

# Who is counted as in-work poor? Testing five different definitions when measuring in-work poverty in Sweden 1987–2017

Measuring  
in-work  
poverty in  
Sweden

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Birgitta Jansson

*Social Work, Faculty of Social Science, University of Gothenburg,  
Goteborg, Sweden, and*

Lovisa Broström

*Social Work, Faculty of Science, University of Gothenburg, Goteborg, Sweden*

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## Abstract

**Purpose** – There is ongoing debate amongst in-work poverty researchers as to how to answer the question “who is counted as in-work poor?” and how to define the minimum size of work that should be used to determine a “working threshold”. The purpose of this paper aims to contribute to this debate by testing five different definitions of a “working threshold” and discussing their implications when testing the different measurement outcomes.

**Design/methodology/approach** – The authors use data from Statistics Sweden (SCB), including the total population registered as living in Sweden for each year from 1987 to 2017. All calculations are on a yearly basis and in fixed prices (2017). The data set used is based on linked administrative data retrieved from Statistics Sweden and the software used is SAS 9.4.

**Findings** – Results show how in-work poverty trends differ by measurement approach. The two definitions with the lowest income thresholds are found to include a very heterogenic group of individuals. The development of in-work poverty in Sweden over 30 years show decreasing in-work poverty during the first decade followed by an increase to almost the same levels at the end of the period. In-work poverty in Sweden has transformed from being female-dominated in 1987 and the typical person in in-work poverty 2017 is a male immigrant, aged 26–55 years.

**Practical implications** – This methodological discussion might lead to a new definition of who is a worker amongst the in-work poor, which could consequently affect who is counted as being in in-work poverty and lead to new social policy measures.

**Originality/value** – This is, to the authors' knowledge, the first time different definitions of work requirement used to define in-work poverty have been tested on a data set including the total population and over a period of 30 years.

**Keywords** Sweden, Microdata, In-work poverty, Income thresholds, Total population

**Paper type** Research paper

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## 1. Introduction

Poverty was earlier primarily associated with worklessness but since the late 20th century or early 21st century, research in in-work poverty has been gaining growing interest due to changes in the economy and the labour market. An in-work poor is a working person who lives in a poor household. The number of people in in-work poverty has increased during the last decades and some individuals and households have shown to be more exposed to in-work poverty than others are. Like, as for poverty, there is a gender aspect as women to a higher degree than men are exposed to in-work poverty (Ponthieaux, 2018). The composition of the household is also a factor for in-work poverty. Being a single parent with only one income has proven to be a contributing factor to in-work poverty (Hick and Lanau, 2018; Nieuwenhuis and Maldonado, 2018). One of the most highlighted aspects is the situation for migrants. Earlier research has shown that their precarious situations are frequently connected with limited skills, language shortcomings, discrimination, lacking a network, years since immigration and country of origin (Crettaz, 2018). The interest of in-work poverty have expanded to include studies of the development in high-, middle- and low-income countries (Barrientos and Unnikrishnan, 2018; Maurizio, 2018; Lilenstein *et al.*, 2018; Yeh and Lue, 2018). There is, nowadays, a large international debate about in-work poverty and whether low-paying jobs are stepping stones or poverty traps (see, e.g. Lohmann and Marx, 2018; Knabe and Plum, 2010; Mosthaf *et al.*, 2009; Trlifajová and Hurrell, 2018).

This paper takes its starting point in this debate and the aim of this paper is twofold. First, we discuss and test five different definitions of the minimum degree of working. We focus on determining how a number of researchers have dealt with the critical question: how little or how much do the individuals who are counted as being in in-work poverty have to work? Second, we examine if and how in-work poverty trends differ when testing these five different measurement approach with a Swedish data set including the total population for a period spanning from 1987 to 2017. The research question is: What differences in outcomes of the development in-work poverty in Sweden does these five approaches show? How has in-work poverty developed over a 30-years long period according to gender, age and country of birth? The results lead to a discussion about the level at which it might be relevant to impose the in-work poverty “working threshold”.

Within the field of in-work poverty research, several concepts and definitions are used, for example “working poor”, “working poverty”, “at-risk of poverty” and “in-work poverty”. Research about the United States usually uses the terms “working poor” and “working poverty”. The labour market and opportunities for individuals and households with low incomes and weak labour market participation in the US differ widely from those in Europe. In the US, there are no universal social insurance policies, such as health insurance, occupational injury insurance or unemployment insurance, that are linked to labour force participation, like in many of the European countries. This is one of the reasons why the terms “working poor” and “working poverty” in the US are not fully comparable to their European counterparts. Within the European Union (EU), the concepts of “at-risk of poverty” and “in-work poverty” are increasingly used in research, and these constitute the EU’s official conception of the phenomenon. In this text, we use the concept of in-work poverty as it is used in a European context. There is also an ongoing theoretical discussion about how to measure in-work poverty, and we aim to contribute to this discussion by investigating some of the methodological problems connected with it and testing a number of measurement approaches on an existing data set.

