaps between the various indicators used to identify those vulnerable. One of the first point, which worth to be mentioned, is the fact that all individuals identified using the relative poverty approach are also considered as vulnerable with the precarious prosperity concept. This is not surprising as in the indicator’s construction itself, it uses between 60 and 80 percent of the equivalized disposable median income. About half of the people considered as vulnerable by the relative poverty approach are also considered as such by the vulnerability to poverty indicator; or we can say the other way around: about all the people identify by the vulnerability to poverty approach are also identify by the relative poverty approach. This is even more true while looking at the overlap between the vulnerability to poverty and the precarious prosperity concepts. However, only a third

of to those being in a vulnerable position according the relative to poverty indicator are also identified with the material deprivation indicator.

Table 3: Overlaps of the different indicators for those in a vulnerable position

Concepts	Relative Poverty	Material Deprivation	Precarious Prosperity	Vulnerability to Poverty
Relative Poverty	1'409	425	1'409	658
Material Deprivation	-	2'095	924	248
Precarious Prosperity	-	-	2'609	730
Vulnerability to Poverty	-	-	-	743

Source: SHP, 2015.

Table 4 bellows presents the different socio-demographic characteristics of those in a vulnerable position for each indicator compared in this paper.

First, we can say that there are more women likely to be in that specific position compared to men, especially using the precarious prosperity concept (29 percent of women are said to be vulnerable using the latter approach). This could be because women are in general less paid than men, or they do participate more in unpaid jobs. However, as the proportion is bigger when using methods that are not only income-based, we can say that this point would benefit further research.

An interesting point is the variable age. For all four indicators, namely the relative poverty, material deprivation, precarious prosperity, and vulnerability to poverty, looking at those aged 65 years old, we can observe that percentages of people being vulnerable are more important in this category than for any other age groups. This gives an important information: older people are more prone to suffer from vulnerability to poverty compared to those younger for all four indicators. Among those aged 65 and over, 41 percent are considered as vulnerable using the precarious prosperity concept, 29 percent using the material deprivation approach, about 18 percent with the relative poverty and about 11 percent with the vulnerability to poverty approach. Another

interesting aspect while observing how each age groups are represented while considering vulnerability is that, for age groups using the precarious prosperity and the vulnerability to poverty concepts, a u-shaped distribution is observed. A similar pattern is observed using the relative poverty approach, but it is less marked. This potentially means that people are more concerned with vulnerability at younger and older age. This may be explained by the fact that young people are starting their personal life, both personal and professional, and this might be linked to uncertainty. For older people, their life is also changing as they exit the labor market and are more likely to face death of relatives. Conversely, in the distribution of age groups using material deprivation, a sinusoidal distribution is observed. Among those aged less than 25 years old, almost 20 percent and 27 percent are considered as vulnerable when using the material deprivation and the precarious prosperity concepts, 17 percent using the relative poverty approach and “only” 8 percent using the vulnerability to poverty approach. For both age groups, the 25-39 years old and the 50-64 years old, more than one people out of four is considered as vulnerable while using the precarious prosperity concept. Among the 40-49 years old group, it is by using the material deprivation concept that about 19 percent of those people are defined as vulnerable.

Unsurprisingly, bigger proportions of the population are considered as vulnerable among those having a primary education compared to those having a secondary education. For those having a primary education, about 9 percent of them are considered as vulnerable by using the vulnerability to poverty, 18 percent by using the relative poverty, 27 percent with the material deprivation and almost 40 percent with the precarious prosperity measure. Again, there is a large difference while using one method or the other in term of proportion of people belonging to those vulnerable. Values are ranging in the same order for people having a secondary education (less people are in the vulnerable category using the vulnerability to poverty approach and the biggest proportion is found using the precarious prosperity). For those people having a tertiary education, less people are recognized as vulnerable when using all four measures compared to those having a primary or secondary education. Values are ranging from 4 to 15 percent (first by using the vulnerability to poverty, then the relative poverty, the precarious prosperity and, finally, the material deprivation). A decline is therefore observed while observing education levels, which seems to mean that a higher level of training protects from vulnerability.

Looking at household types categories, we can note that, in general, more people are considered in a vulnerable position when they are either single parent or a couple with 2 dependents children. Single households have also a high proportion of people being vulnerable to poverty, and especially women. One possible explanation would be that women have a higher life expectancy, and thus they are more likely to live alone. No important difference in term of proportion of the population between couples without children and those having one child is observed.

Finally, the activity status comes to reinforce what have been previously noted. Those inactive in the labor market and those retired have higher proportions of vulnerable people than those in the labor market groups. About 42 percent of the retirees are considered as vulnerable when using the precarious prosperity measure, about 31 percent with the material deprivation, 18 percent when using the relative poverty and 10 percent with the vulnerability to poverty. For the inactive group, almost one third is categorized as being vulnerable if using the precarious prosperity indicator and 23 percent with material deprivation. This is in line with the inherent vulnerability of those who are not participating in the labor market, and thus may be excluded at various levels, such as economically and socially. A last interesting point is when considering those employed: when using either the material deprivation or the precarious prosperity measures, we find respectively 21 and 19 percent of this group that are vulnerable, whereas using the relative poverty and the vulnerability to poverty “only” 12 and 6 percent of this group are considered as vulnerable.

Observing those four indicators and the socio-demographics characteristics below, we can say that for each socio-demographic characteristic, the proportion of vulnerable is found to be more important first when using the precarious prosperity, second the material deprivation, third the relative poverty and fourth the vulnerability to poverty (with a single exception for the couple with 2 dependents).

Table 4: Socio-demographic characteristics of those vulnerable to poverty

	Relative Poverty	Material Deprivation	Precarious Prosperity	Vulnerability to Poverty
Sex:				
Women	14.93	22.81	29.32	8.15

Men	12.23	18.22	21.32	6.23
Age Groups:				
Less than 25	16.56	19.70	27.48	8.10
25-39	12.58	16.55	20.97	6.37
40-49	11.38	19.14	17.66	4.89
50-64	11.00	17.61	20.84	6.32
65 and more	18.15	29.41	40.58	10.61
Nationality:				
Swiss only	12.55	20.33	23.70	6.61
Mixed Nationality	19.19	21.06	30.2	9.23
Foreigners only	13.25	20.97	28.62	8.06
Educational level:				
Primary	17.98	27.39	39.60	9.48
Secondary	16.16	22.29	28.93	9.07
Tertiary	8.15	14.91	13.73	3.70
Household type:				
Single man	8.00	18.84	16.65	4.29
Single women	14.30	26.66	35.98	10.12
Couple without children	13.58	19.07	23.20	6.38
Couple with 1 dependent	12.53	19.44	23.18	3.83
Couple with 2 dependents	21.66	7.66	33.26	16.54
Couple with 3+ dependents ¹⁰	-	-	-	-
Single parent	21.34	28.86	33.44	7.91
Other households	15.72	19.45	24.61	7.77

¹⁰ The number of vulnerable household composed of a couple with 3+ dependents is too low (about 20 cases) and thus results are not presented here.

Activity Status:				
Employed	12.32	20.60	18.87	6.62
Inactive	17.91	22.82	32.96	10.32
Retired	18.25	30.75	42.00	10.46
Active, details unknown	11.18	16.48	18.72	5.44

Source: SHP, 2015. Data are weighted.

We want now to test how these four indicators interact with subjective indicators. Indeed, we consider these four indicators as potential measures of people being vulnerable to poverty. Thus, as each indicator are expected to identify similar individuals, we would like to test the correlation between being in this specific socio-economic position for each indicator with a set of subjective variables that are available in the SHP data. In fact, previous researches have shown that subjective well-being is dependent of the number of people sharing similar conditions, following this assumption we should observed similar results among the four compared indicators and thus see if this specific position is correlated with various subjective well-being variables (Simona-Moussa & Ravazzini 2019; Clark et al. 2010).

Below, in table 5, are illustrated the results of the Spearman correlation test¹¹ we run, as sensitive tests. Generally, we can say that we observe no relationship between the subjective variables (all of them measured by a scale ranging from 0 to 10, 0 meaning not satisfy at all and 10 completely satisfied) and the four related measures of vulnerability (0 equals to not being vulnerable to poverty and 1 meaning to belong to the latter category). However, regarding the relationship between satisfaction with the financial situation of the household, satisfaction with financial situation (at an individual level) and the four concepts, we can note that there is a moderate negative correlation while using the material deprivation and the precarious prosperity measures, whereas the coefficients for the relative poverty and the vulnerability are too small and suggest no relationship at all between the two variables. Here, the negative correlation suggests that people reporting a higher satisfaction are those in the category of people not being vulnerable to poverty. It is interesting that a negative correlation is found for

¹¹ The non-parametric test, Spearman correlation, is used here as all subjective variables are ordinals.

the two concepts that include material deprivation and not for concepts using income while looking at the satisfaction with the financial situation. This point can suggest that being materially deprived, because of financial reasons, have a stronger impact on the level of satisfaction compare to those who “only” have a lower income.

Table 5: Correlation tests with subjective variables

	Relative Poverty	Material Deprivation	Precarious Prosperity	Vulnerability to Poverty
Satisfaction with financial situation of household	-0.1155***	-0.2875***	-0.2045***	-0.0933***
Satisfaction with accommodation	-0.0342**	-0.0771***	-0.0299**	-0.0258**
Satisfaction with free time	0.0606***	0.0049	0.0990***	0.0443***
Satisfaction with leisure	0.0234*	-0.0141	0.0232*	0.0132
Satisfaction with health	-0.0183	-0.0527***	-0.0268**	-0.0153
Satisfaction with life	-0.0317**	-0.0938***	-0.0606***	-0.0278**
Satisfaction with financial situation	-0.0743***	-0.2041***	-0.1480***	-0.0776***
General trust in people	-0.0454***	-0.0651***	-0.0934***	-0.0410***
Satisfaction with personal relationship	-0.0003	-0.0112	0.0189	0.0061
Satisfaction with job in general	-0.0729***	-0.1159***	-0.01758***	-0.0566***

Note: the reference group is those in a secured position. Data: SHP, 2015.

3.6 Concluding remarks

This paper investigates the following four indicators of poverty, material deprivation, precariousness and vulnerability, to see whether they could be used for vulnerability to poverty analysis. Then, it compares the socio-demographic characteristics of people being vulnerable according to each of the four indicators. Finally, we test the possible correlation of belonging to this specific socio-economic group with several subjective variables and to see whether each of the four indicators react similarly or not.

This paper showed three main results. First, we could show that even if not initially designed to identify people being vulnerable to poverty (three out of the four compared measures), this is possible and it give interesting results. For the relative poverty and material deprivation measures, we kept the defined thresholds to distinguish those in poverty from those not poor, but we had to set a new upper threshold to distinguish those vulnerable to poverty from those in the middle class. Then, for the vulnerability to poverty indicator, we simply adopted the thresholds proposed by Simona-Moussa (2020). Finally, the precarious prosperity is designed to identify being vulnerable and we followed their definition.

Second, socio-demographic characteristics showed important information. Women are more vulnerable to poverty compared to men, using the four indicators. Then, people aged less than 25 years old, as well as people aged 65 and over, report important proportion of people being vulnerable compared to other age groups. These interesting results were even more marked while considering the precarious prosperity and material deprivation indicators. This is consistent with the general literature on combining indicators to have a better picture of vulnerability to poverty (like poverty which is assumed to be multidimensional and not relying on a single indicator of poverty) (Alkire & Foster 2011). Furthermore, those two indicators give avenues for further research as it seems that age seems to be an important factor of vulnerability (such as marriage, having children, entering or retiring from the labor market). Information about the household type, the activity status and the education level go on the same direction as the age groups. People holding a primary diploma, as well as single unit, couple with 2 children or single parents and people being either inactive or retired have the highest proportions of people being vulnerable. Even if similarities appeared throughout the four indicators, we also observed important differences and we cannot say that they are identifying the same individuals at that point. There are

some similarities and dissimilarities, however, we can note that the precarious prosperity and the material deprivation concepts are close concepts and provide similar results for the distribution of the population being vulnerable to poverty.

Third and last, when estimating correlation test between the four indicators with a set of subjective variables to investigate if they react in the same way or not, we could see that correlations for almost all subjective variables were relatively the same among the four indicators, except for two of them. Indeed, we found the two variables *satisfaction with the financial situation of household* as well as *satisfaction with financial situation*, the latter being at the individual level, to report moderate negative correlations with all four indicators. The negative correlation was deeper for both subjective variables with indicators accounting for material deprivation, thus the material deprivation index and the precarious prosperity.

To conclude, we can say that this paper shed light on the available indicators to estimate people being on the edge of poverty and who may suffer to maintain decent living conditions. Each of the four indicators allows to estimate such socio-economic groups. However, dissimilarities were found when observing the number of people identified by using each of the four indicators, the socio-demographic characteristics of the group and the correlation with subjective variables, thus one could not consider them as equivalent. Precarious prosperity and material deprivation indicators seemed to be more sensitive estimators of people being vulnerable than the relative poverty and the vulnerability to poverty measures.

4 Article 2: The Subjective Well-being of those Vulnerable to Poverty in Switzerland

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4.1 Abstract

This paper aims to examine the impact of being in a specific economic position, namely, being vulnerable to poverty, on people's level of subjective well-being. Research usually focus on the top or at the bottom of the income distribution, but rarely on those in an in-between position. While the concept of poverty has been widely explored and analyzed, people being vulnerable to poverty and who are struggling to maintain a certain standard of living are often neglected. This fact is probably due to the heterogeneous definition of those being vulnerable or the concept of vulnerability itself. Following the vulnerability to poverty approach, this paper estimates the effect of being in this adjacent position on the level of subjective well-being. The main hypothesis is that, people being vulnerable will report a lower level of subjective well-being compared to those in a secured position, but will be better off compared to those in poverty. Results do confirm our hypothesis, as the level of self-reported satisfaction with life is lower than the reference group for those being vulnerable to poverty, but not compared to those in poverty. However, the difference between the two groups is very small and tend to indicate similar subjective well-being. This result raise several questions and may translate how people being vulnerable to poverty feel left behind.

Key Words: subjective well-being; vulnerability; vulnerability to poverty; determinants

4.2 Introduction

Switzerland is known as a country with a high level of quality of life and economic resources. According to the last World Happiness Report (Helliwell et al. 2017), Switzerland stands at the fourth position (Norway, Denmark and Iceland being the top three) which gives a clear picture of the level of well-being in this country. Thus, one could ask why is it interesting to study vulnerability to poverty in such a high-income country. This is because we are strongly convinced that in such a country, being vulnerable to poverty may be even harder to live compare to those in poverty with regards to subjective well-being, people may feel left behind. In fact, even if Swiss people usually enjoy a high level of both, objective and subjective well-being, people experiencing financial vulnerability without being poor always existed. If their number can be considered as low, compared to other European countries, with the economical context of the past decade and its economic crises, we can expect people experiencing a decrease of their living conditions and who are struggling to maintain a decent life, to grow. In general, social public policies usually set measures to help those who are at the bottom of the income distribution and use absolute income threshold to decide who may receive benefits or not (they use a monetary poverty approach). Financial help through social assistance is the most common help provided to those in poverty in Switzerland. It can pay for health insurance (which costs are high), shelter, electricity bill, basic needs, and so on, but more material help can also be given such as food or clothes provision. Every poverty approaches, by definition, target those people who are in need but exclude people who are just above the poverty line and who are struggling to maintain a decent life. Here, we focus on this specific group, those who are not poor, and thus not target by public policies, but who are vulnerable. But vulnerable in which sense? In this paper, we will focus our attention to the vulnerability to poverty, or in other words, we will examine people that may potentially fall into poverty.

