Poverty dynamics in Germany: Evidence on the relationship between persistent poverty and health behavior

Katja Aue [a], Jutta Roosen [a, *], Helen H. Jensen [b]

[a] Technical University of Munich, TUM School of Management, Chair of Marketing and Consumer Research, Alte Akademie 16, 85354, Freising, Germany
[b] Iowa State University, Department of Economics, Heady Hall, Ames, IA, 50011-1070, USA

ABSTRACT

Previous studies have found poverty to be related to lower levels of health due to poor health behavior such as unhealthy eating, smoking or less physical activity. Longer periods of poverty seem to be especially harmful for individual health behavior. Studies have shown that poverty has a dynamic character. Moreover, poverty is increasingly regarded as being a multidimensional construct and one that considers more aspects than income alone. Against this background this paper analyzes the relationship between health behavior and persistent spells of income poverty as well as a combined poverty indicator using data of the German Socio-Economic Panel (2000—2010). Next to cross-sectional logistic regression models we estimate fixed-effects models to analyze the effect of persistent poverty on dietary behavior, tobacco consumption, and physical activity.

Cross-sectional results suggest that persistent poverty is related to poor health behavior, particularly regarding tobacco consumption and physical activity. Results also show that multidimensional and dynamic aspects of poverty matter. Complementary panel analyses reveal negative effects for the combined poverty indicator only for dietary behavior in the total sample. However, by analyzing the sample by gender we identify further effects of persistent poverty on health behavior. The analyses show that not only do individuals in poverty but also those in precarious situations show health-damaging behavior more often.

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1. Introduction

Studies in the area of health economics and public health have shown that poverty and low socio-economic status (SES) are related to lower levels of health (Benzeval and Judge, 2001; Cohen et al., 2003; Helmert, 2003; Mackenbach et al., 2008; Mielck, 2000). Inequality in healthy life expectancy can be observed. For example, rates of premature mortality are higher among those with lower levels of education, occupational status or income. Rates of morbidity are also higher (Lampert and Kroll, 2009; Mackenbach, 2006).

Attempts to explain these differences have often made reference to the observation that poor health behavior such as unhealthy dietary behavior, smoking, or physical inactivity clusters in poverty groups or for those with a low SES (Contoyannis and Jones, 2004; Lynch et al., 1997a). For instance, McGinnis and Foege (1993) have

shown that approximately 38% of all deaths in the US were caused by behavior-related factors. Also Mokdad (2004) confirmed this relationship for the United States in 2004. Likewise in Europe, the World Health Organization (WHO) (2002) reported that the total burden of disease in Europe is considerably influenced by health behavior and by poverty and income inequalities.

Concerning poverty dynamics and health there are only a small number of longitudinal studies available. Furthermore, the available research shows that persistent poverty is more important than current income (Benzeval and Judge, 2001). Health behavior (in comparison to health outcomes), however, has been only studied in a few cases (c.f. Lynch et al., 1997b; Smith and Middleton, 2007; Smith and Zick, 1994) which underlines the need for studies in this area. Furthermore, to the best of the authors' knowledge, there is no study looking at health behavior and the dynamics of multidimensional poverty.

Against this background the objective of this paper is to empirically examine the relationship between dichotomous and multidimensional persistent poverty measurements (at-risk-poverty-rate vs. the combined poverty indicator by Groh-Samberg,

2008) and health behavior. It is the first time that such a multidimensional indicator is used for analyses in the area of health behavior research. Our analyses are based on the conceptual framework by Mackenbach (2006) outlined in Section 2.1.

We use five years of observations of health behavior variables from the period 2004–2010 in the German population using data of the German Socio-Economic Panel (GSOEP) and combine these data with information on persistent poverty status. Health behavior dimensions include dietary behavior, smoking and physical activity. Poverty is measured by two measures: relative income poverty and a combined poverty indicator by Groh-Samberg (2009). The data are analyzed using a cross-sectional approach as well as a panel data estimation. The results reveal that considering multidimensional and dynamic aspects of poverty matters. Both poverty indicators show that persistent poverty is negatively associated with health behavior.

The paper is organized as follows. The next section will give some background on explaining health behavior and measures of poverty. Section 3 then presents the data and methods of analysis. Results are discussed in Section 4 before the paper concludes.

2. Background

2.1. Explaining health behavior

Health behavior can be explained by several theories including economic and social sciences. An important model explaining health inequality was developed by Mackenbach (2006) and is depicted in Fig. 1.

