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# Atypical work, financial assets, and asset poverty in Germany

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ABSTRACT

This study investigates how atypical employment (i.e., part-time, temporary work, mini-jobs) affects workers' ability to accumulate financial assets and exposes them to asset poverty in Germany. Asset poverty occurs when household financial resources (e.g., bank deposits and stock equity) are insufficient to live at the income poverty line for three months. Previously, studies on labour market processes and wealth inequalities have been chiefly disconnected. Still, a large share of assets is accumulated from labour earnings, and thus, individual employment experiences likely affect asset accumulation. We draw on data from the German Socio-Economic Panel (SOEP, 2002–2017) and apply fixed-effect growth curve models. Compared to standard employment, we find that spells in temporary work and mini-jobs lead to lower levels of net financial assets, while part-time work results in similar asset growth rates. Furthermore, unemployment and inactivity undermine financial asset accumulation more than atypical employment. This suggests that temporary positions are even more detrimental if interspersed by periods of no employment. We also find that the detrimental effect of atypical employment is larger for low educated than high-educated and that penalties of previous spells of mini-jobs are larger for men than women, but the contrary is true concerning temporary employment. Finally, asset poverty risk increases only for unemployment and inactivity, not atypical employment.

## 1. Introduction

Financial assets are a crucial resource for households' well-being (Brandolini et al., 2010; Grabka & Westermeier, 2014; Lersch et al., 2021). They are an important part of people's wealth portfolios and include assets such as bank deposits, stock equity, and private insurances, excluding real property and business assets. These assets offer unique advantages compared to income.[1] They are liquid enough to be used to meet sudden expenses or provide economic security for periods without employment. In addition, they represent a (potential) investment for generating future income as well as wealth (Schneebaum et al., 2018). When these assets are insufficient to live at the income poverty line for three months – thus, when households lack the financial reserves to weather short-term income losses – households experience asset poverty (Kuypers & Marx, 2021).

In the relatively young field of wealth research, scholars have often emphasized the distinctiveness of wealth compared to income (Hällsten & Thaning, 2022). This comes at the cost of insufficiently accounting for labour market processes in generating inequalities in asset accumulation. However, individual employment trajectories are likely relevant for households' ability to acquire asset and escape asset poverty because a large share of individuals' assets comes from labour income (Black et al., 2020).

In this regard, we argue that atypical employment is a critical link between labour market processes and asset accumulation. Atypical employment consists of all employment relationships, such as part-time and temporary work, deviating from the standard of being an employee with a full-time, open-ended contract (Gash & McGinnity, 2007; Gebel, 2010; Konle-Seidl, 2021; Westhoff, 2022). For instance, employment discontinuity of temporary workers is likely to erode households' savings. Part-time workers may benefit from firm investment opportunities less than standard workers. Therefore, we investigate *how atypical employment affects workers' asset accumulation and expose them and their households to the risk of asset poverty*.

Responding to this question is relevant because assets are a crucial resource for households and are less volatile than income. Asset poverty,

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[1] With "wealth", we refer to real property assets, business assets and financial assets, with "asset" to financial assets only. We use the term "income" to refer to household disposable income (i.e., after taxes, transfers).

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therefore, tends to be more persistent than income poverty, leading to scenarios in which households have enough income to exceed the poverty line but lack financial resources and, therefore, financial security. These forms of economic vulnerability are not addressed by off-the-shelf anti-poverty measures. This situation is particularly problematic in Germany, the country we study. Germany has one of the highest levels of wealth inequality in Europe, with a considerable number of households that experience asset poverty, although they are not income poor (Jäntti et al., 2015; Kuypers & Marx, 2018). Also, Germany is one of the European countries with the highest share of atypical employment, especially in part-time jobs (Brady & Biegert, 2017).