When establishing who is considered to be in in-work poverty, however, there are mainly two conditions that have to be discussed and defined: how we ought to define “poverty” and how we ought to define “work”. The first condition is the answer to the question “what is poverty?”. Here, we find a general agreement amongst most researchers about the use of the definition of “relative poverty”, and in the EU, the relative poverty line is defined as 60% of the median equivalent disposable income in a country. The second question that needs to be

considered is “who is counted as in-work poor?” and here, we find an ongoing discussion, in which some researchers have stated that the lack of a consensus makes the measuring of in-work poverty “a definitional chaos” (Crettaz, 2011, 2013; Marx and Nolan 2012; Clark and Kanellopoulos, 2013). As will be shown later (Section 4), there is vast discrepancy amongst researchers as to how to answer the question “who is counted as in-work poor?” and how to define the minimum size of work that should be used to decide upon a “working threshold”. A “working threshold” – together with the poverty line – should be used to define and measure the size of the population that can be considered as in in-work poverty. In-work poverty is a bidimensional construction, as it refers to both the household level, i.e. the poverty line and the individual level, i.e. the working threshold. The definition of in-work poverty must rest on these two definitions – both have to be fulfilled to be counted as in-work poor. First: the individual’s household should be poor according to the relative poverty line, and second: the individual in work according to a minimum definition of work – a working threshold.

When modelling and testing the five different definitions of work, we use data including the total population registered as living in Sweden for each year from 1987 to 2017. The Swedish labour market is often portrayed as stable for those who have a regular job, since they are well protected through collective bargaining agreements and influential trade unions. Earlier findings often show that low income is merely a temporary stage for the individual or household in the beginning of people’s working lives. By testing the five different definitions on the Swedish data, this paper adds a study over in-work poverty in Sweden over a 30-year period and contributes to knowledge about the development of in-work poverty in Sweden, a research area that, in many ways, has been neglected.

Before testing and discussing, the outcome of the five different “working threshold”, based on Swedish data, a short historic context of the economic development in Sweden during the period is needed.

## 2. The Swedish context

Economic development in Sweden during the studied period has taken different steps, which might have had consequences for the in-work poverty rate. In 1987, the first year this study considers, Sweden had an equal income distribution: the Gini coefficient (disposable equalized household income) was 0.20, the unemployment rate was approximately 2%, the real gross domestic product (GDP) growth rate was 1.7%, and women were continuing their March into the labour market (Fritzell *et al.*, 2010). Sweden was then in many ways a classic country with a full employment policy. Despite the increase in the female labour force participation rate, the working hours did not rise at the same pace. Women worked for fewer hours and in general had less secure labour arrangements, with few working full-time and full-year and with most employed in the public sector, primarily in the care and health sectors (Regeringen and Prop, 2012/13). At the beginning of the 1990s, Sweden experienced a deep economic downturn with consequences for the labour force. GDP growth was negative in 1991–1993, and the unemployment rate increased to 9%. Due to a change in the law, a Temporary Agency Work Directive was implemented in 1993, and the state’s monopoly on the employment agencies was removed. Time-limited employment arrangements subsequently increased, which led to more insecurity for individuals with weak positions in the labour market (Broström, 2015). There has been a decline in manual factory jobs, and the labour market has become more polarized. The increase in non-standardized jobs, “gigs” and temporary employment has been growing simultaneously with an increase in the service sector. This has contributed to reshaping the Swedish labour market. All these factors are indicators that the composition of the relatively poor has changed and that there might be a growing proportion of in-work poor in Sweden (Asplund *et al.*, 2011; Broström, 2015). Since the end of the 1990s, the unemployment rate has fluctuated between 6 and 9% (Statistics

Sweden, 2019a). Between 1993 and 2015, the GDP growth rate was 2.6% per annum (Regeringen and Prop, 2016/17). The income distribution also changed considerably during the study period, while the role of capital gains increased substantially and changes in the tax system favoured capital owners. The Gini coefficient (disposable equalized household income) increased to 0.28 in 2011 (Regeringen and Prop, 2012/13, p. 100), and according to the Organisation for Economic Co-operation and Development (OECD, 2011), Sweden then had the fastest-growing inequality amongst OECD countries, although starting from low levels. Since then, the Gini coefficient has been hovering between 0.28 and 0.30 (Statistics Sweden, 2019b).

The Swedish demography has gone through the same changes over these 30 years. In 1990, the share of foreign-born individuals in the population was 9%, and in 2018 it had increased to 19.1% (Statistics Sweden, 2020). Sweden is one of the largest net receivers of immigrants in percentage of population in Europe, due to wars and conflicts both within and outside Europe. The immigrant population, especially from countries outside Europe, has difficulties in securing labour market attachment, mainly because of a lack of relevant and/or higher education, as well as limited language skills. This has spurred a discussion about a need to reconstruct the labour market to create jobs that do not require a higher education and/or can be executed without fluent Swedish. There are indicators that this might already have happened. Loopholes in the existing labour laws might have already been used to employ people at a low wage (Forslund *et al.*, 2017).

