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Are there Patterns of Poverty Trajectories? The Dynamics of Deprivation Between Classes, Individualization, and Cumulative Disadvantage

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1 Introduction

The explanation of poverty is still controversial when considering the current hypotheses of class, individualization, and cumulative disadvantage (for instance Bane and Ellwood 1986; Burkhauser and Duncan 1989; Layte and Whelan 2002; Fouarge and Layte 2005; Tillmann and Budowski 2006). As regards the classical opposition of the class-based and the individual-based view, recent evidence suggests that in the short run, poverty mainly is an individualized phenomenon, expressing itself in a high rate of short-term changes between poverty and non-poverty across all social classes, while in the long run, persistent poverty is more often associated with lower social positions. The hypothesis of poverty as the result of disadvantage (or advantage) cumulating over time, as theorized in the research on life course, has been recently considered. Since risky life events such as loss of employment are likely to occur in all social classes, short-term poverty, as it is related to life course events, is more independent of social inequalities than long-term poverty (Leisering and Leibfried 1999). In a dynamic perspective, a central question is then whether or to what extent individual poverty trajectories are mainly stable and related to social stratification (class hypothesis), are quickly changing, diversified and widely independent from classical social inequalities (individualization hypothesis), or result from initial disadvantage which lead to increasing poverty (cumulative disadvantage hypothesis). Thus, discussing poverty in a dynamic perspective should look at trajectories to adequately take into account the chronological dimension of poverty. However, current evidence about the dynamics of poverty stems mainly from methodological approaches that do not explicitly rely on individual trajectories and build on rather short time intervals; they may therefore be insufficient to examine poverty in a dynamic perspective.

The present article, as an explorative study, aims to fill this gap by evidencing poverty patterns gained from individual trajectories over a ten-year interval. To address individual trajectories and to exploit the full potential of longitudinal data, growth mixture modelling was used. The main scope of the present study is to

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explore individual poverty trajectories in the general Swiss population in order to contribute both substantially and methodologically to the analysis of the dynamics of poverty: Are these trajectories highly individualized or are they ruled by a small set of underlying patterns? If so, what are these patterns looking like: permanently poor or not poor, driving towards poverty or pulling away from it? And how do the trajectories subsumed by the patterns relate to indicators of social inequalities, life events or situations, and biography?

1.1 The dynamics of poverty in a theoretical perspective

Considering individual poverty trajectories implies to look at poverty as a process. Trajectories capture change or stability in the poverty status over time and emphasize the chronological dimension of poverty, while poverty is understood as resulting from effects at both the societal (structural and cultural factors) and the individual level (ascribed and achieved attributes). Such a dynamic view of poverty has been suggested as early as 1901 by Rowntree in his study on poverty cycles during the life course in the underclass. Indeed, the current hypotheses about poverty – i. e. the class hypothesis, the individualization hypothesis, and the cumulative disadvantage hypothesis (see Layte and Whelan 2002; Tillmann and Budowski 2006) – refer more or less explicitly to time.

The first hypothesis expresses a class-based view of poverty (Wright 1994; Layte and Whelan 2002): the location of individuals and groups within the social structure determines their risk of poverty. Especially the vertical dimension of stratification differentiates between social classes – or categories in a less Marxist view – and their attributes, ranging from economic capital to cultural attitude and representations. Poverty is thus largely independent from an individual's singularities and primarily related to social inequalities. The class hypothesis has often been interpreted as a persistence hypothesis, both in a more cultural and structural way (Andress and Schulte 1998). Culturally, poverty is reproduced in the underclass by the intergenerational transmission of social patterns, attitudes, and behaviors that hamper social and economic participation. Structurally, it is argued that social segregation, as expressed in the labor division and as a result of selection agencies, maintains individuals with few resources in low social positions.

The individualization hypothesis, relying on the second modernity, claims that poverty has been uncoupled from the social structure. Biographies and lifestyles have become increasingly diversified while the influence of social structure on shaping individual behavior and representation has declined. In short, society has become uncertain and unclear, as incisively outlined by Beck's *Risikogesellschaft* and Habermas' *Neue Unübersichtlichkeit*. The individualization hypothesis thus states that poverty is far less predictable than the class hypothesis suggests. As classical social inequalities have lost their influence, the risk of poverty is largely independent of social structure, while life course events such as unexpected family

or work disruptions come to the fore. Poverty is expected to unfold in two ways, democratization and temporalization (Leisering and Walker 1998). Democratized poverty, as a consequence of declining protection from poverty especially in the middle and upper classes, puts at risk a wide range of individuals in a society. In line with discontinuous and heterogeneous biographies, persistence of poverty has waned and exposure to poverty manifests itself in various recurring or nonrecurring short-term and long-term patterns.

The third hypothesis, which has gained some popularity owing to Merton's Mathew Effect, is the most precise with regard to the chronology of poverty. While the two previous hypotheses merely refer either to the stability of poverty across time or to its unpredictability, the cumulative disadvantage hypothesis assumes a sequential view of poverty. An initial disadvantage is expected to increase the subsequent disadvantages as time passes (DiPrete and Eirich 2006). The hypothesis has been conceived at both an intergenerational and intragenerational level. On the one hand, disadvantage can be transmitted over generations, resulting in an ongoing loss of socioeconomic status and in shaping the underclass (Wilson 1987). On the other hand, the life course perspective emphasizes the constitution of individual trajectories in the light of even small initial disadvantages and increasing time-related divergence (Dannefer 2003). Although the hypothesis is most often presented in the perspective of disadvantages, its counterpart in terms of cumulative advantages should also be considered (Dannefer 2009).