Our work bridges the literature on wealth and labour market inequalities that have been relatively disconnected until now. In the last decades, labour market flexibilization brought atypical employment and its adverse consequences centerstage in public and academic debates (Latner, 2022). Empirical evidence has shown that the extent to which atypical employment is associated with poorer working conditions (e.g., wage penalties and lower wage growth)[2] compared to the standard varies across types of work (e.g., part-time or temporary), socio-demographic groups, as well as welfare regimes (Barbieri, 2009; DiPrete et al., 2006; Fuller & Stecy-Hildebrandt, 2015; Gash & McGinnity, 2007; Giesecke, 2009; Granados, 2019). Penalties in terms of households' labour income vary as well, because households still play a crucial role in shaping individuals' life chances (Ehlert, 2012). Therefore, other household members may mitigate – or exacerbate – atypical workers' disadvantages. In this regard, studies on workers' poverty risk show that the detrimental effect of atypical employment on household income is generally lower for second-income earners (Lohmann & Crettaz, 2018; Lohmann & Marx, 2008).

So far, little attention has been paid to atypical employment penalties in wealth accumulation. These penalties are likely to occur if wages are lower than standard employment. Furthermore, penalties may be related to factors beyond wages, such as discontinuous working careers and few investment benefits. In other words, we expect atypical employment to harm wealth accumulation compared to standard employment even at the same wage level. In this regard, prior studies have shown that discontinuous employment experiences, such as temporary jobs, may undermine wealth accumulation, and more for men than for women (König & Longmuir, 2021; McGrath & Keister, 2008; Ponomarenko, 2017).

However, most of these studies are cross-sectional, do not investigate asset poverty, and do not compare different types of atypical employment. We make several contributions to this literature. First, we do not restrict the analysis to wealth, but we specifically consider asset levels as well as asset poverty. Second, we consider several forms of atypical work to account for the heterogeneity of the underlying processes. Third, we examine separately men and women, as well as low- and high-educated people, to shed light on differences across socio-demographic groups. Finally, we implement a longitudinal research design to examine within-individual changes in atypical employment and assets to produce more robust evidence.

We draw on data from the German Socio-economic Panel, a large and representative, high-quality panel survey, which collected information on wealth in 2002, 2007, 2012, and 2017. We implement fixed-effect linear growth curve models to investigate individual trajectories in households' financial assets and asset poverty. In terms of atypical employment of focal individuals within households, we distinguish between permanent part-time (i.e., part-time, open-ended contract), temporary work (i.e., full-time as well as part-time, temporary contract), and mini-jobs (i.e., part-time employment with monthly wages up to 450 euros which have a special status in the German social security and tax systems). We additionally consider unemployment and inactivity for comparison.

[2] When not otherwise specified, "wage" refers to "hourly wage".

Our results show that part-time workers' financial asset accumulation does not substantially differ from that of standard workers. On the contrary, financial assets grow less if people experience mini-jobs and temporary employment. This detrimental effect is more accentuated for low-educated than high-educated workers. Previous spells in mini-jobs are more detrimental for men, while women show larger penalties concerning temporary employment. We also find that the most substantial asset penalties are for people with spells of unemployment and inactivity. This suggests that the detrimental effect of temporary employment is likely more significant if it is interspersed with periods of no employment. We implement supplementary analyses to shed light on the reasons behind these different accumulation patterns. Our results suggest that the disparities are not fully accounted for by differences in wages or saving propensity. Finally, we find that unemployment and inactivity also increase the risk of asset poverty, while we do not detect a similar detrimental effect for atypical employment.

## 2. Background

### 2.1. Income, assets, and asset poverty

Financial assets are stocks of accumulated economic resources built up from (mostly intergenerational) transfers, savings from surplus income (mostly labour earnings), and returns on investments. From these gross values, debts and liabilities are subtracted for net assets. While income is an important source of assets over the life course, income and assets are distinct dimensions of social stratification (Killewald et al., 2017).

Assets and, more generally, wealth, offer unique advantages compared to income such as a safety net for rainy days, independence from the labour market, and use value. Income and wealth are surprisingly modestly correlated at the level of households and individuals and this correlation seems to have decreased in recent years (Jäntti et al., 2015; Killewald et al., 2017; Kuypers & Marx, 2018). Furthermore, income inequality and wealth inequality are not correlated at the country level and welfare state typologies often used to explain the former cannot explain variation in the latter across countries (Pfeffer & Waitkus, 2021).