### 3. Data and methods

As one of the aims of this paper is to discuss and test five different definitions of the minimum degree of working, different “working thresholds”, the data and methods used needs to be presented and discussed before the testing (in next section). The data used are register data from Statistics Sweden (SCB), including the total population registered as living in Sweden for each year from 1987 to 2017. We have yearly information on all individuals, which includes many variables, of which a few are chosen for this study: mainly different income variables, year of birth, gender and country of birth. The data are constructed as a panel, but in this study, we use a cross-section of the data. The data set used for this study is based on linked administrative data retrieved from Statistics Sweden, made available for this specific research project. The software used is SAS 9.4.

New individuals enter the data set as they are born or immigrate to Sweden, and individuals exit the data set as they die or emigrate from Sweden; because of the use of register data, the attrition is small. We measure different in-work poverty lines, and all calculations are on a yearly basis and in fixed prices (2017). A few individuals with zero equivalent disposable income, possibly due to emigration, are excluded from the calculations. We choose an age bracket that includes individuals who are supposed to belong to the labour force: 18–65 years. This age bracket coincides with the age brackets used by other researchers about in-work poverty, which makes this study comparable to other studies. When using the 18–65 years age bracket, the number of individuals included is 4,556,674 for the first year, 1987, and 6,000,797 for the last year, 2017.

We start by calculating the relative poverty line in Sweden for the total population using the variable “equivalent disposable income”, which includes (earned income + self-employed income) + nominal capital income + transfers – tax. The household is the income unit, and the individual is the unit of analysis, as all household members’ disposable income is merged. The equivalent disposable income is used, as it is adjusted for household expenditure needs (using an equivalence scale). We use the EU definition of relative poverty: 60% of the median equivalent disposable income in a country.

In-work poverty is a bidimensional construction, as it refers to household level (equivalent disposable income) as well as individual level (earned income). To be able to measure the

different definitions of in-work poverty, we create a new variable called “earned income pre-tax”, which includes three existing variables in the data set: earned income + self-employed income + earned income from Norway and Denmark. “Self-employed income” includes individuals with both an earned income and an income from self-employment, as well as the group of self-employed people who receive income only from their self-employment. The variable “earned income from Norway and Denmark”, derived from the border commuting statistics for the years from 1997 to 2015, includes income earned by individuals who live in Sweden but work in the neighbouring countries of Norway or Denmark.

This new variable “earned income pre-tax” in our data set is thus comparable to the variable “earned income pre-tax” that other researchers use (e.g. [Lohmann and Marx, 2018](#)). The “earned income pre-tax” is based on individual earnings, and no equivalent scale is used, as it focusses on the individuals’ own income derived from work. To be considered as in in-work poverty, an individual must have an equivalent disposable income equal to or below the relative poverty line, and an earned income pretax equal to or above the “working threshold” according to the five different tested definitions of the minimum degree of working: the “earned income pre-tax line”.

As shown, in [Table 1](#), three definitions use the relative poverty line (equivalent disposable income of less than 60% of the median equivalent disposable income), and two do not use any poverty line at all. The focus of those two studies is to discuss low wage earners, and by doing so, they formulate a definition for “who is a worker?” ([Ek, 2018](#); [Forslund \*et al.\*, 2014](#)). Therefore, we decided to include them as they discuss and operate a minimum definition of working, and as such, it can be of help and interest when setting a “working threshold”.

As the focus in this study is to discuss and test how to define the minimum degree of working, we start by making the different “working threshold” comparable – that is, we transform the different definition into “earned income (pre-tax)”. As seen in [Table 1](#), [Halleröd and Larsson \(2008\)](#) define a worker as: “if a person has received any wage income, from an employer or a self-owned company, during the year”. To operationalize the definition “any annual wage income”, we decide to use 1,000 SEK (approximately 100 euros) annual earned income pre-tax as the “working threshold”. [Ek \(2018\)](#) use the 10th percentile in the total wage distribution as an income definition of workers to be considered as relatively poor. Other researchers use definitions according to the percentage of median earned income or working

Author/s and articles	Definition of poverty	Definition of working threshold
<a href="#">Halleröd and Larsson (2008)</a>	Equivalent disposable income of less than 60% of the median equivalent disposable income	If a person has received any wage income, from an employer or from a self-owned company, during the year
<a href="#">Ek (2018)</a>	Does not use a poverty line	Percentile 10
<a href="#">Klein and Rones (1989)</a> <a href="#">Halleröd <i>et al.</i> (2015)</a> <a href="#">Goerne (2011)</a> <a href="#">BLS (2015)</a> <a href="#">Svalund and Berglund (2018)</a>	Equivalent disposable income of less than 60% of the median equivalent disposable income	50% of the median earned income (pre-tax) or working 27 weeks
<a href="#">Forslund <i>et al.</i> (2014) (IFAU)</a>	Does not use a poverty line	Lowest wage according to the main general agreement (HÖK)
<a href="#">Bardone and Guio (2005)</a> <a href="#">Marx and Nolan (2012)</a> <a href="#">Torsney (2013)</a> <a href="#">Eurostat (2010)</a> <a href="#">Lohmann and Marx (2018)</a>	Equivalent disposable income of less than 60% of the median equivalent disposable income	60% of the median earned income (pre-tax) or working 7 months

**Table 1.**  
Definitions of poverty  
and working  
thresholds used in the  
literature

weeks or months (e.g. [Klein and Rones, 1989](#); [Bardone and Guio, 2005](#)). We operationalize 27 weeks of work, comparable to 50% of the median earned income pre-tax (as 27 weeks is approximately 51% of one year) and seven months of work, which is comparable to 60% of the median earned income pre-tax (seven months is approximately 58% of one year).