To date, in Switzerland, most of the empirical studies in the field of poverty are cross-sectional (for instance Branger et al. 2002; Budowski et al. 2002; Suter and Iglesias 2005). Their focus is directed at issues of prevalence of poverty and sociodemographic characteristics of the poor. Recently, poverty has also been addressed in a longitudinal perspective (for instance Streuli and Bauer 2001; Budowski and Suter 2002; Müller 2002; Tillmann and Budowski 2006; Gazareth et al. 2007; Gazareth and Suter 2010), confirming the dynamic aspects of poverty – especially a high rate of poverty entries and exits in the short run – as evidenced by research in other countries (Stevens 1999; Whelan et al. 2000; Fouarge and Layte 2003; Lollivier and Verger 2005; Whelan and Maître 2006). Two longitudinal studies using the same data source as the present research are of special interest. Based on a five year interval (1999–2003), Tillmann and Budowski (2006) found that occasional poverty concerned 9.9% of the respondents and 4.6% were faced with persistent poverty, whereas the other individuals were non-poor (85.5%). Their findings evidenced also some association between persistent poverty and social inequality. Gazareth and Suter (2010), analyzing a nine year interval comprising two periods (1999–2003 and 2003–2007), found that 45.6% of the respondents were not deprived and 5.1% were highly deprived during both periods. The remaining individuals were located in stable intermediate deprivation in both periods (19.7%) or changed to or from an intermediate category (29.7%). Changes between the

extreme categories of non-deprivation and highly deprivation were hardly observed from one period to the other.

1.2 Current operationalizations of poverty

In recent years, research on poverty has devoted considerable interest to the dynamics of poverty at the individual level. As a consequence of the implementation of large-scale longitudinal population surveys, investigations on the changes and stability in poverty spells over the middle run could be conducted on a sound empirical base. However, research has mainly concentrated on the determination of transition probabilities (i. e. the probability of becoming poor or not poor at a certain time point) and the characterization of poverty by examining poverty spells (i. e. being poor x times out of y). While this frame provides insight into the generative mechanisms and risks of poverty at a societal level, it does not address the individual trajectories of poverty as a whole. For instance, trajectories as culturally and structurally organized successions of poverty (or non-poverty) spells have been widely ignored by recent research.

It should now be questioned how the previously mentioned two main approaches of the dynamics of poverty – transition probabilities and poverty spells – allow discrimination between the three hypothesis about poverty. When emphasizing a chronological view, the class hypothesis can be interpreted as resulting in distinct persistent trajectories which are related to individuals who are durably protected from poverty and those who remain in poverty. On the contrary, the individualization hypothesis is associated with the absence of dominating patterns: trajectories are generated more or less randomly and are no longer predictable. The cumulative (dis-)advantage hypothesis states that a pattern with increasing poverty (wealth) over time should be evidenced. Central issues are then the existence of a few patterns of trajectories and how these patterns are shaped. However, the two main approaches of the dynamics of poverty fail, in part, to address these issues.

The first approach – transition probabilities – models the entrance and exit from poverty. Its main scope is to predict the probability of being poor (or not poor) at a certain time point conditionally to the poverty status at one or more previous time points using, for instance, Markov processes (Breen and Moisio 2004; Capellari and Jenkins 2004; Whelan and Maître 2006) or survival analysis (Stevens 1999; Callens and Croux 2009). As parts of the trajectories serve as predictors of subsequent poverty risk, they are neither explicitly addressed nor characterized. Most important in this approach is to determine individuals or groups who are at risk – and not to evidence underlying patterns of the trajectories.

The rationale of the second approach is based on the aggregation of poverty spells and has been widely used in poverty research, including recent studies with the same data as the present work (Tillmann and Budowski 2006; Gazareth and Suter 2010). It aims at describing poverty by examining the periods, e. g. years, of poverty

that a person experiences within a given time interval and classifying individuals into a few predefined categories according to the prevalence and the duration of poverty (Walker 1994; Fouarge and Layte 2005). Classical operationalizations based on the number of poverty spells distinguish for instance between non poor (no poverty spell), transient poor (few spells), and persistent poor (many spells). Thus, trajectories are considered analytically rather than in a comprehensive manner. For instance, being poor x times out of y may reflect different trajectories: do the poverty spells concentrate at the beginning or at the end of the trajectories – showing a trajectory out of or towards poverty – or do they alternate with non-poverty spells? Although the poverty spells approach considers the trajectories implicitly, it fails to adequately take into account the chronological dimension of the trajectories, i. e., in what order the spells occur (for instance Devicienti 2002). Aggregating poverty spells may then result in a measure too rough to reflect the process character of poverty.

Furthermore, poverty studies often rely on a dichotomous conception of poverty. An individual is considered to be either poor or not poor at a certain time point, depending on whether his living conditions (or income) are below a defined threshold or not (see for instance Sandoval et al. 2009). However, criticism has arisen against this dichotomous view, arguing that the widely accepted recurrent character of poverty evidenced by longitudinal research (see for instance Whelan et al. 2000; Lollivier and Verger 2005) might be an artefact, as changes between poverty and non-poverty would be overestimated (Groh-Samberg and Keller 2000). Indeed, a large amount of these changes may be related to precariousness, i. e. to an intermediate area between poverty and non-poverty (Paugam 1993; Paugam 2000; Castel 1995; for a theoretical discussion of the concept of precariousness and its various facets, see Marchart 2010). Precariousness has been associated with insecurity and vulnerability, in other words with exposure to social risks, such as loss of employment, separation, or accidents, coupled with a lack of resources to cope with adverse events (Pitrou 1978; Cingolani 2005). Although poverty studies most often ignore precariousness, it has been suggested that the inclusion of precariousness would provide a more precise view of poverty, as poverty should be understood as a continuous rather than a discrete phenomenon (Budowski et al. 2010). In many cases, poverty does not emerge suddenly and disruptively but, rather, is the result of a longer process of deprivation (Hainard et al. 1990). Studies on precariousness also showed that the living conditions of persons slightly above or below the poverty threshold were largely similar and that numerous seasonal and economic changes between poverty and non-poverty were likely to occur (see Gazareth et al. 2007; Leu et al. 1997). Empirical evidence suggests that the dynamics of poverty in the middle run have a pronounced local delimitation (Groh-Samberg 2004). Changes seldom occur between poverty and wealth but, rather, within poverty and precariousness on the one hand and between precariousness and wealth on the other hand. In addition, gradual changes within poverty, precariousness, and wealth are frequent.