Relatedly, scholarship on labour market inequality and wealth inequality has mostly developed independently from each other with research on wealth inequality often focussing on inherited wealth and rich rentiers. Other factors likely to affect asset accumulation such as expenditure shocks (e.g., unforeseen expenses) or employment trajectories have been little investigated so far. However, recent evidence suggests that about half of individuals' wealth is transferred across generations and the other half is self-accumulated in Germany (Alvaredo et al., 2017; Corneo et al., 2016). At the same time, evidence from Norway suggests that direct transfers are only a small share (between 2 % and 5 %) of overall economic inflows compared to income for most people over their lives (Black et al., 2022). This directs attention to the intragenerational mobility in wealth and assets beyond intergenerational transfers to understand how individuals' assets changes over their life courses.

Scholars increasingly turn their attention to asset poverty. As income poverty, financial asset poverty occurs when households' pooled assets, such as savings, are insufficient to smooth out consumption. It thus focuses on the household level acknowledging the household as playing a crucial role in shaping individuals' living conditions (Smeeding, 2016). On the one hand, income and asset poverty are partially related (Filandri & Struffolino, 2021). Since anti-poverty measures are generally mean-tested, households who qualify may see their ability to accumulate assets undermined. However, on the other hand, previous studies also pointed out that asset poverty needs to be considered along with income poverty because it captures critical and distinct aspects of economic vulnerability (Grabka & Westermeier, 2014).

In many European countries, asset poverty rates are higher than

those of income poverty. For instance, Kuypers and Marx (2021) show that in Germany in 2014, the share of people both income poor and asset poor (i.e., those with less net assets than necessary to bridge three months at the income poverty line) was 7 %, 7 % of individuals were only income poor, and 20 % of individuals were only asset poor. In other words, households whose income is above the poverty threshold may still have low levels of assets. This is problematic since anti-poverty measures do not target these households, but asset poverty will likely undermine their well-being.[3] For example, a lack of savings may prevent households from covering sudden emergency expenses outside of the social security system and investing in their members' educational or working careers. Also, assets are less volatile than income, and, therefore, a lack of financial assets is likely to be more persistent than that of income.

### 2.2. Atypical employment and assets

#### 2.2.1. Prior evidence

So far, only a few studies have investigated the relationship between atypical employment and asset accumulation. Among them, König and Longmuir (2021) pointed out that labour income volatility often results in lower financial assets. McGrath and Keister (2008) showed that in the U.S., temporary work in the relatively recent past (maximum of four years) had a detrimental effect on real assets. Experiences further back in time, on the other hand, are no longer relevant. Similarly, Lersch and Dewilde (2015) show that insecure employment is associated with lower chances of entering homeownership in all European countries, but they do not consider financial assets.

Evidence on asset penalties also comes from studies on unemployment (Browning et al., 2007; McKernan et al., 2009; Ozturk & Gallo, 2013; Painter II, 2010). In Norway, mean financial assets are reduced from US-$ 32,460 to US-$ 29,728 two years after unemployment for men who were not unemployed in the four years before the unemployment event (Basten et al., 2016). Similarly, a reduction in financial assets and an increase in debt is found with the entry into unemployment in Britain in the early 1980 s based on a sample of unemployed, primarily male respondents (Bloemen & Stancanelli, 2005). Barnette (2019) finds an asset loss of about 29 % after unemployment in the U.S., excluding 0 and negative assets. The asset loss is still 24 % up to 20 years after unemployment.

The relationship between employment and asset accumulation is thus gaining greater attention. However, to the best of our knowledge, studies are so far primarily cross-sectional, only focusing on asset levels rather than asset poverty, and do not compare different types of atypical employment with each other. Therefore, to develop our hypotheses, we will complement this literature with studies investigating income penalties of atypical employment. We will first outline the factors by which different types of atypical employment are likely to affect asset accumulation, looking at the differences between types of atypical jobs and countries. We will then discuss socio-demographic factors which likely moderate the relationship between atypical employment and assets.