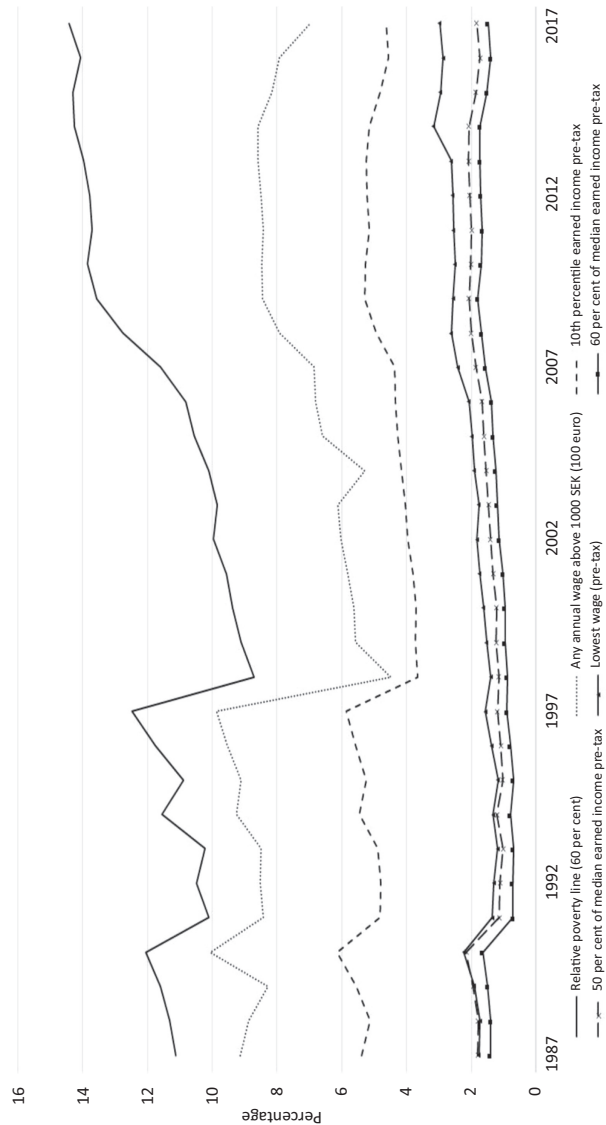
This method can, of course, be challenged, as we measure individual's annual labour earnings (earned income pre-tax) irrespective of work intensity and/or hourly wages. However, the five different definitions we test do not specify, for example, 27 weeks of work, according to work intensity and/or hourly wage. Our method to operationalize 27 weeks of work into 50% of the median earned income pre-tax is one way to address this "definitional chaos".

#### 4. Testing five different established ways of defining in-work poverty

[Halleröd and Larsson's \(2008\)](#) definition falls into the category of the most generous definition of a worker. They consider a person as working "if a person has received any wage income, from an employer or a self-owned company, during the year". They use a data sample from face-to-face interviews presented in Statistics Sweden's annual Survey of Living Conditions 1988–1989, 1994–1995 and 2002–2003, together with information on annual incomes from Statistics Sweden's register data. They include certain reservations – for example, a person who should be considered to be in in-work poverty cannot be unemployed at the time of the interview. We cannot take such reservations into consideration, because they do not exist in our data. When we operationalize the definition "any annual wage/income", we decide to use 1,000 SEK (approximately 100 euros) as the wage income for the bar of having any wage income during the year. As seen in [Figure 1](#), when operationalizing this definition, it is very close to the relative poverty line in the starting years (the late 1980s), signalling that a majority of the relatively poor had a small income then, but probably a very loose attachment to the labour market. As shown in [Figure 1](#), the gap between this line and the relative poverty line widened throughout the study period. The results show that an increasing number of relatively poor individuals have no income at all, and this indicates that the labour market attachment, in this group, has decreased substantially over time. In 2017, less than half of the relatively poor had an income of at least 1,000 SEK (100 euros), compared with three-quarters at the end of the 1980s. The main objection to using such a generous definition of being in work is that it will include individuals who have a very weak labour market attachment. This is probably one reason why results from the study by [Halleröd and Larsson \(2008\)](#) show that the extent of in-work poverty in Sweden is high amongst young adults. To define a worker with such a low income threshold means that it will include young adults working during summer vacations and seasonal workers. This finding that has been the predominant description of the composition of in-work poverty in Sweden.