This paper analyzes the impact of being vulnerable to poverty on people's level of subjective well-being in Switzerland. There is important research on the top or the bottom of the income distribution, but there is lacking research on those people belonging to the lower middle class, being vulnerable to poverty, and who are in an

adjacent position¹². Moreover, the subjective well-being (which is a subjective measure) of those vulnerable people is of first concern, as it gives a different and complementary insight to objective indicators, and it is important to illustrate how this group stands compare to those in the middle class (from which they belong until now), in a secured position or those in poverty. The aim of this paper is twofold, first, to illustrate the part of the Swiss population that is vulnerable to poverty, and second to analyze their level of subjective well-being. Despite the relative dearth of such studies, there is a growing interest in analyzing people in an “in-between” economic position (see Tillman et al. 2016), and this paper contributes to the literature by investigating the level of subjective well-being of those being vulnerable to poverty in Switzerland. This paper is innovative in the sense that it combines two concepts, first the vulnerability to poverty, which is a dynamic and longitudinal concept, and second, the subjective well-being. To our best knowledge, there is no existing research that uses these two concepts altogether. This study sheds light on the relevance of studying this specific group and their self-reported satisfaction.

In the second part of the introduction a short overview on the concept of vulnerability is presented, followed by the concept of subjective well-being and its relevance in vulnerability to poverty measurement. The second section presents the data used in the empirical analysis as well as the methodology followed. The third section presents descriptive statistics as well as the multivariate results and finally, the fourth section concludes.

4.2.1 What is vulnerability?

“Vulnerability, though, is not the same as poverty. It means not lack or want, but, defencelessness, insecurity, and exposure to risk, shocks and stress.” (Chambers 2006, 1).

The term vulnerability is polysemous as it is used in various disciplines. It appears mainly in the 1970s in psychology, psychiatry, pediatrics, and psychoanalysis as well as in geriatrics as a synonym of frailty. Its large diffusion in scientific articles during the 1980s was always associated to the term resiliency. Then, in the 1990s the term

¹² The only research to our best knowledge is the one conducted by Tillman et al. (2016), in which the relationship between the subjective well-being and a precarious situation (characterized by either income or material deprivation) is analyzed. Our study is different from theirs because we are using a longitudinal perspective in the construction of the vulnerability to poverty index which is dynamic. Our approach is more focused as we consider vulnerability as a process.

vulnerability was widely spread and used by researchers from different disciplines (Thomas 2008; Brodiez-Dolino et al. 2014). Even if there is no consensus on the definition of vulnerability among disciplines, the frequency of use of the term reflects a common need of a word to express situations and experiences where fragility is an important notion.

Following the WDR of 2001, the World Bank started to investigate research on vulnerability to poverty as an extension of their poverty measurement. Indeed, this approach allows observing (when using poverty measures) an *ex-ante* situation instead of an *ex-post* one, where all the uncertainty has been resolved (Calvo & Dercon 2005; Holzmann 2001). It measures the probability of falling into poverty in the future instead of measuring one that fell under a poverty threshold in the past. Therefore, it allows public policies and international organizations to have a relevant overview of what could be seen as a vulnerable position. The importance of *ex-ante* measures, in order to capture households or individuals being vulnerable to poverty, is strongly developed in economic measurement. There are three main approaches of vulnerability to poverty measures: 1) vulnerability as expected poverty, 2) vulnerability as low expected utility, and 3) vulnerability as uninsured exposure to risk (Hoogeveen et al. 2005). Methodological issues in measuring vulnerability to poverty is widely discussed in the literature and led to several approaches being applied according to the data, the context and the research question (Abraham & Kavi Kumar 2008; Calvo & Dercon 2005; Calvo & Dercon 2007; Dercon 2000, 2001, 2005, 2006; Dutta et al. 2011; Landau et al. 2012; Pritchett et al. 2000; Whelan & Maître 2007, 2010; Ligon & Schechter 2004). While much research on vulnerability to poverty has been focusing on developing countries (Bah 2013; Bourguignon et al. 2004; Chaudhuri et al. 2002; Jha & Dang. 2009; Kamanou & Morduch 2002), some studies analyzed the vulnerability to poverty in upper-income countries (López-Calva & Ortiz-Juarez 2014; Landau et al. 2012). Those two different focuses lead to differences in methodologies used. In this paper, we follow the methodology developed by López-Calva & Ortiz-Juarez (2014) as they aimed to monitor the evolution of the middle class among three Latin-American countries (Mexico, Peru and Chile) in a longitudinal perspective. By doing so, they have identified three main groups: people in poverty, people being vulnerable to poverty and the middle class. Their analysis corresponds to the type of measurement we want to apply and use in this paper.

As mentioned previously, various definition of economic vulnerability can be found in the literature. We can distinguish between macro and micro level. On one hand, we have studies, especially conducted by economists, that focus their attention on the possible economic shocks that may impacts a country's economy and their possible consequences. For example, following the World Bank's reflexion on vulnerability, researches on international development has developed an economic vulnerability index (which is used by the UNDP), which is based on the structural vulnerability of a country (Cariolle & Goujon, 2013). This approach is more used at a macro level, as it allows analyses at the country level using specific aspects of the economy (such as the remoteness from world markets, exports concentration, share of agriculture, forestry and fishery in gross domestic products (GDP)), and thus is useful for policies implementation, but not at a micro level, which is of our interest in this paper.

On the other hand, at the micro level, we find a definition of economic vulnerability that is more associated to the individual risks of falling into poverty. For example, in sociology Hübinger (1996) was one of the first to focus its attention on people being nor poor nor prosperous, and thus, to think about economic vulnerability. Gesthuizen and Scheepers (2010) in their paper, defined the economic vulnerability as the inability for one's to generate enough income to meet needs or if the expanses and need are too important. Budowski et al. (2010) conceptualize the precarious prosperity (which is another definition of economic vulnerability) as households going more often in and out of poverty than in and out a secured position. Three definitions are used to identify people in an in-between position: 1) people under the relative poverty line set at the 60% of the equivalized disposable median income and with one or no deprivation, 2) individuals between 60 and 80% of the equivalized disposable median income and who have no deprivation, and 3) people with more than 80% of the equivalized disposable median income but with two or more deprivations. The latter methodology focuses at the household level and not at the individual level and this approach is based on two approaches that are not dynamic in the sense that they are not likely to change much year to year (material deprivation and relative income).

4.2.2 The Subjective well-being

The subjective well-being defines the evaluation people makes of their life in general and in various specific domains. The concept of subjective well-being is vast and can

be defined in different ways according to the “stream of thoughts” (Strack et al. 1991; Paim 1995). Nevertheless, terms used in these researches are the subjective well-being, happiness and the satisfaction with life in general, all terms referencing to subjectivity (Diener et al. 2003; Veenhoven 1993; Frey & Stutzer 2002; Michalos 1983). In this paper, the term subjective well-being is preferred, as the measure used in empirical analysis relates to the satisfaction with life in overall, which is a self-reported question. Subjective well-being indicators are considered as the reflection of objective circumstances, expectations, aspirations or comparison with people living around. Well-being is defined by a set of various fields associated to important issues such as social, economic, environmental and administrative areas (Paim 1995). Moreover, scholars have identified different types of subjective well-being. Suter & Iglesias (2005) distinguish individual well-being (personal and individual aspects of happiness) and societal well-being (satisfaction with the social environment in a broader sense). The subjective well-being of an individual is also built according to two aspects: on one hand cognitive aspects, and on the other hand affective aspects (Davern et al. 2007). In this paper, we consider the subjective well-being in a general sense.

Literature about the determinants of subjective well-being has been growing since the last twenty years. We have now a better picture of what is more important and what is less. Diener (1984) was one of the first to report a synthetize version of domains of happiness. Determinants of well-being are known to be twofold, in one hand they are individual (micro factors) and on the other hand, they are societal (macro factors) (Suter & Iglesias 2005, Abbott & Wallace 2014). Abbott & Wallace (2014) proposed a model to evaluate the quality of society based on four dimensions: economic security, social cohesion, social inclusion and social empowerment. Several studies provide scholars with models that integrate all main determinants of the subjective well-being and here we choose to follow on of them. Other important researches have investigated the determinants of subjective well-being (see Bartram 2012; Kroll 2011; Gonza & Burger 2017 for a general overview) and some have tried to understand if there were a certain homogeneity among them around the globe. Diego-Rosell et al. (2016), in their research, have underlined the importance of material well-being and the objectives factors associated, such as income or any variables relating to financial aspects.

The relationship between economic conditions and subjective well-being has been studied in different contexts, such as economic studies, happiness studies, and from a sociological perspective. In fact, in economics the subjective well-being has been studied from a utility perspective. Individuals have different behaviors and they should be able to evaluate their consumption preferences (Stutzer & Frey 2010). Hagerty et al. (2001) argue that the economic progress is insufficient to measure level of quality of life and that the latter is not only about growth and income. Easterlin (1974, 2000) shows in his studies that the relationship between income and life satisfaction is not linear, meaning that as economic growth increases, levels of subjective well-being do not increase correspondingly over a certain level of economic progress; this is called the Easterlin paradox. Although everyone agrees on the fact that even if income is not the only predictor of subjective well-being, economic well-being participates and remains an important determinant of life satisfaction (Abbott & Wallace 2014). As presented above, a distinction between individual and societal well-being is made. Indeed, the former is related to the perception of one's own condition and it is socially constructed (Abbott & Wallace 2014), and the latter refers to the social context, the macro environment and therefore relates to the capability structures (Sen 1999). In this paper, we use the main determinants of well-being found in the literature to examine the level of subjective well-being for those in a vulnerable position. This model allows us to test our main hypothesis, that is to say, the level of subjective well-being of those being vulnerable to poverty is lower than those in a secured position but higher than those in poverty.

4.3 Data and Methodology

4.3.1 Data

The Swiss Household Panel (SHP) serves as the database for the empirical analysis. The SHP is a longitudinal survey that started in 1999 and in which people participate every consecutive year. Panels data have both advantages and disadvantages: On the one hand it allows longitudinal analysis, which is useful to capture dynamic changes over time; on the other hand, panel surveys usually face a phenomenon called attrition, meaning that the panel is losing people every year (due to mortality, people changing address and people who stop responding to the questionnaire). In this paper, however, we are not using specific panel data techniques such as fixed or

random effect models as we run the main analysis on one wave solely, that is to say 2015. However, for the construction of the indicator of vulnerability to poverty we are using data from 2011 to 2015¹³. The 2015 sample represents 11'152 individuals and 6'787 households. The indicator presented in this paper is calculated at the household level and is applied to all household members. The ordinary least squares model (OLS) is used to estimate the relationship between the subjective well-being, which is measured using a general life satisfaction question asked to each participant in the panel and is thus available in the SHP database ("In general how satisfied are you with your life from 0, meaning completely dissatisfied, and 10, completely satisfied") and a set of independent variables, which are based on the literature about determinants of well-being. In this section, we start by presenting the methodology followed for the construction of the vulnerability to poverty indicator (and the four categories in general (poor, vulnerable, middle class, and those secured)), and then we present the determinants we are using for the construction of our regression model on the subjective well-being.

4.3.2 Methodology

We replicate all steps in measuring vulnerability to poverty using the methodology proposed by López-Calva & Ortiz-Juarez (2014)¹⁴, which is a measurement of expected poverty based on a downside risk in order to identify the lower bound of the middle class that is vulnerable to poverty. This approach in three stages requires longitudinal data for its construction, and aims to estimate the predicted income associated to the probability of falling into poverty. The resulting income is used as an upper threshold definition for the vulnerable group (to distinguish between being vulnerable to poverty and belonging to the middle class). Following their approach, we use five waves of the Swiss Household Panel, 2011 to 2015 and only households that have participated in all five waves are retained. The first stage, presented in Table 6 below, is to construct poverty transition matrices in order to identify four categories over the period analyzed (2011-2015): 1) never poor 2) always poor 3) out of poverty,

¹³See Appendix 3 for sample size by year.

¹⁴ For further details on the methodology presented here, see López-Calva & Ortiz-Juarez (2014).

and 4) entering poverty, using the official poverty line defined by the Swiss Conference for Social Assistance (SKOS)¹⁵.

Table 6: Poverty transition matrices

		Non-poor	Poor	Total
2015				
2011	Non-poor	93.92	6.08	100
	Poor	69.95	30.05	100

Author's own calculations based on longitudinal data from SHP 2011-2015.

We observe that among households who were not poor in 2011, 6.08% of them became poor over the period analyzed and it is worth noting a downside risk to poverty as this confirms the need to study the part of the population that may be vulnerable to it. Among poor households in 2011, almost 69.95% of them became non-poor, showing a relatively high upward mobility, which is an interesting result; however, as it is not the focus of this paper, we are not going to deepen this aspect in this paper.

In a second stage, we estimate a logistic model in order to identify the correlates associated with the probability of falling into poverty over the period expressed as follows:

$$P_{it} = E(\text{poor}_{it+1} | \mathbf{X}_{it}) = F(\mathbf{X}_{it} \cdot \beta_t) \quad (1)$$

The independent variables included in the model proposed by López-Calva & Ortiz-Juarez (2014), are age, age squared, sex of the head, head without social insurance, unfinished floor, household without sanitation, civil status, sector of activity of the head, region, rurality, occurrence of a health shock in the household over the period analyzed, change in numbers of working people in the household during the period, and finally, change in numbers of people living in the household over the analyzed period. As Switzerland is a high-income country with high levels of social and hygiene protection, we replace the variable items head without social insurance, and unfinished floor with two items of deprivation, the ability to save at least 500.- SFrs per month and

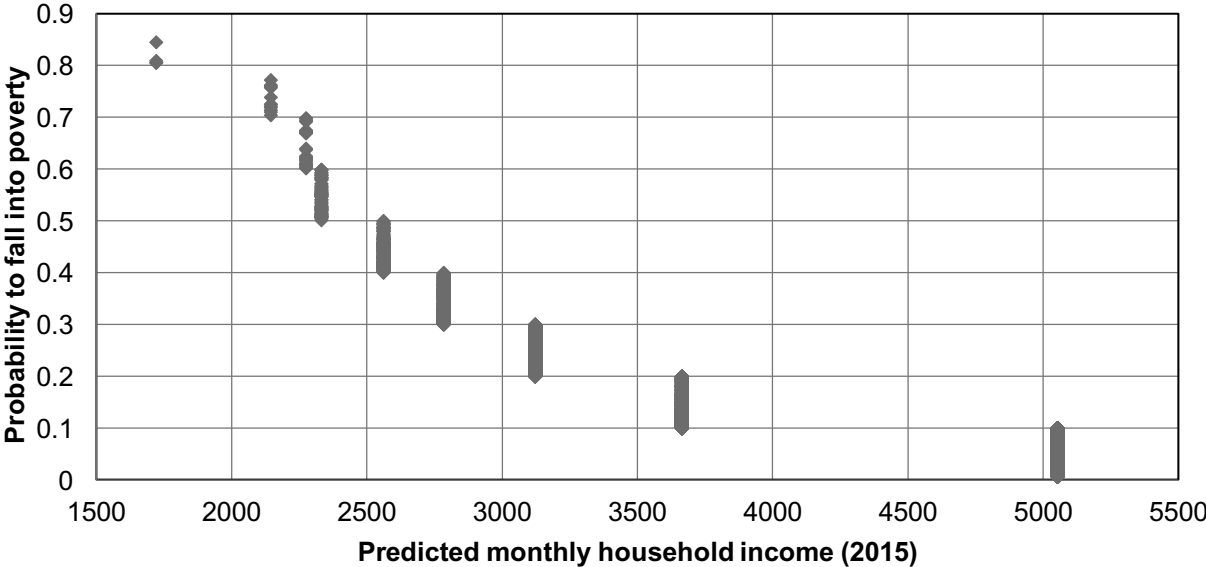
¹⁵ This threshold, which is absolute, corresponds to 2'600 Sfrs per month for one person in 2015. To apply this threshold to the entire household, we multiply this amount of money by the OECD equivalized scale (1 for the first adult, 0.5 for other adult and 0.3 for children)

the ability to go for one week holiday outside the home per year. Regarding the level of education, we distinguish three categories: primary, secondary and tertiary education. We use a ten-category scale variable for sector of activity. For health shocks, we use the occurrence of a long-term health problem within the household. Thirdly, averages of the independent variables are calculated for an array of probability to fall into poverty. We then estimate an income equation (log-scale based) with the same independent variables as used in the logistic regression (both regressions are present in Annex, see Appendix 3) expressed as:

$$\ln Y_{it0} = \alpha + \mathbf{X}_{it} \cdot \beta_t + \varepsilon_i \tag{2}$$

The coefficients resulting from the income equation (2) as well as the average of the independent variables are used to produce a predicted income associated to each probability of falling into poverty. The predicted income presents advantages, such as less volatility, and becomes an index related to stocks (assets), as an income generation capacity of the households (López-Calva & Ortiz-Juarez 2014).