To avoid the shortcomings of the transition probabilities and poverty spells approaches, poverty trajectories will be directly addressed by a growth modelling technique in the present study. With such a technique, the underlying patterns of poverty trajectories suggested by the three previously discussed poverty hypotheses – no distinct patterns, stability, increase, or decrease – can be addressed. Moreover, gradual changes in poverty can be included in the model. From a conceptual point of view, poverty trajectories are understood within the life course perspective (see Mortimer and Shanahan 2003; Levy et al. 2005). According to this approach, poverty trajectories are seen as the results of events (e. g. divorce), situations (e. g. lone parenting), and transitions (e. g. entry into the labor market or retirement) which shape the dynamics of life. A central issue in life course research is the degree of heterogeneity or variability of trajectories in a given social context, for instance how experiences and resources acquired at earlier stages of the biography, such as unemployment (Bender et al. 2000) or beginning career patterns (Hillmert 2001) shape subsequent trajectories.

As regards the predictors of poverty, the present study includes indicators of social inequalities, life events or situations, and biography. Social inequalities, most often addressed by income, education or socio-professional categories in research on poverty (for instance Tillmann and Budowski 2006; Gazareth and Suter 2010), relate to the class hypothesis. Life events or situations pertain to the individualization hypothesis. Considering the embedment of poverty in the life course, life events influence the risk of being faced with poverty (Burkhauser and Duncan 1989). Events or situations like divorce, leaving the parental home, lone parenthood, unemployment or illness are associated with an increased subsequent poverty risk (for instance Alcock 1997; DiPrete and McManus 2000; Tillmann and Budowski 2006; Gazareth and Suter 2010). Furthermore, gender and age are classical predictors of poverty. Women are more often faced with poverty than men, which may partly be explained by a lower socioeconomic status, reflecting for instance gender differences of career patterns, monetary consequences of divorce or lone parenthood (for instance Bastos et al. 2009). Age is associated with a higher risk of poverty among young and older individuals (for instance Alcock 1997; Di Prete and McManus 2000). As a biographical factor, age reflects the variations of the poverty risk across the life cycle. This risk may increase when leaving the parental household, diminish while the career unfolds and income grows, and then increase again with retirement (Burkhauser and Duncan 1989).

2 Method

2.1 Sample

Data came from the Swiss Household Panel (SHP), an ongoing longitudinal general population survey (for methodological details, see Voorpostel et al. 2010). The SHP started in 1999 and subsequent waves were conducted yearly. The present study is based on the first ten waves (1999–2008) comprising the baseline and its follow-up (SHP_I). The refreshment sample of 2004 (SHP_II) was not considered for both substantial and methodological reasons, since the focus is on middle run patterns of poverty and the inclusion of additional predictors to address the differences between SHP_I and SHP_II excessively complicates the presentation and interpretation of the results. Computer assisted telephone interviews were used to collect the data by means of both a household and an individual questionnaire. First, a regionally stratified random sample of Swiss households was drawn. Second, in each wave, individuals belonging to the selected household were asked to participate, provided they were aged 14 years or more and able to answer in French, German, or Italian. The final sample of the 1999 wave consisted of 5074 households, representing 7799 individuals. An individual response rate of 85% was achieved. In 2008, 3537 individuals were interviewed, that is 45% of the 1999 sample. Due to attrition, the sample decreased by about 10% each year between 1999 and 2004 and then stabilized between 45% and 50% of its initial size until 2008 (Weaver 2010). Possible biases due to attrition have been recognized as to be similar to those in similar longitudinal studies, with drop-outs occurring more frequently among less socially integrated persons (Lipps 2006; Voorpostel 2009; Weaver 2010; see also Gazareth and Suter 2010).

The final sample presented in this study consists of 3511 respondents of SHP_I with usable data about poverty for at least eight of the ten waves from 1999 to 2008. Respondents with data available for seven waves or less were excluded from the analysis, while data were imputed for those who had missing values for one or two waves. This was seen as a balance between a general suggestion to impute missing data in the SHP (Voorspostel 2010) and possible adverse consequences of imputation when the missing data rate is high (Kristman et al. 2005).

2.2 Measures

There is still some debate about the adequate way to measure poverty, and various approaches co-exist, including objective and subjective measures, absolute and relative measures, or direct and indirect measures (Gordon and Spicker 1999; Tillmann and Budowski 2004). Some authors focus on poverty at an individual level, whereas others examine it from the societal level. In the present study, poverty is addressed at the individual level (for poverty approaches and corresponding measures at the societal level, see for instance Sen 1983; Sen 1998; Atkinson 1987). None of these

approaches, however, provides a complete picture including the manifold facets of poverty. Direct measures refer to deprivation, i. e., a lack of access to certain goods or services, while indirect measures are built upon monetary resources, primarily income. Both measures have advantages and drawbacks; thus, the choice of an appropriate measure depends on the aim of the study and the data at hand. In the present study, poverty was addressed by a direct measure. As the study focuses on living conditions, several reasons made it preferable to use a direct rather than an indirect measure (see Gazareth and Suter 2010). First, income-based indicators may be misleading when addressing living conditions, as they may remain unchanged because of personal credits or savings when income decreases. Second, especially with longitudinal data, fluctuating income which compensates over time may lead to an overestimation of changes in living conditions (Lollivier and Verger 2005). Third, living conditions may be to a large extent determined by factors other than strictly monetary, such as real estates, free services or non-monetary support received from acquaintances or friends. However, some of the main drawbacks of the direct approach should also be mentioned. First, the debate about what goods and services should be included in the poverty index is controversial, and the final decision often depends on the availability of data rather than theory. Hence, it remains to some extent arbitrary (but see Lipsmeier 1999). Second, households are likely to make adjustments in living standards with increasing duration of poverty spells (Devicienti and Gualtieri 2007). Thus, such adjustments may result in underestimating the deprivation for economic reasons (see Halleröd 2006).