#### 2.2.2. Factors shaping asset accumulation

First, wage penalties may hinder asset accumulation. In most European countries, temporary workers have lower hourly wages than permanent workers (Fuller & Stecy-Hildebrandt, 2015). For part-time workers, the evidence is more mixed. Although, few studies highlight wage gaps between part-time and standard workers in countries like Germany, the U.K., Italy, and the U.S. (Bardasi & Gornick, 2008), others do not find substantial wage penalties after accounting for selection effects (Granados, 2019). Overall, previous studies show that, compared to standard employment, wage penalties are more considerable for temporary than part-time workers (Giesecke, 2009; Westhoff, 2022). In addition, atypical workers – and, particularly, temporary, on-call, agency workers – are likely to have reduced access to occupational benefits (e.g., production bonus), as well as investment or insurance opportunities offered by the company they work for (Gebel, 2010; McGrath & Keister, 2008).

Other factors likely to negatively affect atypical workers' ability to accumulate assets and avoid asset poverty are related to their career prospects. Part-time workers' wages hardly increase over time (Gash & McGinnity, 2007). Evidence is more mixed concerning temporary workers. In some countries, like Germany and the U.K., even if workers persist in temporary employment, their wage penalty compared to standard workers tends to vanish through the years (approx. within eight years; Booth et al., 2002; Gebel, 2009; Mertens & McGinnity, 2004). Beyond wage growth penalties, atypical workers' poorer working conditions may result from restricted access to training activities compared to their counterparts in standard work. This is likely to have detrimental effects on their human and social capital, as well as career mobility to other occupations (Ponomarenko, 2017).

Finally, temporary workers – as well as agency or on-call workers – face the issue of disruptions in their work experience. On the one hand, the need to cope with periods without employment may lead people to save more and thus increase their assets. However, on the other hand, discontinuity of work experiences may have opposite effects. First, temporary workers face a higher risk of unemployment or inactivity than workers with open ended-contracts and spells of no employment have a detrimental effect on household income and wealth (Browning et al., 2007; Ehlert, 2012; Fuller & Stecy-Hildebrandt, 2015; Giesecke, 2009; Ozturk & Gallo, 2013). This is likely to be more pronounced in Continental and Southern welfare regimes, where labour markets are strongly dualized, atypical employment is concentrated in the secondary labour market, and rarely bridges to more secure employment (Barbieri, 2009; Giesecke & Groß, 2004). Second, the detrimental effect of employment discontinuity may also be apparent in psychological prospects. Stability prospects encourage long financial planning horizons (Fulda & Lersch, 2018). Accordingly, people with precarious jobs may be less inclined to make long-term or risky investments, even if they may be profitable.

#### 2.2.3. Differences between socio-demographic groups

The relationship between atypical employment and asset accumulation is likely to vary across socio-demographic groups (Fuller & Stecy-Hildebrandt, 2015). Previous studies pointed out the negative association between men's adverse employment trajectories (i.e., spells of part-time, unemployment, inactivity) and wealth. They have not found on the contrary, similar effects for women (Nutz & Lersch, 2021; Ponomarenko, 2017). They trace this result to women's disadvantages in the labour market and household labour division. Scholars pointed out that wage penalties associated with temporary employment are higher for men than for women (Gash & McGinnity, 2007). This is mostly because the latter are strongly penalised in standard employment (Filandri & Struffolino, 2019; Ponthieux, 2018). In addition, in many countries, men still tend to be the main labour income earners, while women play a marginal role in income generation. Therefore, women's employment disadvantages are often compensated by their partners' labour incomes (Lohmann & Crettaz, 2018; Maitre et al., 2012). In this regard, studies on income poverty of workers (i.e., in-work poverty) show that additional atypical employment in the household (mostly performed by women) often sufficiently increases household income to avoid poverty (Crettaz, 2013; Marx et al., 2012).