Figure 3: Probabilities of falling into poverty according to the predicted income



Author’s own calculations based on longitudinal data from SHP 2011-2015.

As the aim is to identify people being vulnerable to poverty from those in security (here the middle class), a threshold set at 20% of the probability of falling into poverty would easily correspond to the upper threshold for the vulnerable group. The predicted

income associated to this level of probability of falling into poverty is 3'121.5 Sfrs. Therefore, people being vulnerable to poverty have a household disposable median income ranging from 2'600 Sfrs to 3'121.5 SFrs. Under 2'600 Sfrs people are considered as poor and above 3'121.5Sfrs people belong to the middle class. For the last category, those in a secured position, we use the upper threshold as given by the vulnerability to poverty measurement, that is to say 3'121.5 Sfrs, as the lower threshold for the middle class. We now calculate the upper threshold that distinguish between the middle class and the secured as calculated by the Swiss Federal Office of Statistics (SFOS 2013), and use the 150% of the equivalent median household income (the middle class are defined as being between 70% and 150% of the equivalent disposable median household income). This threshold, which is also supported by the scientific literature such as Jenkins et al. (2012), corresponds to an amount of 6'660.24 Sfrs. We have tested if the thresholds used in this paper were robust to groups selection and we found that our definition of the four groups (using either absolute or relative approaches to set financial thresholds) were robust¹⁶. Below, Table 7 summarize the different thresholds for each four groups:

Table 7 : Absolute Thresholds for each group: poor, vulnerable, middle class, secured (in Swiss Francs).

	Poor	Vulnerable	Middle Class	Secured
Equivalent disposable median household income	<2'600	2'600 – 3'121.25	3'121.26- 6'660.24	> 6'660.24

Source: SHP, 2015.

4.3.3 Determinants of well-being

Dolan, Peasgood, & White (2008) have reviewed the main determinants of the subjective well-being and they propose seven categories to gather them: 1) individual

¹⁶ We decided to split the sample into four categories in order to match, more or less, the literature (with thresholds used either by national institutions or by the scientific community). Thus, we have the poor, the vulnerable, the middle class and the secured groups. As we had to mix absolute thresholds (vulnerability to poverty and poverty measures) and relative thresholds (for the middle class and the secured group 70-150%), we found that the absolute thresholds were very close to the relative ones: for poverty at 60% of the equivalized median household income: 2600.- for the absolute and 2'664.09 for the relative. For the lower middle class or upper vulnerable threshold (70%): we found an amount of 3'121.5 Sfrs for the measure of vulnerability to poverty and 3'108.11 while using the relative approach.

characteristics, 2) income, 3) socially developed characteristics, 4) social activities, 5) attitudes and beliefs, 6) social relationships, 7) environment.

Based on this research, we include in our analysis variables¹⁷ such as sex, age and age squared that are included in the first domain (1). According to the general literature we know that the relationship between age and subjective well-being is U-shaped (Blanchflower & Oswald 2011). Compared to men, women have been found to report higher level of subjective well-being (Boarini et al. 2012). Then, with regards to the second domain (2), we include in our analysis an index of material deprivation (based on a nine items list) and the ability to save money (income is not control for because of multicollinearity reason), which are also considered as strong determinants of well-being (see Suter & Iglesias 2005, Abbott & Wallace 2014). For the socially developed characteristics domain (3), four variables are retained for the analysis: the level of education (primary, secondary and tertiary), the employment status and two variables of health (one general, and one related to the mental health). According to Iglesias et al. (2015), health is the strongest determinant of the subjective well-being in their study. Veenhoven (2010) concludes that mental health is even more important than physical health. Oesch and Lipps (2012), in their research, show that unemployment negatively impacts the level of subjective well-being. According to the fourth domain (4), we include in our analysis a variable of participation in a club or in an association. Abbott and Wallace (2014) have mentioned in their research the importance to look at variables of social inclusion. We also have a variable of trust for the fifth domain (5), which is a trust in people in general. Then, regarding the sixth dimension (6), social relationships, we control for the civil status. Frey and Stutzer (2005) showed that married people or people having partners are better off than those single or divorced. Finally, with regards to the last dimension, the environment, because our study focus at the micro level we do not test any macro factors.

4.3.4 Multivariate analysis

For the multivariate analysis, we follow Ferrer-i-Carbonell and Frijters (2004) and use an ordinary least squares (OLS) regression to estimate the relationship between the continuous dependent variable which ranges from 0 to 10 (subjective well-being)

¹⁷ Appendix 5 lists all the variables used in the analysis with the number of observations for each sub-category.

available in the SHP and categories of population (secured, middle class, vulnerable and poor) and a set of independent variables expressed as followed:

$$y = x_i^T \beta + \varepsilon_i \tag{3}$$

Where y is the level of subjective well-being, β is a vector of independent variables and ε is the unexplained part of the model.

4.4 Results

4.4.1 Descriptive Statistics

In Table 8 below, is the structure of the population according to the vulnerability to poverty indicator for the period 2011-2015¹⁸. In 2015, we can note that about 7% of the population are vulnerable to poverty in Switzerland whereas about 12% are poor, 59% belong to the middle class and 23% are in a secured position. Over the period used for the analysis, we can observe that the part of those vulnerable to poverty is decreasing, going from 10% to 7%. One explanation may be the Great Recession which occurred in 2009-2010 in Switzerland, leading to more people being vulnerable to poverty (see Simona-Moussa & Ravazzini 2019). These numbers reinforce the relevance of research studying those being vulnerable, as the part of this group is not negligible even if small.

Table 8: Structure of the population in Switzerland

	Secured	Middle Class	Vulnerable	Poor	Total
2011	15.0%	58.1%	10.5 %	16.4%	100%
2012	21.54%	52.62%	9.93%	15.9%	100%
2013	18.46%	55.6%	9.59%	16.35%	100%
2014	17.53%	63.77%	7.35%	11.35%	100%
2015	22.62%	58.42%	7.19%	11.76%	100%

Source: SHP, 2011-2015. Note: data are weighted.

¹⁸ We used the same absolute thresholds as for 2015 for the period 2011-2015. Only the relative threshold that distinguished between those secured and the middle class, which is the 150% of the equalized median household income, has been adapted for each year.

The dependent variable in our multivariate analysis is the subjective well-being and it is measured through a general question about life satisfaction which is asked as follows: “In general, how satisfied are you with your life if 0 means “not at all satisfied” and 10 means “completely satisfied” in the individual SHP questionnaire. Table 9 presents the mean level of subjective well-being (with standard deviation in parentheses) for which we applied a Kruskal-Wallis H test that showed a statistically significant difference in subjective well-being between the groups (secured, middle class, vulnerable and poor). People being in a secured position have a mean level of satisfaction with life above 8.19. Those belonging to the middle class have a mean level of satisfaction of 8.10. For the vulnerable group, a mean level of satisfaction of 7.72 is reported. Finally, the last group analyzed, poor people, have a mean level of satisfaction of 7.57. Thus, we observe a decreasing mean satisfaction across the economic positions analyzed.

Table 9: Mean of the subjective well-being, values ranging from 0 to 10 in 2015.

	Secured	Middle Class	Vulnerable	Poor
Well-being (0-10)	8.19 (1.17)	8.10 (1.30)	7.72 (1.86)	7.57 (2.04)

Source: SHP, 2015. Note: data are weighted. The Kruskal-Wallis test shows a difference between the groups that is statistically significant.

4.4.2 Multivariate Results

The results of the OLS model are twofold and presented in Table 10 below: first, it provides insights on the determinants of subjective well-being and second, it shows the impact of being vulnerable to poverty on the level of subjective well-being compared to others economic positions.

With regards to the first dimension analyzed (1), results show that being a woman increases the level of subjective well-being of about 0.15 points compared to being a man, which is in line with the literature (see for example Easterlin (2003), Vieira Lima (2011), Boarini et al. (2012)). Ageing is related to a lower well-being, as the sign of the coefficient associated is negative. However, the size of the coefficient is small. Blanchflower and Oswald (2007, 2011), have shown in their research that the relationship between age and well-being is U-shaped and is not an artefact of data. As

our sample of analysis consist of people aged from 18 and over with a bigger group of middle aged, it is thus normal to found a negative effect of age.

Suffering from material deprivation lower the subjective well-being of almost 1 point, which is an important result. Also, being unable to save money every month decreases the level of subjective well-being by about 0.35 points. These two indicators of the second dimension (2), income, are important as people facing economic difficulties have a lower self-reported satisfaction. As expected, these two variables are thus important determinants of the subjective well-being.

Concerning the third dimension (3), socially developed characteristics, we can note that people being unemployed are less satisfied with their life (about 0.18 points). It is well known that inactive people have a lower well-being as they suffer from both, economic struggles and problems of social integration. Education seems to have a reverse effect on the level of well-being: people having a primary education reporting a higher level of subjective well-being compared to the reference group and for those with a tertiary education the coefficient is negative, but because it is not significant we cannot say much about it. However, this unexpected result stands differently from what the literature usually state about the education effect on the subjective well-being (for which there is usually a positive correlation). Kristoffersen (2018) report in her study that this negative relation may be due to different expectations. In fact, people with higher education tend to have higher expectations with life in general and may see their well-being lowered in case their expectations are not reached. Further researches should be conducted to verify this hypothesis in this case. The coefficient effect for individuals who feel down is large and negative as well as highly significant, as their well-being decreases by about 0.93 points, compared to those who do not feel down. The coefficient related to the general health goes in the same direction as people reporting a bad health lower their subjective well-being by 0.7 points.

For the social activities' dimension (4), unsurprisingly, to participate in a club or in an association increase the level of self-reported satisfaction.

Concerning the socially developed characteristics (5), people who trust others report a higher well-being of about 0.19 points compare to those who do not trust others.

For the social relationship dimension (6), unsurprisingly, we observe that people being married are more satisfied with their life compared to single people with a reported self-satisfaction higher of 0.3 points and those divorced are less satisfied (-0.26 points).

Unsurprisingly, we found that the determinants of the subjective well-being tested in our model to react as expected and as mentioned in section 2.3 of this paper (apart from the education dimension). To summarize, women are more satisfied with their life compared to men and being middle aged is related to a lower level of satisfaction. Experiencing economic privations of different kinds (being deprived or unemployed) lead to a decrease in the level of satisfaction with life in general which is both intuitive and verified in the general literature. In fact, facing economic difficulties either to find a job or to pay bills, have a strong impact on one's social position and integration in the society and thus have a direct impact on the level of subjective well-being. Following this reflexion, being more involved socially (social participation) increases the level of satisfaction as an individual will find the support and the resources to face any kind of life difficulties and will feel integrated in the society where he/she lives.

With regards to the effect of the economic position on the level of subjective well-being we find that the coefficients associated to being in the vulnerable group and those in poverty are negatives and slightly statistically significant. What is interesting is the size of the coefficient. In fact, the negative effect for people being vulnerable to poverty is slightly stronger compared to the reference group (people in a secured position) and those in poverty. This result gives a different picture than Table 4, where the mean level of subjective well-being was decreasing with the economic status. In fact, the regression model tends to indicate that, when controlling for a set of independent variables (the main determinants of subjective well-being), people being vulnerable to poverty report less in terms of subjective well-being than those in poverty (compared to those in the middle class).

However, as the difference between the two groups (vulnerable and poor) is very small, we decided to apply a test of robustness to validate the result presented above. In this regard, we have calculated the predicted level of subjective well-being for each groups of the population tested (secured, middle class, vulnerable and poor) with all the independent variables at mean. This allows us to confirm or reject the hypothesis that the level of subjective well-being of those vulnerable to poverty is lower than the one of the poor. Results of this test are presented in Table 11 below. We can observe that

the predicted subjective well-being of the vulnerable group is not lower than the one of the poor which is a different result from what we got in the OLS model. Thus, this robustness test allows us to confirm our hypothesis as we do observe a negative effect on the level of subjective well-being for people in poverty than those vulnerable. Nonetheless, those vulnerable to poverty, should be of particular attention and further researches should be conducted to better understand their specificities and improve their general level of satisfaction which is still very close to those in poverty.

Table 10: OLS analysis of the subjective well-being.

SWB	Vulnerability to Poverty
Population categories (ref. Middle Class)	
Secured	-0.009 (0.030)
Vulnerable	-0.117* (0.048)
Poor	-0.105* (0.042)
Sex (ref. Men)	0.154*** (0.025)
Age	-0.027*** (0.005)
Age squared	0.001*** (0.001)
Material deprivation (ref. No)	-0.939*** (0.079)
Enable to Save money (ref. able to save money)	-0.349*** (0.030)
Education (ref. secondary)	
Primary	0.131*** (0.036)
Tertiary	-0.036 (0.027)
Employment status (ref. Employed)	
Unemployed and other inactive	-0.172** (0.056)
Retired	0.100 (0.059)
Active, details unknown	-0.062 (0.046)
To feel down (ref. No)	-0.934*** (0.036)

Health (ref. good health)	-0.726*** (0.036)
Participation in association/club (ref. No)	0.091*** (0.024)
Trust in people (ref. No)	0.188*** (0.034)
Marital status (ref. Single)	
Married	0.299*** (0.038)
Separated	-0.259* (0.109)
Divorced	0.053 (0.053)
Widowed	-0.023 (0.066)
Registered partnership	0.159 (0.223)
Constant	8.525*** (0.116)
Observations	10'375
Adjusted R²	0.2178

Source: SHP, 2015. Author's own calculation. Notes: Robust standard errors in parentheses, * p < 0.05, ** p < 0.01, *** p < 0.001. Test for collinearity has been made.

Table 11: Predicted well-being for each groups of the population.

Population groups	Predicted Well-being
Secured	8.24
Middle class	8.17
Vulnerable	7.92
Poor	7.77

Source: SHP, 2015.

4.5 Concluding remarks

Usually, research focuses on the bottom or at the top of the income distribution scale but only rarely on people being just above a poverty line. The question of vulnerability is currently largely discussed in the scientific field as there is a growing interest in people that are in an adjacent position, those who are neither rich, nor poor. Indeed, this specific group face different struggles at different levels and usually experience difficulties at various stages of life. In fact, in Switzerland, as in many other high-income countries, even if most of the population benefit from high living standards, some people who are just above the poverty line can feel left behind while struggling to maintain a decent life and report a lower level of subjective well-being. In the literature

on subjective well-being, as well as in the literature on poverty measurement, there is a lack of research on combining these two concepts (except Tillman et al. (2016)). This paper is innovative as it proposes an empirical analysis to examine the self-reported satisfaction with life of those vulnerable to poverty by using a dynamic and longitudinal approach of vulnerability which is the vulnerability to poverty developed by López-Calva & Ortiz-Juarez (2014).