Direct measures of poverty usually rely on deprivation indexes following the seminal work of Townsend (1979), who defines deprivation as the absence of access to commonly available goods or services in a society. The Consensual Deprivation Index is widely used to address poverty (Mack and Lansley 1985). It overcomes some difficulties of earlier indexes by defining deprivation consensually – goods or services have to be considered necessary by a majority of respondents – and deprivation must be due to a lack of resources. Further reformulations such as the Proportional Deprivation Index (Halleröd 1995) weight the goods by the proportion of respondents who consider a good necessary rather than excluding non-consensual items. However, these various indexes have been shown to be highly correlated (Lipsmeier 1999). As no data about the necessity of a good or weighting was available in SHP_I, deprivation was defined by frequency: according to Tillmann and Budowski (2006), goods or services used by at least 50% of the population are considered to be commonly available. Deprived persons are those who have no access to these goods or services for economic reasons – and not by choice. Though the distinction between economic constraint and individual preference is controversial as the lack of a good might be attributed to the group's prevalent norms rather than to deprivation in less affluent classes, it seems preferable to take it into account (Halleröd 2006, see also Gazareth and Suter 2010). Biases due to the omission of the distinction have

been estimated to be higher than those due to its inclusion (Halleröd 2006, but see Tillmann and Budowski 2006).

The following ten indicators of living conditions are present in the household questionnaire of the SHP throughout the first ten waves and were used: 1) one-week holidays away from home once a year, 2) invitation of friends at least monthly, 3) meal at restaurant at least monthly, 4) car for private use, 5) color television, 6) washing machine for exclusive use, 7) dishwasher, 8) voluntary savings for retirement (3rd pillar), 9) consultation with a dentist if needed, and 10) computer at home. A deprivation index was computed with each individual's score corresponding to the sum of the indicators pointing to deprivation. Respondents with data missing for more than two indicators were excluded. In almost all cases, these were respondents who attrited. For the respondents who had one or two missing indicators (in each wave about 3% of the surveyed respondents; almost all respondents with only one missing indicator), the sum of the indicators is partial and may therefore underestimate the true deprivation.

To examine sociodemographic variations in poverty patterns, the following indicators obtained from the individual questionnaire were used: gender (women, men), age in 1999 (24 years or less, 25 to 39 years, 40 to 64 years, 65 years or more), education in 1999 (compulsory, upper secondary, tertiary), type of household in 1999 and 2008 (single person, couple with children, couple without children, single parent), marital status in 1999 and 2008 (married, single, separated or divorced, widowed), employment status in 1999 and 2008 (employed, student or homemaker, retired, unemployed including disabled). In order to mirror the evolution of poverty, indicators with a certain amount of change at the individual level are included at the beginning (1999) and the end of the period of interest (2008). Based on previous research, these indicators may increase or reduce the risk of poverty (see Introduction). Risk factors include being a woman, young and older age, low educational resources, living situations (single parent), family disruption (separation or divorce), and work disruption (loss of employment), while protective factors refer to being a man, middle age, high educational resources, living in a couple, and employment.

2.3 Statistical analysis

Descriptive findings and modelling poverty trajectories were obtained respectively by SPSS 19.0 (SPSS 2010) and MPlus 5.21 (Muthén and Muthén 2007). Modelling is based on the growth mixture model (GMM; Muthén 2004). GMM combines classical growth modelling and latent class membership in one analysis. Compared with classical growth modelling that assumes an overall growth pattern for the whole population, GMM assumes class-specific growth patterns. Thus, GMM is suitable for addressing heterogeneity in the growth patterns and for breaking down this heterogeneity into classes. Fixed effects (e. g. intercept or slope) and variance components (e. g. intercept or slope variance) may differ across classes. Class membership is

obtained from the data for a specified number of classes and represented by a latent categorical variable. A central task when using GMM is the determination of the correct number of latent classes (Tofighi and Enders 2007). In exploratory studies like the present one, that is, when no theoretical or empirical assumption about the number of classes is available, several models that differ only by the number of classes are compared by means of fit indexes. The following three indexes were used: the Bayesian information criterion (BIC; Schwartz 1978), the Entropy Index (EI; Celeux and Soromenho 1996), and the Lo-Mendel-Rubin likelihood ratio test of model fit (LMR; Lo et al. 2001).

Growth was defined as a one-piece linear growth model. Within such a model, stability in deprivation (for instance consistently deprived or consistently non-deprived across the time interval considered; intercepts) as well as increased and decreased deprivation (slopes) can be addressed. Growth relies on the probability of being deprived on the basis of the categorized score of the deprivation index (up to one indicator pointing to deprivation, more than one indicator). Dummy-coded sociodemographic indicators were used to predict latent class membership. Maximum likelihood estimators with robust standard errors were used. Unequal inclusion probabilities and non-response were accounted for by weighting the data at baseline at the individual level (1999). Missing value imputation was conducted under the assumption of data missing at random within groups defined by similar observed scores of the deprivation index during the time interval considered (Muthén and Muthén 2007). 617 (445) respondents had a missing deprivation index score on one (two) wave. Sensitivity analyses suggested that imputed and non-imputed data were consistent.