[Ek \(2018\)](#) uses the second definition, "tenth percentile". His reason for using this definition is to capture how formerly unemployed individuals have managed to return to employment. The main interest in the study by Ek is to investigate the process for unemployed individuals with a low educational level and their possible chances of re-entering the labour market and obtaining an unqualified job. Data from the Swedish Longitudinal Integration database for Health Insurance and Labour Market Studies, together with the standard for Swedish employment classifications, are used. From these, Ek chooses jobs that require only secondary education. This group consists of about 5% of the complete labour force in Sweden, and the salaries in these jobs are amongst the lowest in the Swedish labour market. Ek finds that these salaries are close to the lowest-paid tenth percentile in the total wage distribution and concludes that a relatively large share of the workers in these jobs can be considered as relatively poor. As seen in [Figure 1](#), this definition of an in-work poverty line differs from the others, except for "any annual wage/income", as it is closer to the relative poverty line. Consequently, it probably includes a rather large share of the population with very low earned income or individuals for whom a large share of their disposable income arrives from transfers. With this definition, the





**Figure 1.**  
In-work poverty rates  
according to five  
different in-work  
poverty lines

in-work poverty group will also include individuals with low labour market attachment. According to Ek's results, around 10% of native-born women and men and foreign-born men were in the lowest-paid group in 2015; foreign-born women accounted for around 20% of the lowest-paid category in 2015 (Ek, 2018, p. 23).

The next two definitions are very similar and discussed together. The definition of "50% of the median earned income pre-tax" was introduced by Klein and Rones (1989). They define "working poor" as referring to a person who has devoted at least half of the year to labour market efforts, being either employed or in search of a job during that period, but who still lives in a poor household. They state, however, that: "While the 6-months cut-off is somewhat arbitrary, it is meant to exclude not only nonparticipants in the labor force, but also marginal participants" (Klein and Rones, 1989, p. 4). This early definition of a worker is used in several later studies (Goerne, 2011; Halleröd *et al.*, 2015; Svalund and Berglund, 2018). The required time on the labour market per year is a crucial issue when deciding who will be counted as working. This bar (50%) is assumed to capture the individuals who have been working for at least six months in one year. This definition is comparable to the definition "working 27 weeks" used by Bureau of Labor Statistics (BLS, 2015); therefore, we treat them as one when measuring the in-work poverty trend. We set the threshold to equal or more than 50% of the median earned income pre-tax. The second definition, "lowest wage", is mainly constructed with the aim of capturing individuals who have an earned income that signals that they have labour market participation of at least half a year (Forslund *et al.*, 2014). When calculating the in-work poverty line according to the lowest wage, we use information based on the collective labour agreement and set the line to at least 50% of the lowest annual wage [1]. As shown in Figure 1, the trend of the two definitions is very similar until 2005, when the gap increases, especially after 2014. An indication of that income growth amongst low-income takers is lower than that for median-income takers.

In 2005, Eurostat introduced a definition of an in-work poverty line at the EU level (Bardone and Guio, 2005). The definition refers to individuals who have mainly worked during the reference year (i.e. employed or self-employed) and whose household's equivalent income is below 60% of the country's median earned income pre-tax. The definition of a worker was set to seven months over 12 months of the year. This "7-months rule" is used extensively, especially in studies conducted since 2005 (Eurostat, 2010; Marx and Nolan, 2012; Torsney, 2013; Lohmann, 2018). When measuring the in-work poverty line according to this definition, we set the threshold to equal to or more than "60% of the median earned income pre-tax" and treat it hereafter as equal to the Eurostat "7-months rule". As shown in Figure 1, the trend of "60%" is similar to the trend of "50%". The advantage of this definition, as we find it, is that it includes individuals whose income is mostly derived from work, although it signals that their labour market participation is weak.

These five different ways of measuring who is a worker show the spectrum within which the definition of in-work poverty falls. They differ in real money terms and consequently include different groups of individuals. This has different types of impact on the results in the various studies. As shown in Figure 1, when using "any annual wage" and "the tenth percentile", they differ most from the other four lines and have a strikingly similar pattern to the relative poverty line. This indicates that they probably include more individuals than just those in in-work poverty. By using these two definitions, the rate of in-work poverty will include individuals whose positions on the labour market are very weak. Certainly, it consists of a heterogenic group of individuals (e.g. students, part-time workers and poor people), whose only common denominator is their very weak labour market attachment.

The other lines fall rather close together and expose more or less the same kind of trend. The "lowest wage" positions itself rather high in the group of lines, indicating that it captures a lower income growth rate amongst low-income takers than middle-income takers. The definition "50% of the median earned income pre-tax" corresponds to "6 months", and



“27 weeks” is a common measurement in studies conducted before 2005. However, the measurement of “6 months” is problematic in the sense that it only requires a person to work for at least half a year and therefore signals having a low labour market attachment. The line of “60% of the median earned income pre-tax” makes sure that the person is mainly working.

## 5. Development of in-work poverty in Sweden over 30 years according to the five definitions

As shown in [Figure 1](#), there were differences in in-work poverty rates according to the five different definitions of the minimum size of working. In this part of the study, we examine the outcome of the definitions considering who will be included and excluded as in-work poor. We start by dividing the in-work poor according to gender and comparing the starting year – 1987 – with the ending year, 2017. As shown in [Table 2](#), all five definitions of the minimum degree of working tested here clearly capture this change in the gender composition of the in-work poor. In-work poverty in Sweden has transformed from being female-dominated in 1987 to be more gender-neutral in 2017. This is explained by the increasing female labour force participation, as well as a masculinization of low income and poverty amongst men in Sweden during the period of study ([Broström and Rauhut, 2018](#); [Jansson, 2020](#)).