Results have shown that the determinants of the subjective well-being tested in our regression model are consistent with what have been found in the literature so far (see Kroll 2011; Bartram 2012; Tillman et al. 2016). Financial aspects, such as not suffering from material deprivation or the ability to save money, have both a strong positive effect on the level of subjective well-being. This is also true for having both, a good general and mental health. To participate in a club or in an association, and thus to be part of a community (social inclusion), also increase the self-reported satisfaction with life as well as those who trust their counterparts. In fact, to be confident and well established among a society increase the level of subjective well-being. However, even if the variance explained by the model proposed in the paper is relatively high with regards to the literature about subjective well-being (about 22%), we should mention that still 78% of the variance is not explained. This may be due to the data themselves or by how we do use statistical instruments. In fact, we used, as many others scholars, linear regression to explain the relation between the subjective well-being and a socio-economic position. Nonetheless, linearity does not correspond to reality and this particular point should be further investigate in future researches.

The main important result from the analysis is that the level of subjective well-being for those vulnerable to poverty is negatively associated, but we found this group to be better-off the poor, which confirm our hypothesis. However, the difference in level of subjective well-being between the two groups (vulnerable and poor) is very small and this tends to indicate similar feelings between the two. Thus, people being vulnerable to poverty, with their specific conditions, should be taken into consideration by researchers and efforts should be made to better target this specific group, those on the edge of any poverty line. This result lead to questions that should be further investigated such as the reasons why people being vulnerable to poverty report a well-being that is similar of the one of the poor, is this true in Switzerland only or can we find similar result in other countries? One hypothesis that would be interesting to verify would be that those vulnerable to poverty do not adapt to their situation compared to

those in poverty and thus could explain their similar level of subjective well-being even if they have more resources than the poor. Crettaz and Suter (2013) have shown that people experiencing poverty usually adapt to their conditions and their level of subjective well-being do not vary much as it is dependent of many more domains of life than only financial aspects for example. For now, this result at least reinforces the hypothesis that people being vulnerable to poverty feel somewhat left behind compared to other groups (the middle class at least).

Overall, this paper sheds a critical light on the level of subjective well-being of a specific group which is difficult to capture and identify, those vulnerable to poverty, and it propose a way to quantify them, with a lower and upper income threshold. Evidently, the subjective well-being, and quality of life more generally, of vulnerable groups deserve particular attention, and further research should be conducted in this direction not only to assist vulnerable groups, but also to better understand the society and its plurality. It is true that western economies benefit from high levels of quality of life, but with this paper we were able to show that there is no homogeneity among a given population, and as society is constantly in flux, the identification of at-risk groups in a dynamic social context is more important than ever.

5 Article 3: From one recession to another: Longitudinal impacts on the quality of life of vulnerable groups

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5.1 Abstract

At the beginning of the 2000s, Switzerland went through two global recessions: the Dot-com crisis and the Great Recession. Even though Switzerland experienced milder effects compared to its European neighbors, the Swiss unemployment rate increased considerably compared to its status quo. This paper explores the resilience of vulnerable groups to these economic downturns using both objective (income poverty and material deprivation) and subjective (well-being and satisfaction with the financial situation) indicators of quality of life. To analyze how quality of life evolved since the early 2000s, we use a longitudinal database: the Swiss Household Panel. Studying both objective and subjective indicators, results suggest that the dot-com crisis had a stronger negative effect than the Great Recession on vulnerable groups. This was particularly true for single parents and large families. Disadvantaged groups during the first crisis reacted in different ways during the second crisis. Some groups (the unemployed, the low-educated and the solo self-employed) experienced some scarring effects sometimes only according to objective indicators; others were resilient and continued with their normal trends (migrants and the young), whereas the most strongly affected groups during the first crisis (single parents and large families) registered an improvement in their conditions in the second crisis. These results point to a combination of subjective and objective indicators to evaluate the effects of recurrent crises on vulnerable groups.

Keywords: economic crises; indicators; subjective well-being; poverty; vulnerability; resilience

5.2 Introduction

Crises function as monitors. They indicate what should be done in the future to prevent them not only from happening, but also from having large negative effects on the general population and on specific vulnerable groups. Since the beginning of the 21st century, two main economic recessions have hit Europe producing different impacts depending on the country. The first recession is known as the Dot-com crisis and corresponded to the end of the stock market bubble in the USA. The second is the Great Recession and concerned international financial markets. Both crises had repercussions on several important dimensions of the economy and made unemployment increase and investments stagger.

The repercussions of these crises on quality of life in Switzerland and in particular on its vulnerable population are the objects of this study. Quality of life is a broad concept that integrates several dimensions related to objective and subjective measurements. From a quality of life perspective then, it is particularly interesting to analyze the impacts of these two crises given the short time period in which they occurred. According to Whelan et al. (2016), there is also a gap in the literature on vulnerability. This gap is remarkably large with respect to the longitudinal effects of economic stress on vulnerable groups.

Quality of life in Switzerland is one of the highest in the world and its level has been relatively stable over time (Suter et al., 2015). Additionally, Switzerland usually recovers quickly from recessions (Keeley & Love, 2010). Its economy seems to be able to react at a faster pace than other European countries. This is the reason why it was not particularly affected by either of these two crises compared to its neighbors (Jenkins et al., 2012). Still, the unemployment rate increased and GDP declined. Therefore, even if the Swiss population did not face strong economic hardship compared to its neighbors, the precarious situation of some people may have worsened. These two crises may have had a negative impact on the quality of life of some vulnerable groups who were particularly dependent on the performance of the labor market. Previous research has found that the subjective well-being of people who face difficult economic conditions is dependent on the number of people who share these conditions. This is the case for instance of the unemployed, whose subjective well-being increases with the unemployment rate and therefore with more people sharing the same difficult situation (Clark, Knabe & Rätzl, 2010). However, in the case

of Switzerland, Oesch and Lipps (2012) showed that becoming unemployed hurt as much when the level of unemployment is high or low. Therefore, although the Swiss labor market was not strongly affected by the crises, people who became unemployed suffered. We expand this study adding an analysis not only on the unemployed, but also on several other vulnerable population groups.

The main aim of this paper is to show how quality of life has been affected and whether vulnerable groups become more resilient or more vulnerable from crisis to crisis in a country where these groups constitute a minority. According to Camfield (2011), resilience relates to the capacity to bounce back from adverse experiences. In this paper, we use the concept of vulnerability as presented by Alwang et al. (2001), where vulnerability corresponds to future loss of welfare below socially accepted norms caused by risky events. Resilience and vulnerability are tested with both objective and subjective dimensions of quality of life.

The first section of the paper is a review of the literature on the impact of crises where the authors use objective and subjective indicators and define vulnerable groups in different ways. We survey both the economic and the sociological literature related to the topic. The second section presents our hypotheses, whereas the third section presents the data and the methodology used to select the indicators, identify the vulnerable groups defined for the analyses and assess the short-term and the long-term effects of the crises. Descriptive and analytical results follow. In the conclusive section, we make suggestions on how to monitor the effects of crises on quality of life.

5.3 Indicators for the effects of economic crises on quality of life on vulnerable groups

This section aims to present a literature review of studies that analyze the impacts of economic crises on various types of indicators. The section is divided in four parts. First, we look at studies that focus their analysis on objective indicators of quality of life, such as income and the unemployment rate. Second, we present studies that focus on the effects of crises on subjective indicators, especially general subjective well-being. Third, we examine the specific literature that uses both objective and subjective indicators to measure the effects of economic crises. Fourth, we present how the literature has treated the question of vulnerable groups with regards to crises. Findings about some vulnerable groups (such as the unemployed, the low-educated,

large families, and young people) are also presented throughout the entire literature review.

5.3.1 Objective indicators

Research on economic crises are often linked to the concept of poverty. There is a positive correlation between economic crises, unemployment levels, and an increase in poverty rate.

In their examination of living standards in the UK during recessions, Muriel and Sibieta (2009) found that the effects on income for working-age groups tend to be larger than the effect on retirees and on people not strongly attached to the labor market. The instability of the labor market is thus often monitored through unemployment rates and the effects are illustrated with the change in poverty rates. Gábos et al. (2015) studied unemployment trajectories before, during and after the Great Recession. Their results for Europe indicate that poverty due to unemployment was higher during the crisis than before. Following the same line, Hoynes et al. (2012) focused their analysis on the level of unemployment among different socio-demographic groups of the active population in the US. According to the authors, low-educated and low-earning workers, as well as workers who belong to a minority group were more prone to experience high level of unemployment and poverty during and after recessions. As they are constructed, this type of analyses does not allow disentangling vulnerability due to unemployment to vulnerability linked to other socio-demographic characteristics. Smeeding et al. (2011) delinked the analysis from the risk of unemployment and showed that recession-induced income poverty was especially prominent among young unskilled men in the US.

Income, however, is not the only indicator to measure poverty or vulnerability in an objective way.

The Third European Quality of Life Survey showed that quality of life (defined with four life domains: health, standard of living, productive and value activities and individual, and family and social life) declined during the Great Recession with a growing proportion of the European population experiencing material deprivation (Eurofound, 2013). Material deprivation is a good complement to income-based indicators when studying economic hardship. It refers to a “decent living condition”, predicated on the possession of a set of items such as owning phone, a colour TV or the ability to go on

holidays. Many scholars use material deprivation as a complement to income when studying poverty in Europe (see Whelan & Maître, 2012a; Whelan & Maître, 2012b; Watson et al., 2015; Guio et al., 2016; Saltkjel & Malmberg-Heimonen, 2016).

Using objective measurements, Addabbo et al. (2012) found interesting results for Italy and Spain in their study. During the Great Recession, poverty based on income and material deprivation such as the ability to go on holidays increased, whereas requests for health care (dental or medical treatment) decreased.

5.3.2 Subjective indicators

Negative effects of the Great Recession on subjective indicators of quality of life have been found in almost all European countries, among which Switzerland (Welsch and Kühling, 2016), and in the US (Bell & Blanchflower, 2011; Helliwell et al., 2014; Somarriba Arechavala et al., 2015). The reasons can be associated again with job losses and/or with a decline in consumption (Mayer, 2015; Wolfers, 2003).

As for objective indicators, the flexibility of the labor market plays a crucial role. In examining the effect of crisis on a number of European countries between 1975 and 2011, Bjørnskov (2014) found that wellbeing was not as negatively affected in countries where employment protection was weak and labor market regulations were easier (i.e. in quantitative terms: fewer interest rate controls and state ownership of banks, and in qualitative terms: lower bureaucracy costs and bribery and fewer days required to open a business). In exploring the effects of economic crisis on self-reported satisfaction in the UK and Germany, Mertens and Beblo (2016) asserted that macroeconomic changes, like an increase in the level of unemployment (both regional and national), inflation and GDP growth, were as important as individual's characteristics and events. Among individual characteristics, employability is an important parachuting factor during crises. Guardiola and Guillen-Royo (2014) found also an attenuating effect on the drop in subjective well-being in the interaction between higher education and active employment status with the economic crisis in Spain. In the research on subjective indicators, individual characteristics other than employability, however, can be of even more importance than in the research on objective indicators. Therefore, if objective indicators are mostly focused on the group of the unemployed, subjective indicators tend to highlight other population groups that can be affected by an economic slowdown.

By causing additional stress, economic crises are indeed found to affect not only people who are currently unemployed, but also people who are in a critical financial situation (Arapazi et al., 2015).

Bell and Blanchflower (2011) explored the effect of the Great Recession on young adults in the US and the UK using various subjective indicators (life satisfaction, general and mental health evaluation, and job satisfaction). They showed that the transition from school to work is particularly difficult in periods of economic crisis. Households with children were also more negatively affected by the last economic crisis (the Great Recession) and thus more vulnerable compared to households without children (Chzen, 2016). This was especially true in regions where levels of child poverty were high and where economic growth and GDP were low. Many European countries, but not Switzerland, have therefore augmented child benefits in response to the crisis (Marchal et al., 2014).

Another difference that subjective indicators have compared to objective ones is their particular evolution over time. Even if levels of well-being suddenly drop due to an external shock, they tend to return quite rapidly to their initial levels (Suter & Iglesias, 2005). Individuals adapt to their new living standards and find strategies to cope with difficult situations (Crettaz & Suter, 2013). In terms of subjective indicators, people seem resilient to change. Cummins and Wooden (2014) showed that individuals maintain their level of well-being in a rather fixed range of set-points (in a scale from 0 to 10, they correspond to 7.1-9). This stability is called homeostasis and resilience is the consequence of a homeostatic defense. Even if the Great Recession severely affected a considerable portion of the population in the US, Deaton (2012) showed proof that by 2010 people had largely recovered from the sharp decline in life evaluation that occurred between 2008 and 2009. Graham et al. (2010) found similar results on level of subjective well-being and highlighted the importance of uncertainty with respect to subjective well-being. From this study, it emerges that people are more able to adapt to unpleasant certainty than to uncertainty.

5.3.3 Multiple indicators

As presented in these two first parts of this section, research tends to focus either on objective or on subjective indicators while studying the effects of crises. To the best of our knowledge, only very few studies combine both types of indicators when it comes

to analyze the effect of economic crises. Somarriba Arechavala et al. (2015) used 27 indicators based on nine dimensions (income, household, work, health, society, physical environment, safety, education, and happiness) to evaluate the level of quality of life in Europe after the Great Recession. The authors showed that both types of indicators (objective and subjective) are important to explain the level of quality of life. Other studies on a limited number of countries show additional interesting results. In exploring the relationship between economic factors and happiness, Gudrun Gudmundsdottir (2011) concluded that income and unemployment were not good predictors of happiness compared to a subjective question regarding financial difficulty¹⁹. Therefore, in terms of happiness, those who experience subjective financial difficulties are the most affected by the economic crisis. In the case of Ireland, Watson et al.'s (2015) research documented a significant increase in levels of material deprivation and economic stress²⁰ between 2008 and 2011. This was due to a rise in unemployment and economic insecurity. Our study contributes to this innovative literature on the effects of crises studied with multiple indicators adding a longitudinal perspective. Given the peculiar reaction of subjective indicators over time, we examine whether recurrent crises affect objective and subjective indicators differently and if resilience can be observed.

5.3.4 Vulnerable groups

There is no consensual definition of who is vulnerable and who is not. There are plenty of definition of vulnerability depending from which perspective we are standing. As we do not aim to present a complete review of the literature on vulnerability, we start with the question: vulnerable to what? Here, as we are interested on the impacts of economic crises we are concerned with individuals that are vulnerable at the economic level. We can consider two streams of literature that more or less implicitly apply a definition of vulnerability.

On one hand, studies on the welfare state identify which groups have access to public services and at which intensity. The welfare state usually intervenes to cover social risks and replaces the market depending on the level of solidarity of the country. The perception of vulnerability is therefore tightly linked with attitudes towards vulnerable

¹⁹ Financial difficulty was measured by asking the question: "How easy or difficult is for you to make ends meet?"