Differences among socio-economic statuses are another relevant dimension when investigating the relationship between atypical work and asset accumulation. Ponomarenko (2017) shows that spells of unemployment are less detrimental to asset levels if households benefit from any inheritance, which is more likely to occur in households with high socio-economic status. Extended families may also play a crucial

[3] Even more, means-tested measures to reduce income poverty may drive down financial assets.

role in mitigating the disadvantages of the individual labour position. In addition, studies on labour income penalties of atypical employment suggest that wage penalties are more extensive for low-income, low-educated workers (Mertens & McGinnity, 2004). In most European countries, temporary workers incur wage penalties regardless of their income level. For part-time workers, on the other hand, wage penalties are mostly found at the bottom of the income distribution (Granados, 2019; Westhoff, 2022). Gebel (2010) shows that high-educated workers also face substantial wage penalties when employed temporarily. This is because stable high-skilled working positions are well paid, which might lead to remuneration gaps between stable and atypical work greater for high-skilled than low skilled employment. However, results also suggest that these workers are more likely to benefit from wage growth and to access standard working positions when employed temporarily.

### 2.3. The German context

Germany has a low median wealth level compared to other eurozone countries (Household Finance and Consumption Network, 2021; Pfeffer & Waitkus, 2021). This can be explained by a housing market with a low homeownership rate and an extensive welfare state, which reduces the need to provide privately for sickness and old age. Also, there are striking differences between Western and Eastern Germany, with the latter recording substantially lower levels of wealth (about half of those of Western Germany), a legacy of the German Democratic Republic (Bartels & Schröder, 2020). Generally, primary housing assets represent the most substantial portion of Germans' portfolios, while private insurances and financial assets are increasing in importance. Wealth accumulation peaks between the ages of 56 and 65, then declines during retirement (Frick & Grabka, 2009). Germany has the highest wealth inequality among the eurozone countries after Cyprus and the Netherlands. Even though inequality is high in international comparison, it is somewhat lower compared to countries such as Norway, Sweden, and the U.S. (Household Finance and Consumption Network, 2021; Pfeffer & Waitkus, 2021). In a European context, Germany also has relatively high asset poverty rates (Kuypers & Marx, 2021).

While Germany has often been considered a prime example of a coordinated market economy in the past with high prevalence of secure employment (Hall & Soskice, 2001), recent decades has seen a development towards more atypical employment relations (Brady & Biegert, 2017; Lersch et al., 2020). Underlying these developments is a dualization of the labour market where interest groups in manufacturing preserved regulated and closed employment relations, while liberalization took place in other sectors of the economy (Thelen, 2014, 33ff). The risk of experiencing atypical employment has increased especially for marginal groups; namely, women, young people, low skilled, or previously unemployed workers (Drobnič et al., 1999; Giesecke, 2009; Trappe et al., 2015).

Permanent part-time is the most widespread form of atypical employment and has significantly expanded over time, more for women than men. Germany has a conservative welfare regime, favouring employment configurations in which there is one main income earner, usually the man, while the woman holds marginal employment positions to reconcile care and paid work (Bardasi & Gornick, 2008; Giesecke, 2009). About 48 % of female workers were in permanent part-time in 2018, one of the highest shares among European countries.[4] Part-time work is also increasingly common among less educated people (Granados, 2019). In 2018, about 33 % of workers with primary education hold a part-time position, compared to 23 % of those with tertiary education levels. Compared to other European countries, Germany showed low levels of involuntary part-time in 2018 (approx. 10 % of part-time workers).[5]

The German labour market is also well-known for mini-jobs, marginal part-time employment with wages up to 450 euros, tax and social contribution-free for employees (Bargain et al., 2010). Mini-jobs represent the main employment for about 10 % of the total German workforce and are widespread in low-skill or service sectors. As for permanent part-time, they are mainly taken up by female homemakers (about 40 %), most of them living with a full-time working partner. Students, retirees, and the unemployed are the other groups generally employed with these contracts. Mini-jobs mostly meet the rationale of bringing additional income into the household and are widespread in all income deciles. Mini-jobbers face low wages and poor long-term career prospects (for women) but are generally covered by social insurance protections of other household members and, therefore, they could result in less vulnerable conditions than other types of atypical employment (Konle-Seidl, 2021; Weinkopf, 2009). Mini-job workers may also be entitled to welfare benefits (e.g., unemployment benefits).