Several studies have stated that in-work poverty is mainly an issue for young adults and constitutes a temporary position, as young individuals grow older and gain a more stable labour market attachment (e.g. [Halleröd and Larsson, 2008](#); [Halleröd \*et al.\*, 2015](#)). We test this statement by calculating the rate of in-work poverty according to age, divided into five age groups.

Starting with men, in [Figure 2](#), the most generous definitions of minimum degree of working result in that the largest age group in in-work poverty is the young adults (aged 18–24 years). In 1987 “percentile 10”, 51% were in that age group: in 2017 it has decreased to 18%. In 1987, “Any annual wage income” 62% were in that age group: in 2017 it has decreased to 27%.

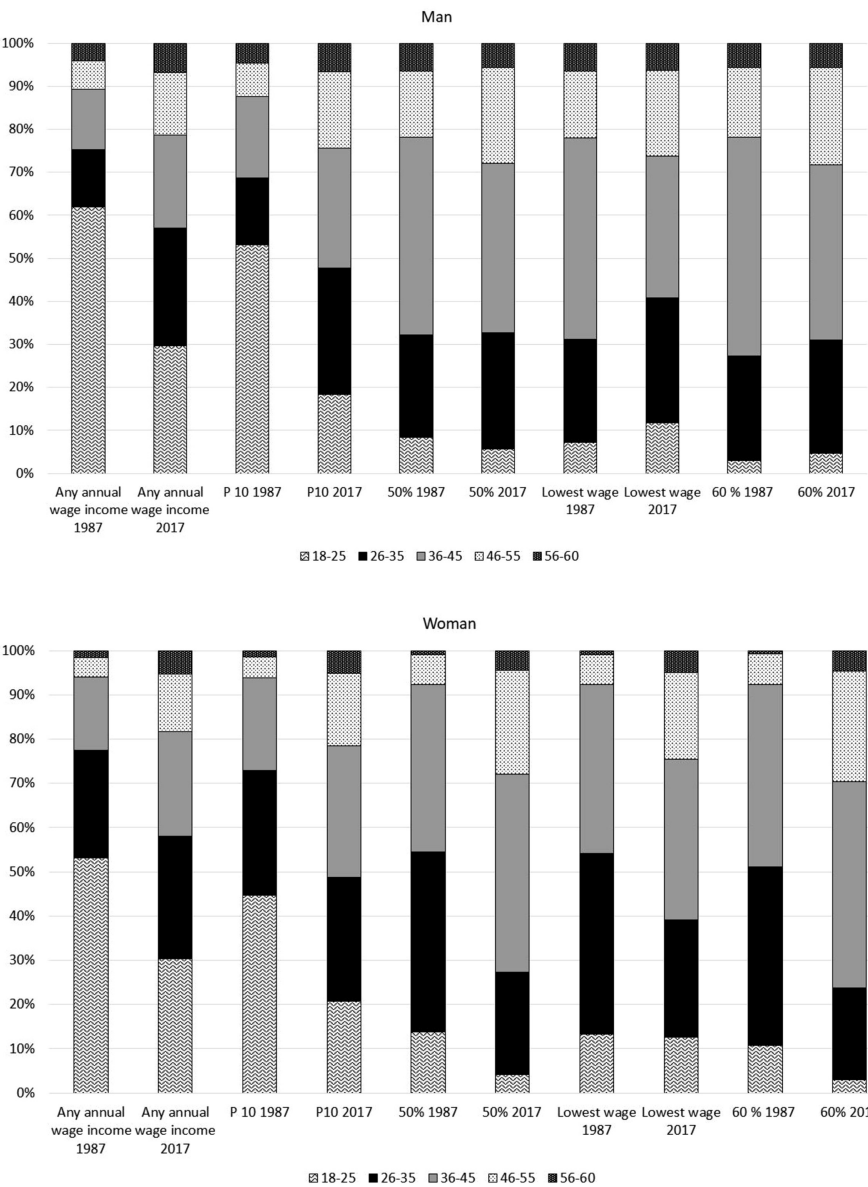
The other, more strict definitions of minimum degree of working show the opposite: in-work poverty is not a condition dominated by young adults, but on the contrary, the majority of individuals in in-work poverty belong to the core labour force ages, especially 26–45 years.

The development of female in-work poverty according to age is a bit different to that of men. As shown in [Figure 2](#), the most generous definitions, “Any annual wage income” and percentile 10, give the same result for women as for men: the majority of women are in the 18–25 years age group. (“Any annual wage income” from 53 to 33%; percentile 10, from 44 to 21%.) However, when looking at the other definitions, we find a decreasing share of female young adults (aged 18–25 years) when comparing the starting year with the ending year. A similar decrease is not shown for young adult men – on the contrary, we find a small increase. This small increase of male young adults in in-work poverty corresponds to the masculinization of low income and poverty, seen in [Table 2](#).