3 Results

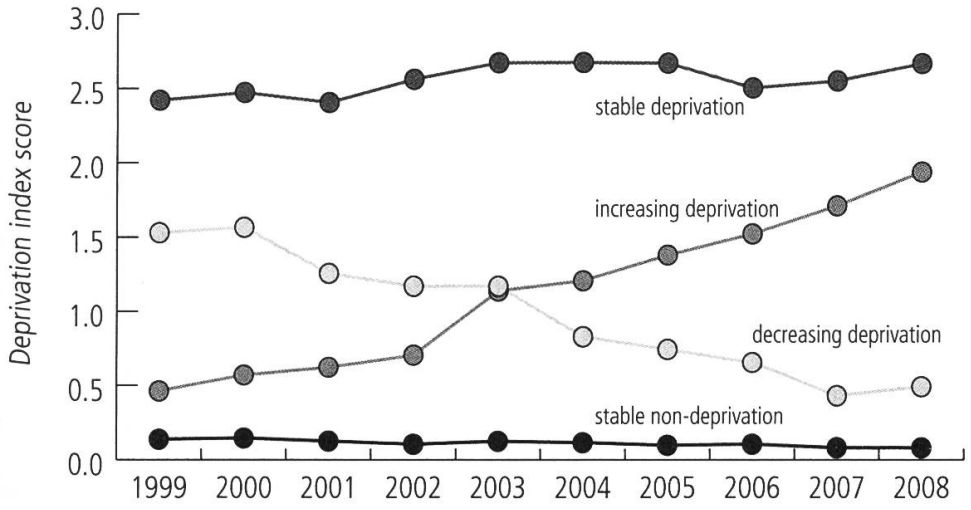
3.1 Identifying patterns of poverty trajectories

Four contrasting and unequally sized latent classes were found to adequately capture the individual poverty trajectories (Figure 1). Two classes refer to stable patterns of deprivation, while the other two depict an antagonistic evolution. Nearly 80% of the respondents showed no poverty between 1999 and 2008 *(stable non-deprivation)*. In each year, the deprivation index indicated, on average, less than 0.25 indicators pointing to deprivation. At the opposite end, continuous poverty (or precariousness) characterized a much smaller class (5.1%; *stable deprivation*). The mean number of indicators pointing to deprivation was about 2.5 throughout the years. The last two classes reveal trajectories either leading towards poverty (5.1%; *increasing deprivation*) or away from it (10.1%; *decreasing deprivation*). In both classes, mean trajectories ranged between the stable trajectories with widely gradual changes in deprivation. Due to the dominating pattern of *stable non-deprivation*, the deprivation index is

skewed to the right over the whole period of ten years (the skewness ranges between 2.96 and 3.67 and the mean score between 0.33 and 0.42).

For each year, the four latent classes explained about half of the total variance of the deprivation index (mean eta-squared of the ten waves 49.5%; range from 43.0% to 57.4%). On average, stable non-deprived respondents reported on 9.0 waves a deprivation index score of 0 and on 0.0 wave a score of 2 or higher. The corresponding values for stable deprived were 0.9 and 4.5, while respondents with *increasing deprivation* (3.8 and 1.1) or *decreasing deprivation* (4.3 and 0.9) showed intermediary values. Among increased (decreased) deprived respondents, 23.1% (48.7%) between 1999 and 2003 and 51.1% (13.7%) between 2004 and 2008 had a deprivation index score of 2 or higher at least once. During both periods, stable (non-)deprived showed consistently high (low) percentages of 82.9% and 76.4% (0.9% and 0.4%).

Figure 1 Mean score of the deprivation index by year and latent poverty trajectory classes



Data source: SHP.

Varying the number of latent classes suggested that a model with four latent classes was most suitable (BIC = 23 475.44; EI = 0.89). The tested models included all socio-demographic indicators to predict latent class membership. Models with a lower or a higher number of classes showed a poorer fit, though the four-class and the three-class models did not differ statistically (BIC = 23 658.28; EI = 0.87; LMR = 413.59, p = 0.14). Also, as the number of classes increased, small-sized latent classes appeared. However, the five-class model deserves some attention as a conceptual – rather than a statistical – refinement of the four-class solution (BIC = 23 544.53; EI = 0.80;

Table 1 Distribution of sociodemographic characteristics by latent poverty trajectory classes

		Stable non-deprivation (79.8%)	Increasing deprivation (5.5%)	Decreasing deprivation (9.6%)	Stable deprivation (5.1%)	Total (100.0%)
Sex	women	50.3%	58.1%	60.0%	70.5%	52.7%
	men	49.7%	41.9%	40.0%	29.5%	47.3%
Age (1999)	≤24 years	9.7%	10.1%	16.3%	9.0%	10.3%
	25–39 years	26.6%	41.7%	27.6%	27.4%	27.6%
	40–64 years	49.5%	37.1%	39.0%	47.3%	47.7%
	≥65 years	14.2%	11.0%	17.2%	16.4%	14.5%
Education (1999)	compulsory	20.0%	31.5%	37.3%	32.0%	22.9%
	upper secondary	61.5%	63.3%	55.5%	59.8%	60.9%
	tertiary	18.5%	5.2%	7.3%	8.3%	16.2%
Type of household (1999)	single person	15.6%	14.7%	20.0%	26.5%	16.5%
	couple with children	33.5%	25.5%	26.5%	18.3%	31.6%
	couple without children	47.8%	54.6%	47.2%	38.3%	47.7%
	single parent	3.1%	5.2%	6.2%	16.9%	4.2%
Type of household (2008)	single person	17.9%	28.3%	23.0%	35.9%	19.9%
	couple with children	40.1%	16.5%	36.6%	19.0%	37.5%
	couple without children	38.7%	45.0%	35.1%	27.3%	38.1%
	single parent	3.2%	10.2%	5.4%	17.7%	4.5%
Marital status (1999)	single	23.5%	23.2%	20.3%	22.2%	23.1%
	married	65.8%	66.2%	60.7%	46.0%	64.3%
	separated or divorced	6.8%	5.3%	10.2%	24.3%	7.9%
	widowed	3.9%	5.3%	8.8%	7.5%	4.6%
Marital status (2008)	single	16.8%	19.1%	15.2%	19.8%	16.9%
	married	69.0%	53.8%	59.6%	41.2%	65.9%
	separated or divorced	8.1%	17.8%	10.0%	29.0%	9.8%
	widowed	6.1%	9.4%	15.2%	10.0%	7.4%