²⁰ Economic stress was measured with the level of difficulty in making ends meet.

groups and to solidarity. In this paragraph, we present some examples. One form of solidarity covers a temporary detachment from the labor market and is enacted by workers towards the unemployed. In most countries, the unemployed are entitled to receive social benefits under the condition that they seek actively for a job and provide work-record requirements (Houtman, 1997; Van Oorschot & Meuleman, 2014). The unemployed are considered as vulnerable due to their interrupted work activity and to their lower income. In case of ageing and retirement, not only a temporary, but also a permanent detachment from the labor market is usually covered by the welfare state through pensions. The intense pension debate in many countries reflects the evolution of solidarity between generations (EU, 2004; Kohli, 2005). In many modern welfare states, the retirees are considered as vulnerable due to their low-income position. Not only the detachment from the labor market, but also increased expenditures stimulate the intervention of the welfare state. Usually, children create additional expenditures for parents. Supported by the solidarity between childless individuals and families with children, the welfare state of many countries includes in its services childcare allowances, tax reductions and benefits to alleviate the economic burden for parents with children. Even if all families with children could be considered vulnerable, new social risks and family arrangements, such as the increasing number of single-adult households and recomposed families, have identified particular types of vulnerable families, such as large families with many children and single parents (Taylor-Gooby, 2004; Bonoli, 2006). Single parents have usually specific welfare services. To these new social risks, increasing migration and globalization have fueled the debate not only on the level of support of the welfare state, but also on the access of this support. Solidarity between natives and migrants, for instance, defines whether and when migrants should receive access to welfare state services (Kymlicka & Banting, 2006; Van Oorschot, 2008). In general, migrants do not usually receive specific welfare services, but some types of migrants, such as refugees, receive direct welfare support and are considered vulnerable by human rights treaties (Hugman et al., 2011).

On the other hand, a few economic and sociological studies have investigated the question of vulnerable groups in the perspective of economic crises. The definition of vulnerability is here more empirically driven and corresponds to the socio-economic groups that are usually more at risk of poverty or social exclusion. Economically vulnerable groups during economic crises have been identified as follows: those out of the labor market, those with a low social class (e.g. low education) and the self-

employed (Whelan & Maître, 2010). Over the period from 2004 to 2014, Watson et al. (2018) studied, for instance, single parents, children, adults with a disability, the elderly and young adults.

Young adults have been identified as a vulnerable group during economic crisis also by other studies (McCoy et al., 2014 & Kelly et al., 2014). These studies have emphasized that young adults have faced challenges, especially during the transition from school to the labor market because of educational expansion and the high level of qualifications asked to find the first job.

Delinked from periods of crisis, families with children have also been identified vulnerable by Riederer et al. (2017) according to economic, psychological and social indicators of quality of life.

Thus, the literature review informed us about different aspects. One on hand, there are different indicators (objective, subjective and mixed) to monitor the effects of economic crises on the level of quality of life, and on the other hand, there are different ways to identify vulnerable groups when analyzing the effects of economic crises. Some vulnerable groups are more recurrent (e.g. the unemployed, the elderly, and families with children), while others depend on the context of the study (e.g. migrants, the low educated, and young adults).

5.4 Hypotheses

After this brief literature review, in this section, we present two hypotheses which follow the main points approached in this paper. The first hypothesis investigates the type of indicators that are expected to change during periods of crisis. The second hypothesis advances possible scenarios about longitudinal effects of recurrent crises on objective and subjective indicators that are expected to monitor the situation of the most vulnerable groups.

Hypothesis 1 (H1): Both crises lasted more than one year. For this reason and based on the results found in the whole literature review (i.e. all groups studied were negatively affected by economic crises to some extent (Somarriba Arechavala et al., 2015)), we expect to observe negative impacts of the crises on both indicators (objective and subjective) for all the selected vulnerable groups.

Hypothesis 2 (H2): Longitudinal effects from one crisis to the next might differ according to the indicator. We expect to see a lag in the change of subjective indicators compared to objective indicators (Somarriba Arechavala et al. 2015). We anticipate objective indicators to show an immediate response to negative external conditions and people's perceptions to take little time to adapt (Crettaz & Suter, 2013). Although some groups might be more resilient than others, we also expect to see scarring effects following the first crisis for all vulnerable groups.

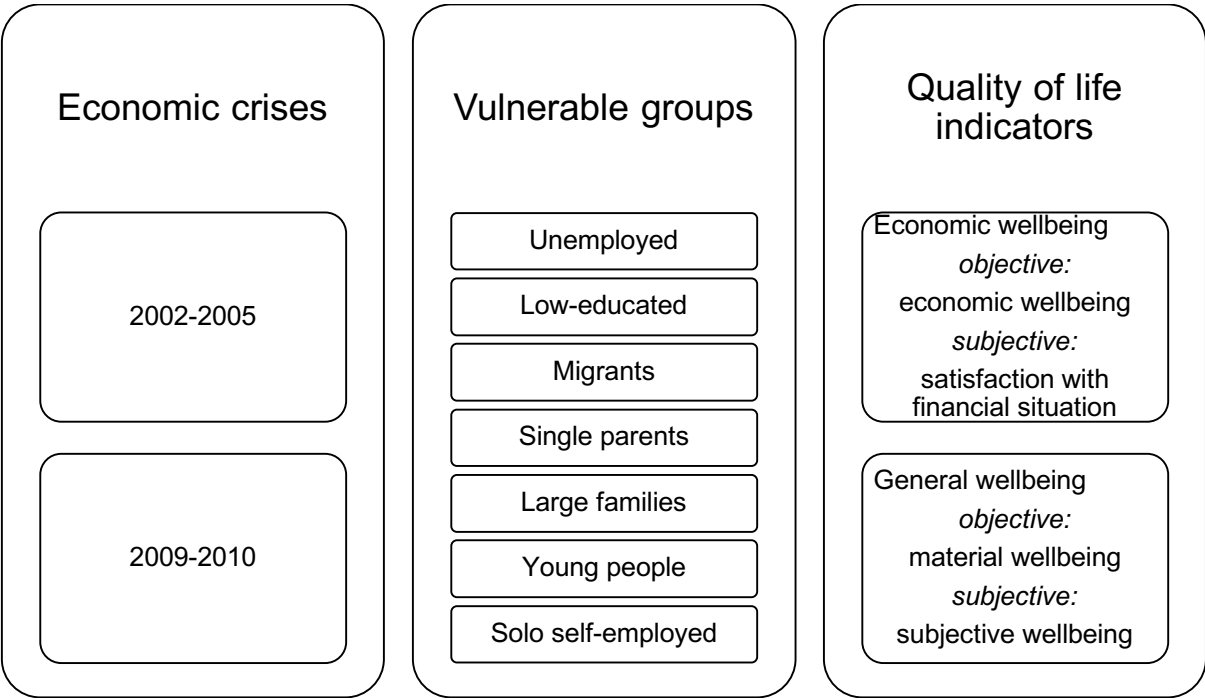
5.5 Data and Methodology

In this paper, we use the Swiss Household Panel (SHP), which is a yearly panel study that follows a representative sample of households in Switzerland over time. The first wave of this dataset was in 1999, but due to the incomparability of the income measure in the first year of the survey, we decided to start our analysis in 2000²¹. The main advantage of this database is its longitudinal nature, which is particularly useful to test our hypothesis about the repercussions of consecutive crises over the same population. Moreover, the SHP pairs indications about the economic situation of the household with measures of subjective well-being. This richness in information enables us to study the effect of two recent economic crises with different indicators. The main disadvantage of this dataset with respect to this analysis is that like all panels, these data suffer from selective attrition with respect to people in extremely hard situations. In case of negative effects, we are therefore likely to give the lower bounds of the estimates.

Figure 1 resumes the methodological framework on which we apply our hypotheses. We start with the definition of the last two economic crises, and then we focus our analysis on the population groups that are the most vulnerable to economic shocks. Vulnerability is defined here as income precariousness. Given that this study examines the impact of economic crises, the economic component is a recurrent element of the analysis. We therefore test the impact of the crisis on two economic indicators, one objective and one subjective, and on two more encompassing measures of objective material well-being and subjective well-being. The next three subsections describe each component of Figure 4 more in detail.

²¹ Households are observed on average for 6.35 years, individuals for 5.57 years.

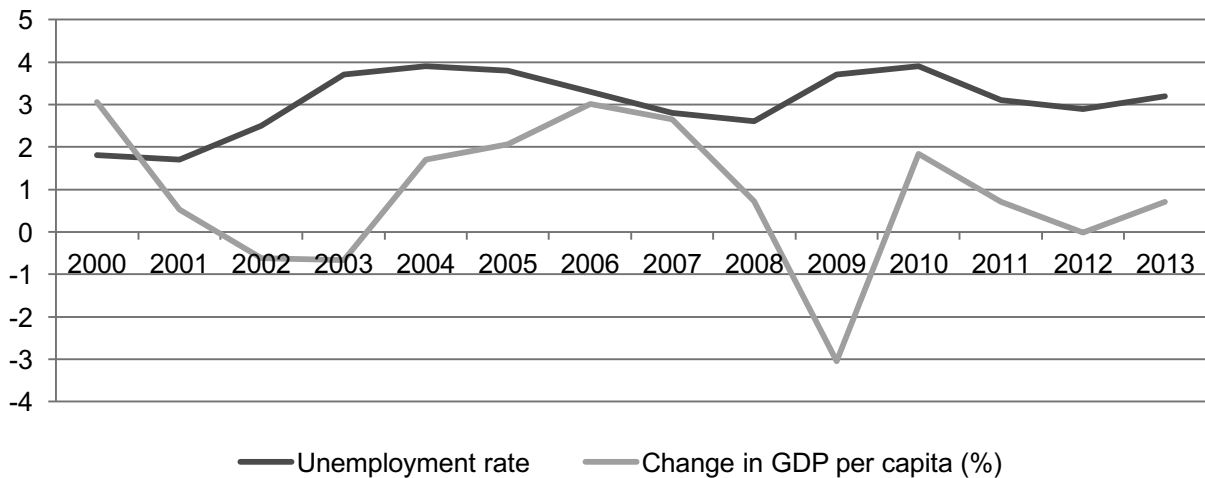
Figure 4: Methodological framework



5.5.1 Definition of the years of crisis

We identify crisis years based on whether there is a rather rapid change in unemployment following a drop in GDP per capita or not. It is true that the level of unemployment in Switzerland is low compared to its European neighbors; however, between 2002 and 2005 unemployment has almost doubled. We consider it as a rapid change as this occurred in less than 3 years, coupled with a drop-in GDP growth, which became negative in both periods. Approximately, the same effects are visible for the two crises, with a bigger drop in GDP and less unemployment during the Great Recession. Therefore, the Dot-com crisis years are 2002-2005 and the Great Recession 2009-2010. This definition is in line with the economic literature, which usually links high unemployment with periods of crisis. These years correspond to periods of relatively higher unemployment compared to previous years.

Figure 5: Trends in unemployment rate and in GDP per capita between 2000 and 2013 in Switzerland.



Sources: GDP per capita from the State Secretariat for Economic Affairs (SECO, reference year: 2005), unemployment from registered unemployed according to the methodology used in the Swiss Social Report 2012 (SECO).

There are two takeaways from Figure 5. First, we acknowledge that the Swiss unemployment rate is extremely low. Second, despite this good economic performance, we see that unemployment has not returned to its historic levels after the dot-com crisis, or after the Great Recession²². Compared to 2000, the years of crises register a doubling of the unemployment rate.

5.5.2 Definition of vulnerable groups

To define the most vulnerable groups (h) we refer to groups targeted by public policies and to groups that the literature identifies as at risk of poverty and social exclusion. For example, we use the same socio-demographic characteristics that the Swiss social insurance system recognizes as factors of economic precariousness. However, we follow the approach proposed by Marazzi (1991, 67) and we identify three main spheres in which people might be staggering, these are: work, income and living costs. We depart from the original model excluding three vulnerable groups - drug addicts and alcoholics, people with health impediments and retirees. This is primarily because we want to create groups that are (or could be) active on the labor market. Looking at

²² The statistical office has also highlighted that an important consequence of the last crisis was also short-term work. The number of people under this type of contracts rose from 40'000 to 72'500 from 2008 to 2009 and then declined steadily to reach before-crisis level in 2012. Conversely, there was no effect on average hours worked per worker (SFOS, 2015).

the work sphere, we thus define vulnerability as the willingness to participate more than what it is observed. According to this definition, we identify the unemployed (h=1) as vulnerable²³. In the income sphere, our vulnerable group consists of those with low earning potential including those with a low-level of education (h=2), migrants (h=3), and single parents (h=4). Finally, we include large families – three or more children (h=5) – in our vulnerable grouping as we assume that high living costs would create a significant challenge. The groups defined here match those who received the largest amounts granted by social assistance between 2005 and 2013: single households (including single parents), migrants coming from non-OECD countries (mainly unskilled migrants), other unskilled workers and large families (Rumo, 2015). They also embody the characteristics of those identified as most deprived among the active population in Europe, namely non-European migrants and the unemployed (Eurofound, 2013). In the definition of vulnerable groups that we have identified so far, two important categories are missing. Bell and Blanchflower (2011) and Smeeding et al. (2011) defined young people (h=6) as a population group at risk and Marazzi (1991) defined them as precarious according to the three spheres we stated earlier. This reasoning is supported by Bonoli (2006), who defines new social risks as those risks faced by young generations, low-educated workers, single mothers and families with children in post-industrial societies. We therefore add young people to our list of vulnerable groups. We also consider solo self-employed (h=7) because of their recurrent income fluctuations²⁴ (see also Leu & Burri, 1999).

5.5.3 Definition of the indicators of quality of life

We use four outcome variables to study the effect of the two crises in our study on vulnerable groups. Two of these variables are objective measures – the risk of poverty and material deprivation – and two are subjective measures – subjective well-being²⁵

²³ In Switzerland, unemployment insurance is withheld from every salary and therefore, individuals can receive between 70% and 80% of their salary when they become unemployed. This benefit is usually provided for a period ranging from six months to two years (depending of the number of contributing years).

²⁴ In Switzerland, the solo self-employed do not receive unemployment benefits. Therefore, they have no income security in case of a job loss.

²⁵ By subjective wellbeing we mean satisfaction with life in general. This concept is expressed on a scale from 1 to 10 and corresponds to the answer to the question: "In general, how satisfied are you with your life if 0 means "not at all satisfied" and 10 means "completely satisfied"?". Numerous works explained that questioning individuals about global evaluation of their lives provides a reliable measure of subjective wellbeing (Sandvik et al., 1993; Blanchower & Oswald, 2004).

and satisfaction with the financial situation. We particularly focus on economic and financial indicators as they are the most sensitive during economic crises.

The risk of poverty identifies a possible loss of economic well-being. For this indicator, we rely on the poverty line set by the SKOS (the Swiss Conference of Social institutions), which calculated the threshold at 2,243 CHF of disposable equivalent income²⁶ per month in 2009. We adjust this threshold deflating it with the CPI for the other years. This threshold is somehow lower than that imposed by Eurostat at 60% of the median, but it is better suited for analyses of crises because less dependent on fluctuations of the median income (see Jenkins et al. 2012).

Following the important discussion on the limits of income-based indicators to evaluate economic well-being (see Stiglitz & al., 2009), we include in our analysis a more encompassing indicator of material well-being, namely material deprivation. We consider a set of ten unweighted items and we assume that the “lack of an item” has the same importance for each household. We consider that the household is lacking an item only when it is for financial reasons. These ten items are: a washing machine, a dishwasher, one week of holidays away from home, inviting friends at least once a month, a meal at the restaurant at least once a month, savings in the third pillar²⁷, a car, a television, go to the dentist if needed and a computer. As suggested by Eurostat, threshold for material deprivation is based on a household’s lack of at least three items. For the two subjective measures, we use the individual’s own evaluation of general life satisfaction for the subjective well-being, and the question about the satisfaction with the financial situation.

5.5.4 Methodological implementations

Answers of the subjective variables range from 0 (not at all satisfied) to 10 (totally satisfied). Even if these variables are ordinal, we treat them as cardinal following Ferrer-i-Carbonell and Frijters (2004).