Finally, temporary workers represent less than 10 % of the workforce, a share that has been relatively stable in the last decades. However, the risk of temporary employment has increased, especially for young people and workers with low or high general qualifications, whereas it is less common for people with vocational training (Giesecke & Groß, 2004; Latner, 2022). In 2018, about 30 % of employee with primary education level hold a temporary work, compared to 10 % of those with tertiary education. Gender differences are rather negligeable, with about 12 % of employees in temporary work for both men and women.[6] Also, compared to the U.K., Germany shows lower rates of conversion of temporary into permanent employment (Gebel, 2010). Still, the probability of access to permanent employment is generally higher for people who got a temporary job than for their unemployed counterparts (Gebel, 2013). Finally, the risk of temporary workers experiencing periods of unemployment tends to converge with standard workers after five years in Germany (McGinnity et al., 2005).

### 2.4. Hypotheses

Based on the above arguments, we derive the following hypotheses:

**Hypothesis 1**. *Compared to standard employment, atypical employment has (a) a negative effect on the accumulation of financial assets and, therefore, (b) increases the risk of asset poverty.*

**Hypothesis 2**. *Although it has drawbacks compared to standard employment, part-time work is less detrimental than temporary work and mini-jobs for (a) asset accumulation and (b) exposure to asset poverty.*

**Hypothesis 3**. *The negative effect of atypical employment is more pronounced for (a) men compared to women and (b) low-educated people compared to the high-educated.*

## 3. Data and method

### 3.1. Sample

We draw on longitudinal data from the German Socio-economic Panel (SOEP; v-37: DOI: 10.5684/soep.core.v37eu), a large and representative panel survey for Germany, which collected information on individual and household wealth in 2002, 2007, 2012, 2017. The SOEP team imputed five sets of wealth values, and we relied on these multiple imputations for our analyses (Grabka & Westermeier, 2015). The SOEP also contains detailed annual information on individuals' working status, such as wages and types of employment contracts. We used information on the individual working status each year from 2002 to 2017

[4] Source: https://www.eurofound.europa.eu/it/data/employment. Latest access: 06/12/2022.

[5] Ibidem

[6] Ibidem

and then restricted our analytical sample to the four waves in which asset data were collected.

Our analytical sample focuses on private households and includes all potential workers, namely, all people aged between 18 and 64 years old who have been successfully interviewed and have at least two observations within the four waves with assets measurement. Among working-aged individuals, we excluded people in education, in military service, and the disabled. We also excluded self-employed, because of their very different employment and wealth portfolios.

After excluding observations with missing information on relevant variables[7], we obtain a final unbalanced panel sample of 14,450 individuals, and 36,320 individual observations.

### 3.2. Measurement

People in the sample can fall into six non-overlapping categories of working status. We consider a person as a worker if she has worked at least one hour in the previous week and is employed according to her main activity status (Gießelmann, 2015; Gießelmann & Lohmann, 2008). We distinguish four categories of workers: standard (full-time, open-ended contract); permanent part-time (part-time, open-ended contract); temporary (full-time as well as part-time, without open-ended contract); mini-job (people who state that they have a mini-job and have a monthly wage equal or lower than 400/450 euros).[8] If the person has worked less than one hour in the previous week, she is considered unemployed (if officially unemployed) or inactive (residual category). In line with previous studies (Gebel, 2013), we do not consider vocational training as an employment relationship and, therefore, include it in this last residual category.

We examine two main outcome variables. The first consists of *net financial household assets*. It measures financial assets *strictu senso* (e.g., stock equity, bank deposit), private pension plans, building loan contracts and tangible assets minus consumer debts. Housing assets and business assets are excluded to focus on financial assets that can be liquidated in a reasonably short time. We top- and bottom-code the extreme 0.1 per cent of assets values and adjust them for inflation. Consistent with the literature, we apply the OECD-modified equivalence scale. This scale is most suited for studies that consider assets as a resource to support consumption and living standards and relate it to income (see the definition of asset poverty below; Azpitarte, 2012; Kuypers & Marx, 2021). Since assets have a right-skewed distribution and include negative and zero values, we apply an inverse hyperbolic sine (IHS) transformation.