	Men		Women	
	1987	2017	1987	2017
Any annual wage income	29.5	51.0	70.5	49.0
Percentile 10	39.1	50.4	60.9	49.6
50%	29.7	52.0	70.4	48.0
Lowest wage	29.5	51.0	70.5	49.0
60%	29.6	53.4	70.4	46.7

**Source(s):** Data set provided by Statistics Sweden

**Table 2.**  
In-work poor in  
Sweden 1987 and 2017,  
according to the five  
tested definitions and  
gender

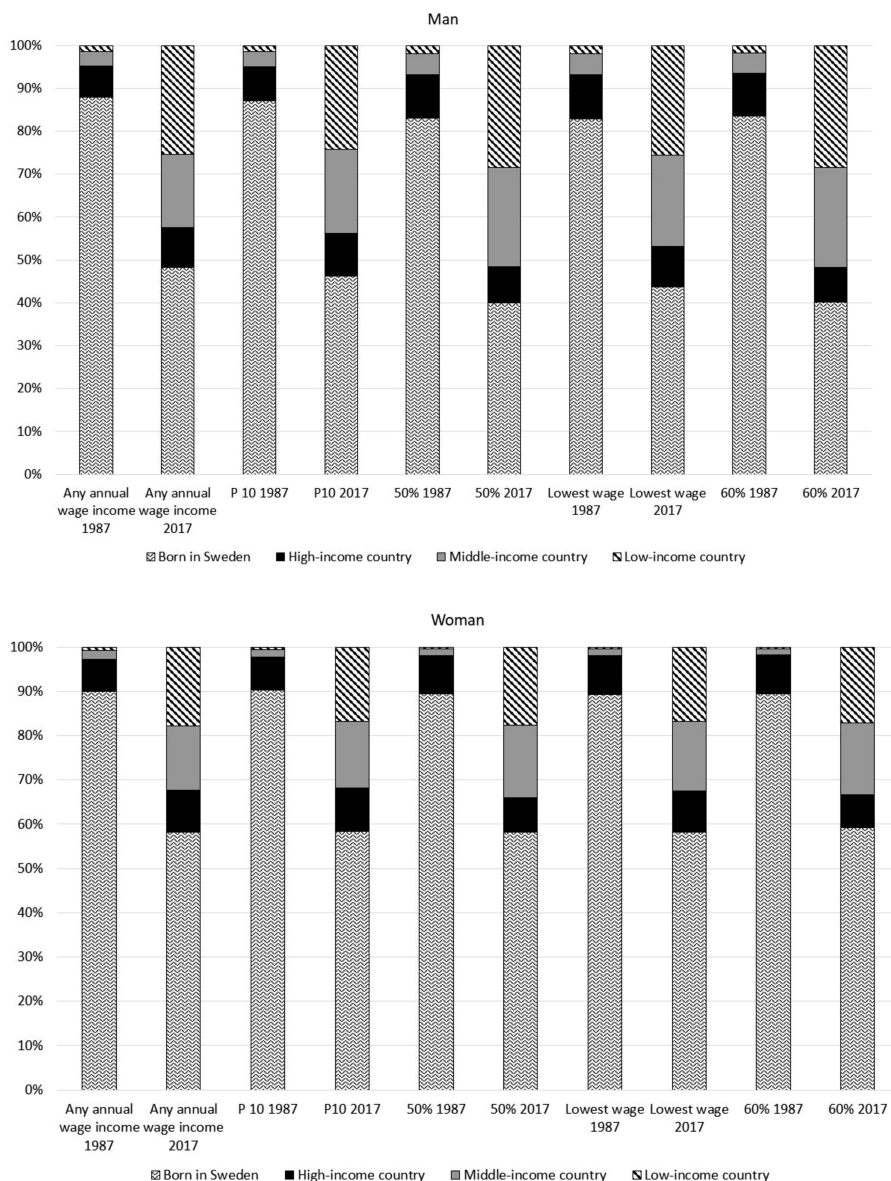


**Figure 2.**  
In-work poverty rates  
according to age  
groups. Five different  
definitions of “working  
threshold”

The next test considers how the different approaches cover the composition according to country of birth. As previously described, the demography changed in Sweden during the study period and the proportion of foreign-born population increased from approximately 9% of the total population in 1990 to approximately 19% in 2018 (Statistics Sweden, 2020). Here, we use an elementary division of four country groups: individuals born in Sweden; individuals born in a high-income country; individuals born in a middle-income country and individuals born in a low-income country (derived from the World Bank Classifications, 2019).

In [Figure 3](#), starting with the results for men. As shown, all five approaches capture the same development: the percentage of native-born men in in-work poverty is decreasing substantially, from hovering between 82 and 88% in 1987, to between 42 and 48% in 2017. In 2017, foreign-born men are, all three country groups are taken together, in majority. Men born in a low-income country constitute the largest share; between 24 and 28% in 2017.

The results for women, [Figure 3](#), tell a slightly different story. In both years of observation, 1987 and 2017 Swedish-born women are in the majority amongst the in-work poor, although



**Figure 3.**  
In-work poverty rates  
according to country of  
birth. Five different  
definitions of “working  
threshold”

their share decreased from approximately 90% in 1987 to 58–60% in 2017. The next-largest group of women in in-work poverty in 2017 are women born in a low-income country (16–17%).

This figure shows that in-work poverty has changed from being a problem for native-born individuals to a problem for immigrants, especially from low- and middle-income countries – a development that all five tested definitions capture.