In order to avoid coefficients to become either negative or positive for different outcomes, we standardized the indicators so that a negative figure means necessarily a negative outcome. Instead of looking at the risk of poverty, we therefore look at the

²⁶ This threshold is calculated with all unavoidable expenses including rents, but not health insurance premiums, which are already deducted in our disposable income. In 2009, this threshold included 960 CHF for basic needs (food, clothing, transportation, leisure, etc.), 1183 CHF for housing costs and 100 CHF for other unexpected expenditures.

²⁷ A third pillar corresponds to a private pension savings plan.

probability of not being at risk of poverty, which we call economic well-being. We do the same for material deprivation and we call the new indicator material well-being. For the analyses on poverty and on material deprivation at the household level, we construct binary regressions in which the outcome is 1 if the household head is above the poverty line or if the household is lacking not more than two items. For the analysis on subjective well-being and on financial satisfaction, we implement multilevel models corrected for individual correlations on rescaled answers. These rescaled answers are created subtracting the mean outcome to have negative and positive values. Positive coefficients mean therefore no poverty, no material deprivation, a higher than average subjective well-being or a higher than average satisfaction with the financial situation of the household.

In general, our models²⁸ can be written as:

$$y = c + \beta_{1,h}h + \beta_{2,h}h * t_1 + \beta_{3,h}h * t_2 + \varepsilon \quad (1)$$

where h ($h=1,2,3...7$) correspond to the seven factors of vulnerability defined in the previous section. For the analysis on poverty and material deprivation, if one person in the household corresponds to the definition of vulnerability, we consider the entire household as vulnerable. y is either the binary outcome for poverty /material deprivation or the ordinal variable for subjective well-being/satisfaction, $\beta_{1,h}$ identifies the normal outcome of a vulnerable group compared to the rest of the population in periods of no economic crisis, whereas $\beta_{2,h}$ and $\beta_{3,h}$ show the effects of the first and the second crisis on the outcome variable for our selected vulnerable groups. As the number of unemployed change with the crisis, we disentangle the effect of people who change unemployment status from the effect of recurrent or long-term unemployed. To do so, we consider the panel structure of the data and we use a hybrid model where we combine fixed-effects estimators for the unemployed with random-effects estimators for the other six groups (see Oesch and Lipps, 2012 for an application to the unemployed). Therefore, there are two coefficients for the unemployed interacted with the crisis: one that measures the average number of years that people spent in unemployment and one that measures the effect of changing unemployment status.

²⁸ We estimate the models with the Stata commands “xtlogit” for poverty and material deprivation and “xtmixed” for subjective wellbeing and the satisfaction with the financial situation.

Changing unemployment status means becoming unemployed or exiting unemployment. In the two crises, changing unemployment status measures mainly the effect of becoming unemployed.

Running equation (1) on multiple indicators we are able to see which indicators and which groups are the most affected by the crises. To answer the question on a negative repercussion of the second crises on people already in disadvantaged conditions during the first crisis, we created an identifier for low income, high material deprivation, low subjective well-being or low satisfaction in the first crisis. We can then select the sample according to this identifier and run the same hybrid model described above for the years following the first crisis (2006-2013). Through this model, we can see whether vulnerable groups in disadvantage conditions experienced some effects also in previous or in following years compared to the second crisis and whether objective indicators reacted with leads or lags compared to subjective indicators.

5.6 Descriptive Statistics

We compute simple averages of the four indicators of objective and subjective quality of life to determine whether the selected vulnerable groups are also vulnerable in periods of economic growth and not just in times of economic recession. Selecting two years of low unemployment before the crises allows us to qualitatively interpret the changes due to the crises. In Table 12, we can see that before the first crisis all vulnerable groups had a disadvantage according to at least one indicator compared to the reference group, which is the general population. The most disadvantaged are the unemployed and the low-educated, who perform poorly in both objective and subjective outcomes. Except for the young, all groups seem more concerned by income poverty than by material deprivation (e.g. 27% of large families are economically poor, but only 3% of them are materially deprived). A possible reason might be that material deprivation is more a stock than a flow and it does not change much over time. Furthermore, the list for the material deprivation index may not be the most adequate, and especially for this group. Therefore, it is better suited for identifying long-term rather than short-term vulnerabilities in comparison to income poverty. Alternatively, one could argue that the lack of three items might be too high of a threshold to correctly identify vulnerabilities (Babones et al., 2015). Since this is not a homogeneous result among all years and groups, we leave this discussion for further

research and we acknowledge that there are more people at risk of poverty than of material deprivation given our choice of indicators. In examining the simple averages calculated, we note that the groups affected by income poverty vary over time, even in pre-crisis periods, as opposed to the other three indicators that are stable.

Table 12: Objective and subjective outcomes by vulnerable groups in pre-crisis periods

Household types	N	At risk of poverty (%)	Materially deprived (%)	Subjective well-being (average)	Satisfaction with financial situation (average)
2001					
Unemployed	145	30.34‡	14.48‡	7.31‡	6.34‡
Low-educated	435	24.14‡	11.49‡	7.61‡	6.93‡
Migrant	412	12.38	10.44‡	7.58‡	6.61‡
Single parent	250	17.60‡	15.60‡	7.49‡	6.54‡
Large family	447	26.61‡	3.13	8.23	7.42
Young	337	8.22	6.63‡	8.10	7.00‡
Solo self-employed	236	16.10‡	16.10‡	8.12	7.27
Population	4,649	11.27	4.54	8.02	7.45
2008					
Unemployed	169	23.08‡	18.34‡	7.15‡	5.85‡
Low-educated	269	21.93‡	11.15‡	7.34‡	6.67‡
Migrant	252	13.49‡	15.08‡	7.38‡	6.39‡
Single parent	268	20.15‡	17.16‡	7.15‡	6.15‡
Large family	312	20.19‡	3.21	8.08	6.96
Young	271	7.75	5.54	7.86	6.96
Solo self-employed	231	8.23	2.60	7.87	6.89‡
Population	4,362	7.93	4.42	7.88	7.18

Notes: ‡ indicates a significant disadvantage compared to the average of the year. Source: authors' computations with the SHP 2001 and 2008.

Moreover, all groups, except migrants and single parents, reduce their risk of poverty over time. On the other hand, all of them experience a decrease in their subjective well-being and satisfaction with their financial situation. In terms of subjective well-being, we could say that all these vulnerable groups are in the set-point range of 7.1-9, which is defined by Cummins et al. (2014) as the normal range for subjective well-being.

We also check how many households -for objective indicators- or how many individuals -for subjective indicators- changed their conditions from the first to the second crisis. Results are reported in Table 13. Not surprisingly, the lowest level of mobility can be found for people who move in and out of material deprivation. This confirms that material deprivation shows a rather permanent form of deprivation, which is not so dependent on economic cycles. A few households moved out of poverty over time, but some other entered poverty and a stable 6.5% remained poor from one recession to the next. Mobility is higher for economic poverty than for material deprivation. The highest mobility, however, can be observed for subjective indicators and particularly for the satisfaction with the financial situation of the household. This last indicator seems therefore to be quite sensitive to changes. It shows that although 58% of people are always satisfied with their life, just around one-third of them are always satisfied with their financial situation²⁹.

Although going beyond mere income thresholds is quite established in the quality of life literature (Stiglitz et al., 2009), not many studies have been conducted with multiple indicators on the effect of crises.³⁰ These descriptive results, however, show that this might be a useful technique to assess the impact of economic fluctuations. We would argue that having more than one quality of life indicator would be crucial to gain a better overview of these fluctuations.

²⁹ The threshold for satisfied is set at the mean of the distribution. A score equal to or higher than the mean qualifies people as satisfied.

³⁰ Exceptions are Addabbo et al. (2012), Gudrun Gudmundsdottir (2011), Somarriba Arechavala et al. (2015) and Watson et al. (2015).

Table 13: Mobility tables according to objective and subjective indicators, percentage changes from the Dot-com crisis to the Great Recession

		Great Recession				Great Recession	
<i>Economically</i>		poor	not poor	<i>Materially</i>		deprived	not deprived
Dot-com	poor	6.50	10.42	Dot-com	deprived	3.45	5.28
	not poor	4.92	78.16		not deprived	2.98	88.29
<i>Subjectively</i>		Great Recession satisfied	not satisfied	<i>Financially</i>		Great Recession satisfied	not satisfied
Dot-com	satisfied	57.99	13.39	Dot-com	satisfied	30.62	14.80
	not satisfied	12.36	16.25		not satisfied	16.75	37.82

Sources: authors' computations with the SHP 2002-2005, 2009-2010.

5.7 Results

We now estimate the effects of the two crises on vulnerable groups. We remind that economic well-being refers to the probability of not being at risk of poverty and material well-being refers to the probability of not being at risk of material deprivation.

As reported in Table 14, except for the young, all vulnerable groups have at least one objective or one subjective indicator that is lower compared to the rest of the population. As a baseline effect, the unemployed, the low-educated, migrants and single parents are all at risk for poverty, experience material deprivation, and are not particularly satisfied with their financial and overall situation. In addition to the literature that identified unskilled workers and the unemployed as recurrent vulnerable groups during crises (Oesch and Lipps, 2012; Guardiola and Guillen-Royo, 2014; Gábos et al. 2015), we observe particularly negative effects for single parents and for large families during the first crisis. This is in line with results on Europe produced by Chzen (2016) with subjective indicators for families with children and by Riederer et al. (2017) for the economic, psychological and social vulnerability of families in Europe. In our analysis, all four indicators react negatively for single parents. For this group, objective and subjective indicators are therefore going in the same direction during the first crisis. The symmetrical change of subjective and objective indicators expected in H1 is therefore supported for single parents, but not for other vulnerable groups. A subjective-objective divide emerges for other groups. In terms of significant negative

effects, the economic well-being of large families is the only indicator that registers a drop. In terms of significant positive effects, some indicators show high performances for the young and for solo self-employed even when other indicators are negative. Diverging significant effects are also observed for the unemployed. The unemployed have a higher economic well-being (or rather a lower probability to fall into poverty) during the two crises. This result might be specific to the Swiss context because even when unemployment is high, people with relatively high salaries who have lost their jobs continue to receive up to 80% of their previous wages. Therefore, the unemployed appear to be better off during crises. Crettaz (2014) showed in his paper that the shape of the income distribution may change during an economic recession, and it is generally those with the highest income that lose the most. However, a significantly lower level of subjective well-being for this group indicates that there are still negative repercussions of the crises even when the risk of poverty is not very high.

We can see much stronger effects of the first crisis compared to the last. The first crisis had clear negative effects for single parents, whereas during the second crisis only people who experienced several years of unemployment saw their objective and subjective well-being reduced. Compared to the first crisis, in the second crisis there are also some positive effects according to the subjective indicators for migrants and single parents. If for migrants, this might be potentially explained by a comparison effect with the worse economic situation of the population in the country of origin, the interpretation of the coefficient for single parents might become more evident with the next analysis.

Table 14: Effects of the crises on vulnerable groups according to objective and subjective indicators

	(1) Economic well-being	(2) Material well-being	(3) Subjective well-being	(4) Satisfaction with financial situation
Baseline effects				
People with many unemployment years	-3.927*** (-12.614)	-5.023*** (-13.505)	-1.719*** (-15.457)	-2.396*** (-15.375)
People changing unemployment status	-1.095*** (-7.548)	-0.902*** (-4.970)	-0.261*** (-7.150)	-0.625*** (-14.301)
Low-educated	-1.896*** (-15.462)	-1.477*** (-9.305)	-0.217*** (-6.188)	-0.265*** (-5.933)
Migrants	-0.433*** (-3.021)	-1.433*** (-8.234)	-0.278*** (-6.979)	-0.476*** (-9.287)
Single parents	-1.040***	-1.664***	-0.404***	-0.551***

	(-8.762)	(-11.258)	(-11.821)	(-13.024)
Large families	-1.496***	0.026	0.068**	0.001
	(-12.126)	(0.124)	(2.259)	(0.037)
Young	-0.078	-0.201	0.101***	-0.036
	(-0.602)	(-1.180)	(3.331)	(-0.971)
Solo-self-employed	-0.426***	-0.467**	0.022	-0.121***
	(-2.861)	(-2.094)	(0.710)	(-3.227)
<hr/>				
Interactions with the first crisis				
Crisis I	-0.197***	-0.181*	0.014	-0.065***
	(-2.735)	(-1.720)	(1.008)	(-3.991)
People with many unemployment years	0.702**	0.717*	-0.109	-0.342***
	(2.011)	(1.782)	(-1.055)	(-2.739)
People changing unemployment status	0.855***	0.351	-0.010	0.121
	(3.318)	(1.127)	(-0.165)	(1.631)
Low-educated	0.200	0.372**	0.058	0.023
	(1.430)	(1.981)	(1.386)	(0.469)
Migrants	0.207	-0.245	-0.009	0.006
	(1.190)	(-1.202)	(-0.202)	(0.124)
Single parents	-0.449***	-0.292	-0.095**	-0.087
	(-2.802)	(-1.446)	(-2.032)	(-1.543)
Large families	-0.394**	0.006	0.011	0.053
	(-2.447)	(0.019)	(0.282)	(1.130)
Young	-0.006	0.119	0.092**	0.156***
	(-0.030)	(0.455)	(1.980)	(2.754)
Solo self-employed	0.489**	0.447	-0.032	-0.034
	(2.183)	(1.255)	(-0.635)	(-0.577)
<hr/>				
Interactions with the second crisis				
Crisis II	0.227**	0.031	-0.042**	0.016
	(2.361)	(0.231)	(-2.555)	(0.833)
People with many unemployment years	-0.175	-0.907*	-0.086	-0.268*
	(-0.388)	(-1.706)	(-0.637)	(-1.652)
People changing unemployment status	0.686*	-0.052	-0.011	0.000
	(1.939)	(-0.128)	(-0.140)	(0.001)
Low-educated	0.118	-0.097	0.028	0.062
	(0.606)	(-0.386)	(0.491)	(0.926)
Migrants	-0.306	-0.029	0.116**	-0.003
	(-1.262)	(-0.101)	(1.962)	(-0.042)
Single parents	-0.172	0.008	0.068	0.150**
	(-0.877)	(0.033)	(1.228)	(2.250)
Large families	0.063	0.092	0.030	-0.018
	(0.269)	(0.211)	(0.564)	(-0.287)
Young	-0.380	0.761*	0.020	-0.006
	(-1.444)	(1.885)	(0.339)	(-0.079)
Solo self-employed	-0.155	0.104	-0.018	-0.042
	(-0.585)	(0.256)	(-0.295)	(-0.585)
<hr/>				
N	43,088	43,088	62,242	62,242

Notes: t-statistics in parenthesis. Significance levels: * = 10%, **=5% and *** = 1%.

Sources: authors' computations with the SHP 2000-2013.

The next analysis investigates how disadvantaged households in the first crisis fared in the second crisis. We remind that to be qualified as disadvantaged, the vulnerable groups must be economically poor, materially deprived, dissatisfied with their life or dissatisfied with the financial situation of the household. These conditions can, but do

not need to, be jointly satisfied.

Following groups over time after the first crisis reveals interesting effects. The effects are here at an annual basis (biannual for the second crisis) and refer to the first crisis. Coefficients are therefore not directly comparable with Table 14 where the reference period was composed by all non-crisis years. In Table 15, we remark that people who experienced many years of unemployed register a significant drop in more than one indicator in the years following the first crisis and during the second crisis. The drop in the satisfaction with their financial situation happens during the crisis and three years after. Their general level of satisfaction decreases also one year after the first crisis. The unemployed behave according to our expectations regarding both the scarring effects of the crises and the presence of lags in subjective indicators compared to objective indicators (see H2). Since the negative effects are registered for people with many years of unemployment, but not for people becoming unemployed, this means that the negative effects are due to long-term unemployment. This evidence confirms previous literature on the scarring effects of long-term unemployed on subjective well-being (Clark et al., 2008) and on the lack of adaptation to repeated episodes of unemployment (Oesch & Lipps, 2012).