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		Stable non-deprivation (79.8%)	Increasing deprivation (5.5%)	Decreasing deprivation (9.6%)	Stable deprivation (5.1%)	Total (100.0%)
Employment status (1999)	employed	62.1%	61.1%	45.3%	53.9%	60.0%
	student or homemaker	19.4%	28.2%	25.0%	21.0%	20.5%
	retired	17.3%	7.5%	24.3%	18.1%	17.5%
	unemployed	1.1%	3.2%	5.4%	7.0%	1.9%
Employment status (2008)	employed	57.3%	57.5%	55.0%	46.4%	56.5%
	student or homemaker	12.1%	15.9%	6.5%	8.8%	11.6%
	retired	29.3%	14.0%	37.1%	30.9%	29.3%
	unemployed	1.3%	12.6%	1.4%	13.8%	2.5%

Data source: SHP.

LMR = 162.73, p = 0.65). Differences between the two models mainly concern the *stable non-deprivation* class, which was roughly split into a consistently non-deprived group (68%, on average less than 0.1 indicators pointing to deprivation each year) and a non-poor group with continuously decreasing deprivation (14%; mean number of indicators 1999 = 0.3, 2008 = 0.1; results not shown), while the three other classes remain the same. Differences between the two models are very small and the two split classes behave similarly in subsequent analysis – except for younger respondents being more present in the decreasing subclass. Further results will be presented for the four-class model. Alternative four-class models including relationships between sociodemographic indicators and growth parameters (means, intercepts) as well as nested models with constrained growth parameters across latent classes provided no substantial gain in model fit.

3.2 Describing latent poverty trajectory classes

The composition of the four latent classes differed markedly and consistently for all the sociodemographic indicators except age between the *stable non-deprivation* and the *stable deprivation* class (Table 1). Individuals with poverty risk factors (such as being a woman, low educational resources, single parent household, separation or divorce, and unemployment) were clearly overrepresented in the *stable deprivation* class, while preventing factors (being a man, high educational resources, couple household with children, being married, and employment) are more likely to be found among persons of the *stable non-deprivation* class. Depending on the sociodemographic characteristics, the *increasing* and *decreasing deprivation* classes often but not systematically ranged between the two stable classes, showing intermediate rates

Table 2 Odds ratios of latent poverty trajectory class membership by sociodemographic characteristics (multinomial regression)

			Increasing deprivation	Decreasing deprivation	Stable deprivation
Sex (men)		women	0.98	1.14	1.75**
Age (≥65 years)	(1999)	≤24 years	0.32	7.78***	0.47
		25–39 years	0.72	2.92**	0.74
		40–64 years	0.34**	1.28	0.49*
Education (compulsory)	(1999)	upper secondary	0.48***	0.51***	0.49***
		tertiary	0.12***	0.22***	0.21***
Type of household (single person)	(1999)	couple with children	1.62	0.29***	0.86
		couple without children	1.15	0.43**	1.1
		single parent	1.30	0.93	2.15*
Type of household (single person)	(2008)	couple with children	0.24***	1.51	0.31***
		couple without children	0.58	1.16	0.52*
		single parent	1.16	1.43	2.06*
Marital status (married)	(1999)	single	0.46	0.20***	0.39
		separated or divorced	0.30	0.90	1.85
		widowed	1.37	0.35*	1.28
Marital status (married)	(2008)	single	1.36	1.15	1.64
		separated or divorced	3.17**	0.99	1.13
		widowed	1.14	2.75**	0.53
Employment status (employed)	(1999)	student or homemaker	1.45	1.17	1.11
		retired	0.28*	2.05*	0.51
		unemployed	1.62	6.06***	2.68*
Employment status (employed)	(2008)	student or homemaker	0.92	0.35***	0.74
		retired	0.73	0.82	1.65
		unemployed	10.56***	0.84	13.04***

Latent classes are compared with the *stable non-deprivation* class.
Reference categories are indicated in brackets.
* $p<0.1$, ** $p<0.05$, *** $p<0.01$.

Data source: SHP.

of persons at risk (e. g. gender). Thus, the changing classes share, at least partially, some characteristics with either the *stable non-deprivation* class (e. g. marital status) or the *stable deprivation* class (e. g. education).

The highest contrasts between the stable classes were observed for sex, type of household, and marital status. Women and divorced or separated persons were overrepresented in the *stable deprivation* class, married respondents as well as those in a couple household with children in the *stable non-deprivation* class. Furthermore, low educational resources, living in a single household or a single parent household, and being unemployed were more frequent among deprived persons, as were higher education, living in a couple household without children, and being employed among non-deprived respondents. The proportion of respondents aged 25 to 39 years, living in a couple household without children, or being employed (1999) was higher in the *increasing deprivation* class than in the *decreasing deprivation* class, while the proportion of respondents aged 24 years or less, living in a couple household with children (2008), or being retired was lower. These two classes showed similarities with regard to sex and marital status.

3.3 Predicting membership in the latent poverty trajectory classes

The multinomial logistic regression of latent class membership confirmed the association of poverty risk factors with the trajectories which are characterized by a deprivation experience (Table 2). A wide range of these factors was related to higher chances of belonging to the *stable*, *decreasing*, and *increasing deprivation* classes when compared with the *stable non-deprivation* class. Low educational resources were consistently associated with deprivation. In addition, stable deprived individuals were more likely to be women, to live in a single parent household (reference category: single person household), and to be unemployed (employed), but less likely to belong to a couple household (2008; single person household). Chances of being in the *increasing deprivation* class were lower among individuals aged 40 to 64 years (age 65 years and more), those living in a couple household with children (2008; single parent household), and those retired (1999; employed), while separation or divorce (2008; married) and unemployment or disability (2008; employed) reinforced these chances. *Decreasing deprivation* was clearly associated with younger age groups (age 65 years and more). A lack of occupation (1999; employed) and widowhood (2008; married) increased the chances of decreased deprivation, while the chances diminished when living in a couple household (1999; single person household) and being single or widowed (1999; married).