In Table 3, the conditional probability for being in in-work poverty for individuals born in these four country groups is shown.

What Table 3 shows is that over this 30-year period, people from low-income countries have been growing as a proportion of people defined by in-work poverty. Native Swedes have been decreasing in proportion. All five definitions show that the changes are substantial for foreign-born men and women. Men born in a low-income country are six to nine times more likely to be in in-work poverty than native-born men in 2017. For women born in a low-income country, the risk of being in in-work poverty is four times higher than for native-born women in 2017.

6. Conclusion and discussion

The aim of this paper was to contribute to the discussion about the question of “who is counted as in-work poor?” by measuring five different definitions of the minimum degree of working. Choosing five different definitions used in earlier research, the results show that there are many different options when picking a definition of in-work poverty. When choosing a very low-income threshold (“any annual wage” or “the tenth percentile”), the results show that these definitions will include individuals with very weak labour market attachments (e.g. young adults working part time, seasonal workers and part-time workers). The other definitions require a stronger labour market attachment, and the higher income thresholds constitute a more convincing definition of who is counted as in-work poor.

According to all five definitions, the development of in-work poverty in Sweden show decreasing in-work poverty rates in the 1990s, probably as a result of the economic down-turn and increasing unemployment (shown in Figure 1 when looking at 50%, lowest wage and 60%) and starts increasing in the 2000s. For the last years of observation, 2014–2017, the gap

**Table 3.**  
Conditional probability  
of the risk of being in  
in-work poverty  
according to gender  
and country of birth,  
1987 and 2017. Five  
different definitions

Country of birth	1987				2017			
	Sweden	High-income country	Middle-income country	Low-income country	Sweden	High-income country	Middle-income country	Low-income country
<i>3a. Man</i>								
Any annual wage/income	7.3	7.8	14.5	15.8	4.7	12.7	17.5	31.6
Percentile 10	3.9	4.6	8.3	8.3	2.6	8.0	11.6	17.4
50%	0.9	1.5	2.9	2.7	0.9	2.7	5.6	8.4
Lowest wage	0.1	1.5	2.9	2.6	1.6	5.0	8.2	11.9
60%	0.7	1.1	2.2	2.0	0.8	2.2	4.7	7.0
<i>3b. Woman</i>								
Any annual wage/income	11.1	10.2	16.5	19.5	5.9	13.4	16.1	27.7
Percentile 10	6.8	6.4	8.7	9.6	3.4	7.8	9.5	15.0
50%	2.6	2.9	3.1	2.8	1.3	2.4	4.0	6.0
Lowest wage	2.6	2.8	3.0	2.8	2.1	4.8	6.3	9.5
60%	2.0	2.2	2.1	2.0	1.0	1.8	3.1	4.6

**Source(s):** Data set provided by Statistics Sweden

between the most generous definition (“any annual wage/income”) and the relative poverty line is widening. This shows a development where more individuals have no income at all; this is opposite to the gap between “lowest wage” and the relative poverty line, a result of more individuals having very low incomes.

These differences in results show the importance of how to define a “working threshold” when investigating in-work poverty. If researchers use a very low income threshold, data can be interpreted as showing that in-work poverty has decreased. If researchers use a threshold that captures the individuals who can be counted as in-work, then data can be interpreted as showing that (lowest wage) in-work poverty is increasing.

The composition of the group of individuals in in-work poverty in Sweden has changed during these 30 years of study. When testing the definitions according to gender and country of birth, all five definitions capture the same change. In-work poverty has changed from being female-dominated to gender neutral. It has also changed from being native dominated to, for men, foreign-born dominated and for women, still native-dominated, but with an increasing share of foreign-born women in the group. This result corresponds to earlier research that point out the precarious situations for migrants (Crettaz, 2018).

In one aspect – that of age – the five definitions differ vastly in the results. In addition, the definitions “any annual wage” and “the tenth percentile” stand out. Such generous definitions of the minimum degree of working will include individuals with very weak labour market attachments, such as students working during summer vacations and seasonal workers, as is shown when dividing into age groups. When using more strict definitions of minimum degree of working – 50%, lowest wage and 60% – another age composition is visualized. The results then show that in-work poverty in Sweden is more a reality for individuals of prime working age, aged between 26 and 55 years, who constitute the lion’s share of people in in-work poverty.

This divergence in results illustrates the need for a consensus definition of “who is counted as in-work poor?”. If the interest is to research the group in in-work poverty, we must be sure of how to define a working thresholds, and setting the labour market participation limit to at least 50% of the median earned income pre-tax is reasonable. It is preferable to use the definition of 60% of the median earned income pre-tax, as this definition includes the need to have a solid work requirement that stretches over more than half of the year, as it excludes individuals who are “only poor”. Otherwise, the results will be skewed and distort the view of who is in in-work poverty, which concurrently can lead to inaccurate policy decisions.

## Note

1. We use information on the lowest wages in the Main Agreement between the Swedish Municipal Workers Union and the Swedish Association of Local Authorities and Regions.

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### Corresponding author

Birgitta Jansson can be contacted at: [Birgitta.Jansson@socwork.gu.se](mailto:Birgitta.Jansson@socwork.gu.se)

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