Following the first crisis, large families have also experienced a deterioration in their objective and subjective financial situation. Even if not significant after 2011, this negative trend continues in all years of the panel. With time lags, other groups that react negatively to the crisis are the low-educated and the solo self-employed. In Switzerland, the general conditions of these groups were not significantly affected during the crises, but started to decline afterwards.

Some other groups do not appear to have been particularly sensitive to the first crisis and continued their rather normal trends over time. This insensitivity is found for migrants and for the young. Migrants show a continuously negative trend with respect to their economic well-being. This negative situation is however not reflected in their material or subjective well-being. The young show also a rather negative, even if not significant, trend in their subjective well-being. This effect might be produced by ageing as their economic situation does not worsen and even improves in material terms in 2009-2010.

Interestingly, even though single parents were harshly affected by the first crisis, they experienced an improvement in their conditions during and after the second crisis. In this case, subjective indicators were the first to react. This group experienced negative

objective effects during the first crisis and on the one hand, the fact of not encountering them in the second crisis might have lifted the moral of this group. On the other hand, given that the effects are not only registered in the years of the second crisis, but also afterwards, they might be linked to long-term improvements in the conditions of single parents over time³¹.

This analysis highlights the importance of studying more than one year around the crisis to have a more complete picture of the trends over time.

Table 15: Effects on disadvantaged vulnerable groups according to objective and subjective indicators

	I crisis (ref.)	2006	2007	2008	II crisis (ref.)	2011	2012	2013
People with many years of unemployment								
Economic well-being		-0.929	-0.893	-0.641	-0.601	0.143	0.707	-0.381
Material well-being		-2.195**	-1.577	0.508	-1.487*	-1.377	-1.916	-3.173**
Subjective well-being		-0.752***	-0.308	-0.358	-0.267	-0.009	-0.147	-0.371
Financial satisfaction		-0.219	-0.139	-0.750**	-0.439*	-0.247	-0.550	-0.807**
People changing unemployment status								
Economic well-being		-0.614	-0.375	-0.861	-0.199	0.078	1.825	0.257
Material well-being		-0.639	0.278	1.617**	-0.190	0.904	0.728	0.468
Subjective well-being		0.233	-0.007	0.572***	-0.014	0.152	-0.093	-0.047
Financial satisfaction		-0.257	-0.392*	0.333*	-0.017	-0.008	-0.241	-0.073
Low-educated								
Economic well-being		-0.051	-0.310	-0.079	-0.074	-0.343	-0.986**	-0.211
Material well-being		-1.048**	-0.937*	-0.326	-0.499	-1.158**	-1.661***	-0.846
Subjective well-being		-0.150	-0.355***	-0.201	0.017	-0.008	0.149	-0.178
Financial satisfaction		-0.176	-0.174	0.058	-0.041	0.144	-0.221	-0.212
Migrants								
Economic well-being		-0.270	-0.638	-1.127**	-0.480	-0.537	-1.052*	-0.729
Material well-being		0.153	0.917*	0.055	-0.150	0.252	-0.126	-1.108

³¹ Since 2009, benefits for families have slightly increased (SFOS, 2017).

Subjective well-being	0.273**	0.114	0.067	0.167	0.019	0.058	0.193
Financial satisfaction	0.107	0.071	0.101	0.004	-0.049	0.379**	0.085
Single parents							
Economic well-being	-0.241	0.538	-0.494	0.087	0.885**	0.375	0.284
Material well-being	0.157	-0.076	-0.365	-0.044	0.370	0.183	0.790
Subjective well-being	-0.026	0.188	-0.095	0.210**	0.070	0.273**	0.137
Financial satisfaction	0.094	-0.117	0.204	0.186*	0.272**	0.119	0.176
Large families							
Economic well-being	-0.421	-0.607*	-0.692*	0.675**	-0.644	-0.661	-0.610
Material well-being	-0.624	0.345	-0.024	0.499	0.758	1.219	1.321
Subjective well-being	-0.018	-0.102	0.048	0.051	-0.060	-0.041	-0.110
Financial satisfaction	-0.209*	-0.278**	-0.220*	-0.100	-0.238*	-0.010	-0.170
Young							
Economic well-being	-0.043	0.906	1.070	-0.038	0.720	0.121	-0.805
Material well-being	0.751	0.817	1.156	2.086**	0.844	-0.481	0.000
Subjective well-being	-0.164	0.051	-0.066	-0.099	-0.270	-0.114	0.004
Financial satisfaction	0.063	0.035	-0.055	-0.205	0.095	-0.417	-0.421
Solo self-employed							
Economic well-being	-0.152	-0.435	-0.467	-0.753*	-1.260**	-0.889	-1.253**
Material well-being	-2.175**	1.417	0.000	-0.073	-0.987	-1.431	-1.371
Subjective well-being	0.051	0.051	0.036	-0.133	0.132	0.043	-0.008
Financial satisfaction	0.213	0.214	0.026	-0.074	-0.060	-0.155	-0.087

Notes: Significance levels: * = 10%, **=5% and *** = 1%. Bold coefficients indicate statistically significant coefficients. Sources: authors' computations with the SHP 2002-2013. The first crisis (2002-2005) is the reference period.

5.8 Conclusion

This paper investigates the effects of recurrent crises on vulnerable population groups in Switzerland. The analysis is performed with longitudinal data from the Swiss Household Panel.

Results show that even in a country that was not profoundly affected by the Dot-com crisis and the Great Recession, many vulnerable groups experienced a decline in their level of quality of life. Vulnerable groups with children were among the most sensitive

in the first crisis. These results confirm the vulnerability of families with children (Bonoli 2006; Riederer et al. 2017) and the European results of the negative impacts of crises on this vulnerable group (Chzen 2016). In Switzerland, this group is subject to high expenditures given high living costs, mandatory health insurance and the level of childcare costs, which are very high in an international comparison.³² In 2017, a report of the SFOS (Swiss Federal Office of Statistics), show that the risk of poverty for large families and for single parents were more or less similar (around 20% for these groups and 13,5% for the general population), thus in case of economic slowdown, families with children become even more vulnerable. This vulnerability of families is an interesting aspect that calls for future research. Future comparative research might be beneficial to establish whether the particularly high vulnerability to economic shocks registered for families with children is due to the national social security system (the proportion of social spending for families in Switzerland is for example very low in a European comparison (Switzerland stands at the 21st position across the 35 OECD countries) (SFOS, 2017; OECD, 2016) or to the low flexibility of these groups in periods of economic crisis.

Results from the longitudinal analysis showed that some, but not all, households that were disadvantaged in one of the four indicators during the first crisis reported lower performances in the following years. We found scarring effects of the first crisis and long-lasting vulnerability on people who experienced many years of unemployment, on large families, the low-educated and the solo self-employed. The solo self-employed, the migrants as well as the low-educated reported scarring effects of crises only for objective indicators (economic and material well-being), while subjective indicators were not affected. A possible explanation for this result could be that these groups are used to financial difficulties and instability. Contrary to this, we found that single parents, one of the groups that was most affected during the first crisis, reported higher levels of subjective and objective indicators during and after the Great Recession. Household with children had enough resources to improve their situation in the period around the second crisis. Whether these resources were internal (e.g. resilience or unfulfilled negative expectations) or external (e.g. improved family policies) might be an interesting topic for future research.

³² According to the OECD Family Database, childcare fees are 67.3% of the average wage. This is the highest proportion among the 35 OECD countries. For middle-class two-income families, this corresponds to 23.6% of net household income. Switzerland can be ranked together with other liberal countries with a proportional fee for childcare 2.4 times higher than in Germany or France and almost 9 times higher than in Austria.

Regarding indicators, we found that between the two crises mobility for subjective indicators was higher than for objective indicators. The reason for this can be found in the nature of the selected objective and subjective indicators. On the one hand, material deprivation, which refers to a stock of possessions, and income poverty, which is avoidable through social protection, are quite stable over time. On the other hand, subjective well-being and satisfaction with the financial situation are influenced not only by personal events, experiences or characteristics, but also by the surrounding context. Although subjective indicators tend to come back to homeostasis in the long run, they fluctuate wildly in the short run. For this reason, they are quite good indicators of quality of life during short periods of crisis. However, this higher mobility with regards to subjective indicators may also be due to scaling issues. Subjective indicators are ranging from 0 to 10, whereas objective indicators have binary outcomes. This may be one of the cause for this higher mobility. In most cases, we also remark that there was a lag in the adjustment of subjective indicators compared to objective indicators. The effects might also be causal. Future studies might contribute to assess this causality between objective conditions and subjective perceptions. Overall, our results point to a combination of subjective and objective indicators to gauge the short-term aftermaths of recurrent crises.

6 Conclusion

6.1 Concluding remarks

This section presents the main results of the three papers of the present dissertation and provides suggestions for both the scientific and political communities.

In a high-income country such as Switzerland we decided to focus our research on people living on the edge of poverty, and thus not recognized as poor but who may suffer from economic and social difficulties to maintain decent living conditions. Those people are not targeted by any specific assistance and the present thesis aims first, to define who are those people; second, to measure the impact of this socio-economic position on the level of subjective well-being; and third, to explore the effects of two consecutive economic downturns on a set of defined vulnerable groups.

The first paper of the present dissertation provides an interesting comparison of four measures of poverty, material deprivation, precariousness and vulnerability. We aimed to examine available indicators to identify people being on the edge of poverty, that are either designed for such a purpose or adaptable to our research. This approach shows that even the relative income poverty indicator is adaptable to measure those being vulnerable to poverty. Indeed, the poverty threshold is set at 60 percent of the equivalent disposable median income and we fixed the upper threshold at 80 percent, based on the literature about the middle class (see Atkinson & Brandolini 2011 and Budowski et al. 2010), to identify our targeted group. The same applies to the material deprivation indicator for which we decided to apply a prevalence weight, meaning that an individual or a household missing an item that is largely spread among the general population is considered as suffering deeper deprivation. We based the two cut-offs thresholds, to distinguish our target population from those poor and those in the middle class, by observing the distribution of the population using the index of material deprivation (which is standardized). The precarious prosperity is designed to identify those being on the edge of poverty. Finally, we used for the vulnerability to poverty indicator the same two thresholds that are defined in the second article and for which the same concept is used (see Simona-Moussa 2020). What our comparison shows is that the number of people identified by each indicator varies considerably. Both the relative income and the concept of vulnerability to poverty identify respectively 13 and 7 percent of the Swiss population belonging to those being vulnerable to poverty,

whereas the material deprivation index and the precarious prosperity concepts identify 21 and 25 percent of vulnerable individuals. One should be careful while choosing one or the other measure, as the part of people being vulnerable can multiply by more than three (comparing the vulnerability to poverty and the precarious prosperity approaches). We can note that each of the four indicators is measuring a different group of people. This observation is confirmed while observing the socio-demographic characteristics for which we observed, to a certain extent, both differences and similarities. Women appear to be more concerned than men by vulnerability using the four indicators. Another important result is the fact that for people aged less than 25 and those aged 65 and over, higher proportion of people being vulnerable (compared to other age groups) are found. This is very interesting and we can say that those two age groups are pivotal periods of life, such as entering the labor market, building one's private household (marriage, children), setting up one's professional career, but also the end of one's career and preparing for retirement, and seem to be periods of life associated with greater vulnerability. This is even more pronounced when using the indicator of precarious prosperity or material deprivation. This trend seems to be confirmed while observing the percentage for each category of household type using each of the four indicators. Among single women, single parents and couples with 2 dependents, about 30 percent are considered as being vulnerable when using the precarious prosperity measure. Budowski et al. (2010) mentioned in their paper that vulnerable individuals are a heterogeneous group and there is not a single profile, even if some characteristics appeared to be more or less important. Finally, we could show that correlations for almost all subjective variables were relatively similar among the four indicators, except for two of them. Indeed, two variables, *satisfaction with the financial situation of household* as well as *satisfaction with financial situation*, were found to report moderate negative correlations with all four indicators. The negative correlation was deeper for both subjective variables with indicators accounting for material deprivation, thus the material deprivation index and the precarious prosperity. In conclusion, the four indicators compared in the paper provide interesting insights and we could show that each measurement allows to identify, at least, a part of those being vulnerable, even if important dissimilarities occurred. Following the results on the socio-demographic characteristics, it seems that the precarious prosperity and the material deprivation indicators appear to estimate more individuals being vulnerable compared to the relative poverty and the vulnerability to poverty measures. Therefore,

this result indicates that one should be careful while choosing one or the other approach for its analyses, as one method could *overestimate* or *underestimate* the number of people living on the edge of poverty.

The second article of this thesis investigates the level of subjective well-being for those vulnerable to poverty and it is found to be negatively associated. However, we find people belonging to this specific socio-economic group to be better-off than those in poverty. Nevertheless, their respective level of subjective well-being is very similar to those in poverty and this result tends to indicate similar feelings between the two groups. Thus, more attention should be paid to those being vulnerable to poverty and not only, even if very important, to those at the bottom of the income distribution. Determinants of the subjective well-being tested in our model are found to be consistent with findings of the literature. The financial dimensions, such as not being materially deprived and being able to save money, have positive effects on level of subjective well-being. Having a good health, both physically and mentally, also contributes to a higher level of subjective well-being. Finally, to trust other as well as being an active member of a club or an association also contribute positively to a higher self-reported life satisfaction. This article shows that all determinants of subjective well-being tested are still relevant and count for an important part in the explanation of the model. This article confirms what the literature has already provided so far about the determinants of the subjective well-being, however, our approach of the vulnerability to poverty is innovative in the sense that no other study has investigated the level of subjective well-being of those living on the edge of poverty. By doing so, we highlight similarities with people living in poverty and who benefit from social assistance in term of self-reported life satisfaction. This paper contributes to both the literature on the vulnerability to poverty as well as the literature on subjective well-being.

The third article concludes that the first economic crisis of the XXI century, the Dot.com Bubble had stronger impacts on a set of vulnerable groups accounted for in the analysis than during the Great Recession. This information is already interesting at the international level, whereas the second economic downturn had stronger negative impacts especially for countries such as Greece, France, Spain, Italy, Ireland and the United Kingdom (Crettaz 2014). However, for some other European countries the Great Recession has also shown to have limited impacts such as in Germany for example (see Crettaz 2014). Concerning groups that suffer the most, our analysis highlights the case of families (households with children, either single parents or large

families) who were particularly affected during the first crisis. Exploiting the longitudinal structure of the SHP data, we show that not all vulnerable groups considered for the analysis and who suffered during the first crisis experienced lower performances on the four indicators of quality of life in the following years. Negative effects and, thus, long-lasting vulnerabilities are found for people experiencing long periods of unemployment, as the drop is found in more than one indicator of quality of life in the years following the first crisis and during the second crisis. Similar negative effects were found for large families who experienced a drop in their subjective and objective financial situation. Two more groups have similar trends, those with a low level of education and the solo self-employed. Interestingly, two groups, the migrants and the young, were not sensitive to the first crisis and continued their negative trend, respectively to their economic well-being for the first group and to their subjective well-being for the second group. Last important point which is worthy to be mentioned is the reaction of those single parents. They were harshly affected during the first crisis but surprisingly, they experienced an improvement in their objective and subjective well-being during the second crisis and in the following years. This reaction may be explained by either strong negative expectations of the second crisis, which did not occur, or by an improvement of their social conditions.