4 Discussion

Going back to the questions outlined in the introduction, it is now possible to depict the dynamics of poverty in the middle run on the basis of longitudinal data at the individual level. First, individual poverty trajectories can be adequately represented by a few number of distinct growth patterns. These patterns capture a

large proportion of the individual variability of deprivation and support the view that poverty trajectories are only moderately individualized. Second, the study provides some evidence that the dynamics of poverty are primarily characterized by stability rather than change. About 80% of the respondents were almost never exposed to deprivation during the ten-year-period under study while 5% were regularly deprived. The remaining respondents were faced either with *increasing* (6%) or *decreasing deprivation* (10%). Third, poverty trajectories were associated with social inequalities (education), but also with life events or situations (marital and employment status, type of household), and biography (age). *Stable deprivation* as well as *increasing* or *decreasing deprivation* were related to poverty risk factors while preventing factors were reflected in *stable non-deprivation*.

To our knowledge, poverty trajectories have not yet been addressed by GMM. However, previous research using the same data source (SHP) but based on the poverty spell approach has been conducted in Switzerland (Tillmann and Budowki 2006; Gazareth and Suter 2010). These studies classified the individuals according to the poverty spells they experienced during a given time interval. Tillmann and Budowski (2006) used three categories to address poverty, Gazareth and Suter (2010) four categories. Despite methodological differences, the present study adds to the knowledge gained from previous research. To address explicitly the dynamics of poverty, trajectories expressing changes or stability in poverty status were modelled year by year rather than reduced to a few number of a priori categories describing poverty over a time interval of several years. Thus, for instance, individuals with changing poverty status – as occasional poor (Tillmann and Budowski 2006) – can be situated within increasing or decreasing patterns of poverty. Similarly, the changes in deprivation evidenced by Gazareth and Suter (2010) when comparing two time periods (1999–2003 and 2003–2007) can be addressed more in depth by taking into account changes from year to year.

4.1 Poverty between classes, individualization, and cumulative disadvantage

These findings allow one to discuss the three current hypotheses about poverty in terms of class, individualization, and cumulative disadvantage. A central point is the existence of distinct poverty patterns and the relationship between these patterns and social inequalities – in the present study education, but also employment status and, in view of new equalities, especially gender. On the one hand, the poverty patterns, emphasizing stability of (non-)deprivation but also a gradual increase and decrease of deprivation, contradict the idea of widely individualized poverty trajectories. Poverty does not unfold in a more or less random way with frequent and rapid changes, but appears to be governed by middle run patterns. On the other hand, the poverty patterns reflect unequal chances and are embedded in the social stratification. The risk of experiencing poverty is not equally distributed across social positions (operationalized by

education in the present study), but is more likely in the lower positions. Thus, both temporalization and democratization of poverty receive limited empirical support and the individualization hypothesis fails to play a major role when explaining the dynamics of poverty in the middle run.

The findings rather indicate that social inequalities – including vertical differentiation by educational achievement as well as lack of social participation such as the exclusion from employment – strongly shape a few number of distinct poverty patterns. Thus, it can be argued that the class hypothesis, due to the persistence of poverty associated with lower positions (education) and restricted participation (unemployment), deserves some interest when accounting for the dynamics of poverty. Poverty patterns reflect social inequalities to an extent which clearly overlap a view of strictly individualized trajectories. This result may be seen in the light of the persistence of the influence of social stratification despite the popular thesis of its decline (see Levy et al. 1997; Stamm et al. 2003). Also, the class hypothesis should be understood in the perspective of an unequal distribution of resources rather than in a strict Marxist sense, that is, in terms of socially differentiated groups rather than antagonistic classes such as an underclass with continuous poverty and an upper class free from poverty. Class boundaries seem to be less pertinent than graduated differences in resources.

Indeed, the two patterns of *increasing* and *decreasing deprivation* indicate that a strictly class-based view may be insufficient. Although individuals with those patterns had educational characteristics similar to the stable deprived, their trajectories moved towards or away from poverty. Changes in social inequalities – exclusion from employment – as well as life events such as separation or divorce and biography shaped these trajectories. At least indirectly, these trajectories provide some evidence for the cumulative disadvantage hypothesis. Even though no intrinsic examination of (dis-)advantages is at hand, separation or divorce was associated with *increasing deprivation*, while living in a couple household was linked to *decreasing deprivation*. Moreover, these life events were inserted into patterns which reflect a continuous increase or decrease of deprivation in the middle run. Also, the cumulative disadvantage hypothesis appears to be preferable to the individualization hypothesis, since temporalized poverty would not be compatible with durable effects of life events.

4.2 Dynamics of poverty in the light of individual trajectories

Thus, the conclusions about the dynamics of deprivation gained from the present study differ from previous research which emphasized widely individualized poverty trajectories (see for instance Stevens 1999; Whelan et al. 2000; Jenkins et al. 2001; Rank and Hirschl 2001; Layte and Whelan 2002) with population-based annual poverty entry and exit rates as high as one third (Maurin and Chambaz 1996). Rather than resulting from more or less recurrent short-term changes, poverty appears in the present study as the result of long-term processes of deprivation (see

Hainard et al. 1990). Differences about the conclusions are likely to be seen in methodological issues. Most often, longitudinal research addresses poverty on a dichotomous basis, whereby individuals are classified as either poor or non-poor at a certain measurement point. Such an operationalization has been criticized as it may overestimate the changes between poverty and non-poverty (Groh-Samberg and Keller 2000). Indeed, a large number of changes may be due to individuals characterized by precariousness (i. e. mild forms of deprivation), who frequently move slightly above and below the poverty threshold, being considered poor at one time and non-poor at another (Leu et al. 1997; Gazareth et al. 2007).