Mackenbach considers health behavior as one of three mediators between SES and health. Traditional components of SES are income, education and occupation (Adler and Ostrove, 1999). Hence health behavior is influenced by socio-economic parameters directly as well as indirectly via material and psychosocial factors. Health in turn is determined by health behavior, material factors and psychosocial factors. Material factors influence the health status directly as well as via psychosocial factors and health behavior. Because these different determinants are heterogeneously distributed across socio-economic groups, they are seen as the main explanation of health inequality. In this model, specific health determinants comprise the main explanation of health inequality. The group of material factors, including poverty, considers financial aspects, especially the income situation which influences psychosocial aspects such as stress, subsequent risk-taking

health behavior as well as the access to health-promoting facilities and products. These types of psychosocial stress may lead to ill-health either through biological or behavioral pathways. Further material factors are health risks related to occupation and housing.

In this context, it should be noted that health behavior may respond immediately to deprivation whereas the health status develops over time and may be the result of long-term effects of health behavior. This study therefore focuses on individual health behavior as a key factor in Mackenbach's model (Kroll, 2010; Knoops et al., 2004; Olshansky and Ault, 1986; Osler, 2006). Against this background we hypothesize that persistent poverty is associated with detrimental health behavior (cross-sectional analysis) and that it increases the likelihood of such behavior (panel analysis).

2.2. Defining poverty

Poverty is still present in many developed countries like Germany. While most poor individuals are not affected by physical deprivation or hunger, relative poverty, mostly defined by low income status, still concerns many to this day (e.g., Duncan et al., 1993; Eurostat, 2011). There exist several approaches to the definition of poverty in developed countries, however, there is no universally valid definition. Definitions are based on absolute and relative concepts as well as subjective approaches (Wagle, 2002). Despite the fact that the definition of relative poverty is difficult and normative (O'Boyle, 1999), our study focuses on approaches of relative poverty. In that we follow the European Commission that defines people as poor "[…]*if their income and resources are so inadequate as to preclude them from having a standard of living considered acceptable in the society in which they live* […]. *They are often excluded and marginalised from participating in activities (economic, social and cultural) that are the norm for other people and their access to fundamental rights may be restricted*" (European Union, 2010). Altogether, income-based measurements are widely used to describe income poverty or the at-risk-of-poverty rate (Nolan and Whelan, 2007). For example, in the European Union the at-risk-poverty-rate is one of the so-called Laeken indicators and defined to be at 60% of median net-equivalence income (Dennis and Guio, 2003). Nevertheless, information on income may be insufficient to determine the degree to which a person is at risk of deprivation. Some households are able to maintain an acceptable standard of living although they are on a low level of income, either because income poverty is only temporary or because of other
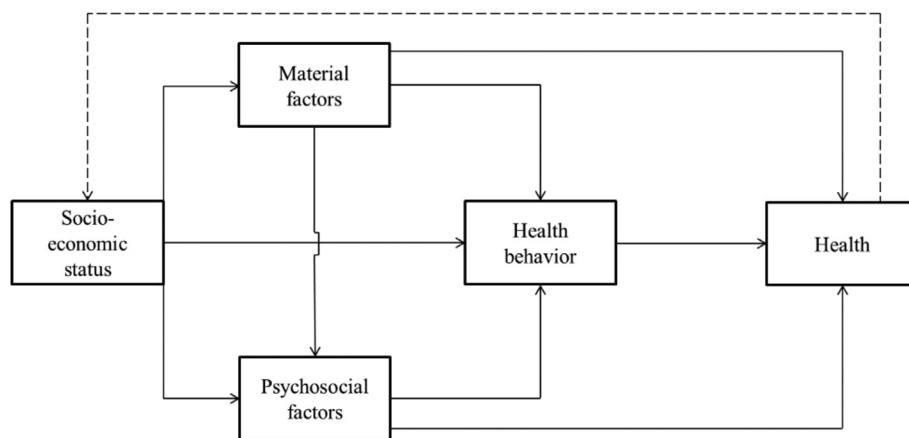
Fig. 1. Explanation of health inequality. Solid lines describe the causation hypothesis. The dashed line represents the explanation of natural or social selection that was included in Mackenbach et al. (1994) first model. This aspect is no longer included in the updated model from 2006.
Source: modified according to Mackenbach et al. (1994) and Mackenbach (2006).