With regards to the combination of subjective and objective indicators, as the measure of quality of life, we can say that mobility for subjective indicators is higher. This is probably due to the inherent choice of the indicators retained for the analysis. In fact, material deprivation generally refers to a *stock* of possession and thus, is not that much sensitive. This is also true for income poverty, where Swiss people benefit from a good safety net through social protection and it is therefore not so much volatile. This may be because one of the main strength of Switzerland, which is its low unemployment rate comparatively. We assume we would find different results if the unemployment rate was coming to increase and thus many people would rely on social assistance. However, this may also be due to scaling issues as subjective indicators are ranging from 0 to 10 and objective indicators are constructed to have binary outcomes. Based on the results presented in this third paper, we can therefore recommend that using a plurality and diverse indicators of quality of life, both subjective and objective, has a broader picture of the situation. This would enable political spheres to take adequate measures to address recurrent vulnerability of particular groups of the population. Another point: it is important to have a longitudinal perspective as our study shows that

some negative effects may not occur only during an economic crisis but also, sometimes, when effects are found to be lagged. This last paper provides interesting findings for the literature about economic crises as we monitored their effects for a relatively long period of time. Moreover, basing our research in Switzerland we show that even if global economic crises, such as the Dot-Com Bubble and the Great Recession, have affected numerous countries over the globe, not all countries are affected the same way, even for neighbor countries. Thus, what is found to be true for Switzerland might not be the case for another country. Indeed, aspects that relate to structural, socio-economic and cultural level are involved while exploring the effects of economic crises.

Our thesis explores different aspects of vulnerability, by comparing indicators to measure it, by estimating the impact on the self-reported life satisfaction, and by exploring effects of two important economic recessions on the level of quality of life. A point is that we focus our research on Switzerland, and thus results presented are only valid for this country. However, we do think that our research might also be important for other countries. Indeed, our first article that compares four indicators of vulnerability, poverty, precariousness and material deprivation, can be interesting for all countries or contexts that are familiar with such approaches (which is especially the case in European countries). We are confident that findings of our second article can also be important for other countries with similar socio-economic context, such as Germany for instance. Previous researches have already shown numerous similarities among the two countries and it would be very interesting to compare the results. But the latter is also true with countries standing very differently from Switzerland, both at the political level and the socio-economic context, to understand how living on the edge of poverty impacts the level of subjective well-being. Finally, regarding our last contribution, we can say that results are mainly valid for Switzerland. However, they may help corroborate or contradict other results developed in different economic contexts, as some vulnerable groups, although they tend to be specific, may also be similar.

It seems also important to us, in this very special time of Covid-19 pandemic, to write a word about it and its links with the topic of our thesis. Most of us, throughout the world, is affected in one way or another by this epidemic. A deep recession is looming over the international economy and Switzerland has entered in recession during the

second quarter of 2020 (RTS 2020). This brings us back to what Tocqueville (1835) said and what we mentioned in the introduction: special attention and care for vulnerable people should be given. Hugo Fasel, Director of Caritas Switzerland, says that many people and families were at risk of poverty during this time of semi-confinement, because they could not get childcare and could not work. Therefore, paying bills became very complicated (Caritas 2020b). There are also many people who lost their jobs overnight, especially those in lower paid jobs, and they would probably be considered as vulnerable to poverty with regards to our approach. The 25th of April 2020, Caritas Switzerland said that requests for food aid (more than financial aid) increased by 30 percent. Applications for social assistance also increased significantly, by up to 40 percent in some cantons (Caritas 2020b).

The welfare state should rethink its priorities and the way it manages this crisis is crucial for several vulnerable groups considered in this thesis, such as the solo self-employed or large families. As we show in our last contribution, the quality of life of people who have been unemployed for a long period of time has been severely impacted during the last two economic recessions. We can therefore expect a similar or even more serious situation for this crisis if no serious measures to prevent a loss of quality of life for such groups are taken. For now, the Swiss Government has put in place a set of measures to mitigate the negative impacts of the coronavirus crisis restrictions.

First, with regards to those having a low level of education and thus mainly employed in unqualified jobs, the Swiss Government has set measures to financially support people and enterprises that suffered from a reduced work schedule (Conseil Fédéral 2020). This is also true for parents who could not work because childcare was no longer provided. However, in order to receive these benefits, one has to fulfill several conditions. Moreover, we can doubt that those who need the most assistance are the most capable of first, knowing the existence of such assistance and, second, to have the capability to fill up all the forms and documents required to subscribe. Concerning people experiencing unemployment before the semi-confinement, as well as those who lost their jobs at that time, the Swiss Government increased the daily allowances up to 120 days (Conseil Fédéral 2020). This quick reaction may help to prevent a loss of welfare for this group that is found to be especially vulnerable in time of economic downturns. The last vulnerable group that is found to be strongly and negatively impacted during the two economic downturns of the beginning of the 2000s is the solo

self-employed. But again, the Swiss Government decided to allow specific benefits for those people that are losing income due to restrictions induced by the fight against the pandemic. This measure makes it possible to pay 80% of the salary to the person who suffers this loss of income (BSV 2020). If measures taken to mitigate the negative effects of coronavirus control on the economy are not sufficient, the quality of life of vulnerable groups could be affected even more severely than in previous economic crises. This time, the Swiss Government has quickly reacted, and we will see in the forthcoming months if those measures were sufficient or not.

6.2 Futures researches

The contribution of the present thesis to the general literature could be extended as mentioned previously. Indeed, we have not only investigated various indicators of vulnerability but we have also highlighted different vulnerable groups that would benefit from further researches. Large families appear to be highly sensitive to economic shocks in our third paper, and this could be further investigated to better capture the reasons. It could be either because of a deficient national security system. As we know, Switzerland has neither good or poor social policies, compared to other economically advanced countries. However, it has a very poor family policy, which is one of the lowest among OECD countries (SFOS 2017; OECD 2016), or the low flexibility of this specific group. Indeed, people with children are less flexible in terms of time management and mobility.

Another aspect that appears in our last contribution, and for which further researches would benefit, is the question of causality between objective conditions and subjective perceptions. Indeed, we found in our paper subjective indicators to react with a lag in their adjustments compared to objective indicators. Even if it is always difficult to establish links of causality, future researches going in this direction could be of great interest for the overall literature on subjective well-being and quality of life in general. With our first paper, we show that apparently two periods of life, first those aged less than 25, when one's constructing its professional career, and around the age of retirement seem to be crucial periods, during which more people are vulnerable to poverty. Further researches could investigate vulnerabilities of this specific group, first by using the vulnerability to poverty method to define them and then to determinate if specific life events could explain or provoke a downside risk. By using databases like

SHARE could be interesting when focusing on those people close to the retirement age, as this dataset contains rich information and is based on subjective as well as objective variables.

The question on the level of well-being of those being vulnerable to poverty, comparable to those poor, and the reason why they could be further investigated could be especially tested in other countries. The reason behind this thought is that former researches show a relatively stable level of subjective well-being in Switzerland, with a relatively high propensity not to *complain* too much (Suter et al. 2015), which is known as the Swiss *malaise*. Thus, it could be interesting to investigate if results obtained in other European countries are going in the same direction as our original hypothesis (people being vulnerable are still better-off than those in poverty), or if we could observe a deeper negative effect because of feelings of being left behind by social protection or the welfare state.

Finally, I would say that deep analysis on vulnerable groups during the pandemic of Covid-19 would be very interesting. In fact, the resulting economic crisis from the sanitary crisis is interesting, as negative effects on the economic level are due to measures set by governments, to fight against the pandemic (especially the lock-down). As the origin of the crisis is very different from the two previous, it would be interesting to test if effects are similar or dissimilar for vulnerable groups and to which extent.

Thus, more research is needed in the field of economic vulnerability in high-income countries such as Switzerland. In a world of growing inequalities, it is obsolete to think that people being vulnerable to poverty are negligible, and our contribution to the overall literature encourages more research in this field, within the framework of subjective well-being and quality of life.

7 Reference list

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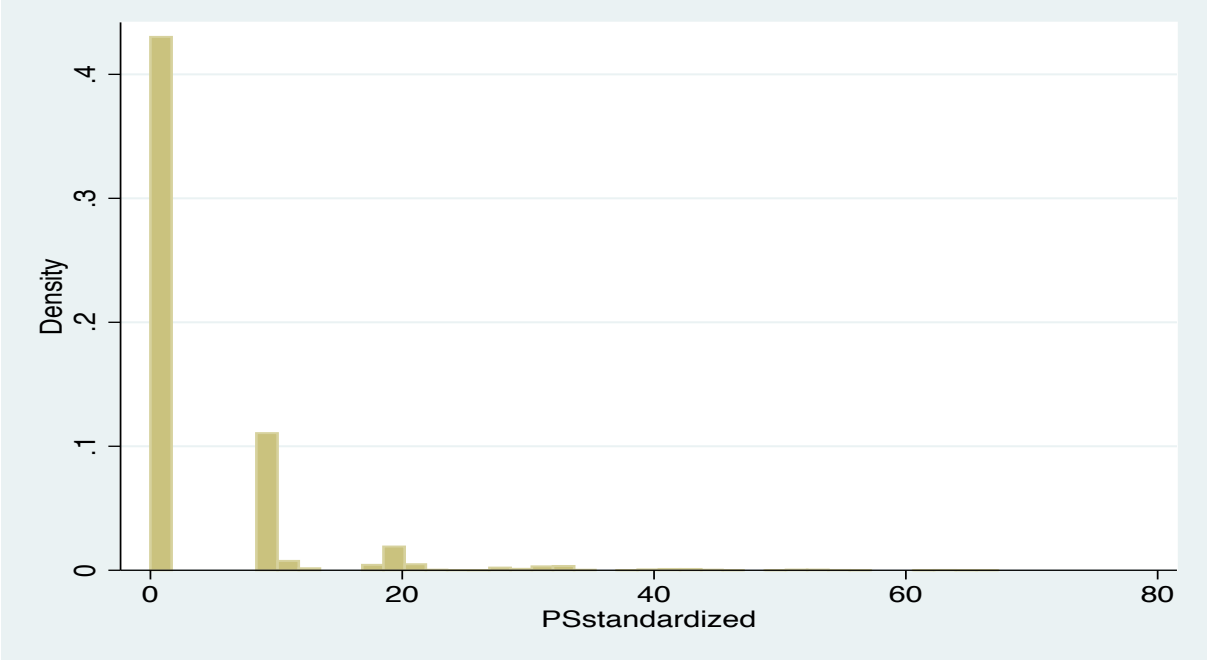
8 Appendix

1. Eurostat items list of deprivations

- 1) coping with unexpected expenses
- 2) one week's annual holiday away from home;
- 3) avoiding arrears (in mortgage or rent, utility bills or hire purchase instalments);
- 4) a meal with meat, chicken, fish or vegetarian equivalent every second day;
- 5) keeping the home adequately warm;
- 6) a washing machine;
- 7) a color TV;
- 8) a telephone;
- 9) a personal car.

Source: Guio and Marlier, 2013.

2. Distribution of the material deprivation, standardized values.



Source: SHP, 2015. Author's own calculation

3. Swiss Household Panel Sample sizes by year

Year	2011	2012	2013	2014	2015
N	10'876	10'681	10'346	12'069	11'152

Source: SHP, 2015.

4. Determinants of falling into poverty and income- 2011 to 2015 (linear and logistic regression analysis)

Model: Dependent variable	Logistic		Linear	
	Poverty		Income (log-scale)	
	Coeff.	S.E.	Coeff.	S.E.
Education (ref. tertiary)				
Primary	-0.399***	(0.076)	0.119***	(0.013)
Secondary	-0.705***	(0.091)	0.243***	(0.015)
Age of the head	-0.052***	(0.013)	0.017	(0.002)
Age squared of the head	0.001***	(0.001)	1.355	(0.001)
Sex (ref. male)	0.230**	(0.066)	-0.067***	(0.009)
Savings (ref. no)	-1.103***	(0.062)	0.291***	(0.009)
Holidays (ref.no)	-0.519***	(0.089)	0.276***	(0.017)
Civil status (ref. single)				
Married	0.756***	(0.093)	-0.024*	(0.011)
Separated	0.486*	(0.211)	-0.027	(0.031)
Divorced	0.284**	(0.107)	0.020	(0.014)
Widower/widow	0.541***	(0.117)	-0.020	(0.018)
Sector of activity (ref. legislators, senior officials, managers)				
Professionals	0.150	(0.167)	-0.065***	(0.016)
Technicians and associate professionals	0.250	(0.161)	-0.110***	(0.016)
Clerks	0.112	(0.190)	-0.078***	(0.020)
Service workers, market sales workers	0.763***	(0.173)	-0.164***	(0.020)
Skilled agricultural and fishery workers	1.542***	(0.196)	-0.420***	(0.029)
Craft and related trades workers	0.763***	(0.174)	-0.211***	(0.020)
Plant and machine operator assemblers	0.565*	(0.232)	-0.245***	(0.029)
Elementary occupations	0.981***	(0.194)	-0.323***	(0.027)
Others	0.646***	(0.151)	-0.285***	(0.016)
Region (ref. Geneva Lake (VD, VS, GE))				
Middleland (BE, FR, SO, NE, JU)	0.079	(0.079)	-0.082***	(0.012)
North-west Switzerland (BS, BL, AG)	-0.387***	(0.104)	-0.008	(0.014)
Zurich	-0.357***	(0.098)	0.023	(0.013)
East Switzerland (GL, SH, AR, AI, SG)	-0.093	(0.103)	-0.052***	(0.014)

Central Switzerland (LU, UR, SZ, OW, NI)	-0.156	(0.113)	0.003	(0.015)
Ticino	0.767***	(0.123)	-0.127***	(0.022)
Occurrence of health shocks 2011-2015 (ref. no shocks)	-0.029	(0.061)	0.033***	(0.008)
Change in numbers of members working 2011-2015 (ref. no change)	0.409***	(0.064)	-0.017	(0.010)
Change in household size 2011-2015 (ref. no change)	-0.923***	(0.063)	-0.044***	(0.009)
Constant	-0.186	(0.432)	10.416***	(0.061)
Observations	16233		16233	
Pseudo R²/ Adjusted R²	0.1499		0.2409	

Author's own calculation with data from the SHP 2011-2015; Robust standard errors in parentheses, * p < 0.05, ** p < 0.01, *** p < 0.001.

5. Description of the independent variables used in the analysis (2015)

Variable name and description	Observations
Sex	
Women	5'959
Men	5'042
Age	11'001
Age2 (age squared)	
Material Deprivation: those who miss more than 3 items on a 9 items list because of financial reason:	
- To go on holidays at least one week per year outside the home	
- To have a complete meal at least every two days	
- To go to the dentist if needed	
- To have a washing machine in home	
- To have a computer	
- To have a coloured TV	
- To have a car	
- To have a dishwasher	
- To invite friends at home at least once a month	
Yes	267
No	10'108
Savings	
Can save 500.- Sfrs per month	7'722
Not able to save 500.- Sfrs per month	2'653
Education (ISCED)	
Primary (ISCED 0-2)	1'632
Secondary (ISCED 3-4)	4'889
Tertiary (ISCED 5-6)	3'854
Activity Status	
Employed	825
Inactive	1'280

Retired	2'465
Active, details unknown	5'805
Health (Self-evaluation: 1(very good) to 5 (very bad))	
Good (1-2)	8'808
Bad (3-5)	1'567
Feeling down (feeling of depression, blues or anxiety)	
Yes	1'557
No	8'818
Participation in an association, clubs or other groups	
Yes	4'872
No	5'503
Trust in other people	
Yes	8'773
No	1'601
Civil Status	
Single never married	2'640
Married	6'005
Separated	138
Divorced	991
Widower/widow	570
Registered partnership	31
Total of observations	10'375

Source: SHP, 2015.