In the present study, however, the dynamics of deprivation were modelled as growth trajectories. Instead of a classification in poor and non-poor, growth was based on the probability of being deprived. Thus, stability, decrease and increase of these probabilities over time can be addressed, revealing the analytical potential of longitudinal data. Interestingly, increasing and decreasing patterns of poverty showed an overall intermediate level of deprivation, which can be situated in the area of precariousness between poverty and non-poverty (Paugam 1993; Paugam 2000; Castel 1995). While in the dominant dichotomous view such patterns would appear merely as frequent changes in poverty status, modelling the trajectories evidenced two distinct patterns with an incline and a decline in vulnerability unfolding in opposite directions. Thus, modelling growth appears to be valuable for disentangling trajectories oscillating between poverty and non-poverty. It can be supposed that the often-cited temporalization of poverty is due, at least in part, to the use of rather rough measures. It is also possible that the time interval of ten years considered in the present study contributed to identifying trajectories more precisely than the commonly used periods of five years (see for instance Zoyem 2002; Groh-Samberg 2004; Lollivier and Verger 2005; Tillmann and Budowski 2006).

Poverty risk factors evidenced in the present study are consistent with research based on classical methodology, including previous work with data from the SHP (Tillmann and Budowski 2006; Gazareth and Suter 2010). In particular, low educational resources, single parent households, separation or divorce, and exclusion from employment were confirmed as classical risk factors. However, as growth modelling discriminates trajectories which could be amalgamated when examining poverty spells, the influence of the risk factors – including social inequalities, life events or situations, and biography – can be described more precisely. Regarding social inequalities, education is central to poverty as it is the unique factor among those examined which is related to *stable deprivation* as well as *increasing* and *decreasing deprivation*, thus reaffirming the importance of social stratification. Inequalities in participation are directly related to changes in poverty. Unemployment at the beginning of the time interval is associated with *decreasing deprivation*, while unemployment at the end of the period is clearly related to *increasing deprivation*, but also to *stable deprivation*. Life events such as separation or divorce may lead

to *increasing deprivation*, while situations such as those of single parents are more often associated with *stable deprivation*. A similar chronic effect on poverty can be found among women, who are more frequently faced with *stable deprivation* than men but not with higher chances of an increase or decrease of deprivation. Age as a biographical factor showed that younger age is strongly associated with *decreasing deprivation* but neither with *increasing* nor *stable deprivation*. This may be indicative of transient deprivation diminishing while material resources increase when getting older, tying in with Rowntree's thesis of the life cycle shaping poverty (1901). In a life course perspective, leaving the parental household may result in an increased risk of deprivation, which will reduce with educational and professional achievement.

4.3 Limitations

The present study has some limitations. First, results may be biased due to the inclusion criteria and the sample attrition. As the interviews had to be conducted in French, German, or Italian, persons who do not master any of these languages were not included in the study. Low-skilled foreign workers and migrants, who are more likely to be faced with poverty, may therefore be underrepresented in the sample. Although attrition has been described as rather moderate and comparable with other longitudinal studies (Lipps 2006; Voorpostel 2009), it can be expected that deprived respondents at baseline are more likely to drop out than those who are non-deprived (Gazareth and Suter 2010). Thus, results should be interpreted conservatively. Both stable and decreasing trajectories, but in part also increasing trajectories due to a possible weakening of social integration, may be underestimated.

Second, for both empirical and theoretical reasons, poverty was addressed by a direct measure on the basis of the conditions of living rather than an income-based indirect measure or a combined direct and indirect measure. Some deprivation items may be less reactive to income changes, as some goods – such as a car – can be possessed before a decline of monetary resources which would hamper the acquisition (Gazareth and Suter 2010). Also, the deprivation items may be criticized to adequately grasp the various aspects of deprivation. As regards the predictors of poverty, possible effects were considered at the beginning (1999) and at the end (2008) of the time interval considered. While this approach is suitable to address separately the effects of a situation at the beginning and at the end of the trajectories, it is insufficient to examine the effects of a change in this situation. For instance, conclusions may be drawn about the effects of employment in 1999 and unemployment in 2008, but not about the effects of the change from employment to unemployment. Furthermore, it was not possible to look more in depth at some predictors – for instance by taking into account the number of children within a household – due to the available data.

Third, modelling assumed linear growth to address poverty trajectories, leaving aside more sophisticated options such as piecewise and non-linear growth. It

should therefore be questioned whether the evidenced patterns merely reflect the assumption of linear growth or substantively represent the individual trajectories. Linear growth can be assumed to adequately match the individual trajectories for at least two reasons. On the one hand, the patterns accounted for a high part of the total variance of the deprivation index – about 50% in each year – and descriptive statistics of the individual trajectories corroborated their closeness with the underlying patterns. On the other hand, hierarchical classification with no growth assumption showed similar results to those obtained with GMM. Cluster analyses of the individual scores of the yearly deprivation indexes yielded sample partitions which were widely consistent with the latent classes of GMM, confirming, in particular, the presence of stable, increasing and decreasing patterns of poverty.

Fourth, imputation of missing data may produce some bias, though it has been suggested to be beneficial to longitudinal data analysis since biases due to imputation are smaller than those due to non-imputation (Voorpostel 2010). Additionally, sensitivity analyses conducted in the present study indicated that the results are widely stable when comparing datasets with and without imputation.

5 Conclusion

The findings of this study suggest that the thesis of highly individualized poverty dynamics should be questioned. In a medium-term perspective, a few clear-cut poverty patterns can be distinguished in order to describe individual trajectories of poverty. These patterns reflect unequal poverty risks across population subgroups. Even more, poverty patterns seem to incorporate and, to a large extent, perpetuate social inequalities. Thus, the dynamics of poverty appear to be largely embedded in the macrostructure of social inequalities.

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