An increasing number of studies have pointed out the necessity to consider net and gross assets to assess people's well-being (Schneebaum et al., 2018). Short-run debt may decrease net assets while not relevantly affecting long-run households' resources, that are better reflected by gross measures (Daysal et al., 2022). In addition, the propensity to take up debts may vary across the income distribution. Across OECD countries, high-income households generally hold most of the debt (Filandri & Struffolino, 2021; Girouard et al., 2006). Therefore, to provide a more comprehensive analysis of changes in asset levels, we investigate gross financial household assets, as well as consumer debts. Also, we implement supplementary analyses to examine a specific component of net financial assets, namely, savings. The outcome variable consists of *household monthly savings* and allows us to provide some insights into reasons behind accumulation patterns (see below). We apply to all these additional outcome variables the adjustments mentioned above made to net assets.

The second main outcome variable is *asset poverty*. We consider people to be asset poor if their net financial equivalised household assets (defined as above) are insufficient to meet a living standard at the income poverty line for three months. Thus, the asset poverty threshold is set to one-fourth of the annual income poverty line, which is set to 60 % of the median national equivalised income (with the OECD-modified equivalence scale). This is a relative measure of poverty, with a poverty threshold changing over time and it is the one generally implemented by scholars to grasp the role of assets as a resource to ensure a certain level of well-being independent of labour income (Kuypers & Marx, 2021).

We use two time variables to model the growth trajectories of financial assets and asset poverty over time. The first is *age,* and we implement it linearly because our sample includes only working-age individuals. Previous studies have shown that people usually reach their maximum levels of assets between the ages 56 and 65 (Frick & Grabka, 2009). The second type of time variable captures *past working experiences*. We built cumulative variables that count years spent in each of the six working statuses, namely, *standard employment* (reference variable)*, permanent part-time, temporary employment, mini-job, unemployment*, and *inactivity*. The cumulative employment variables consider all years from 2002 to 2017, including years when asset information was not collected.

We control for a set of time-varying covariates that may affect changes in working status and, at the same time, affect asset accumulation: *type of household* (couple; single; single with children; couple with children; others); the *presence of children below 5 years old* (no, yes); *having divorced* during the observation period (no, yes); *presence of other workers* within the household (no, yes); *homeownership* (no, yes);[9] *region of residence* (North-West, South-West, East); *period variable* (before and up to 2008, after crisis after 2008). We also examine *changes in working status* as an additional control variable (see the Appendix Tables 7.5). This variable is categorical (standard employment, permanent part-time, temporary employment, mini-job, unemployment, and inactivity). It estimates whether changes in assets and asset poverty trajectories are due to changes in people's current working positions. The choice of these variables is based on previous literature on atypical employment and asset accumulation. It is worth noting that some variables (i.e., divorce; presence of children below 5 years old; homeownership) could be intervening rather than confounders. People could divorce as a result of atypical employment. However, since dealing with complex causal chains, we preferred to opt for more conservative models. We run robustness checks without these potentially endogenous variables and include them in the Appendix (columns "Net fin. assets M2″ of Table 7.4.1 and "Total M2″ of Table 7.4.3). Finally, we performed supplementary analyses controlling for the *presence* and *the levels of individual labour incomes*. The first is a dummy variable for 0 labour incomes (i.e., it takes value 1 for unemployed and inactive). The second consists of the level of individual current gross monthly labour income, set to 0 for unemployed and inactive (top- and bottom-coded, adjusted for inflation, IHS transformation).

### 3.3. Analytical strategy

We implement fixed-effects linear (probability) growth curve models

[7] The variables with a substantial number of missing observations are: employment status (875), and education (273).

[8] For the type of contract, the SOEP distinguishes among three categories, that is, open-ended, fixed-term, and no contract. We consider workers without contracts to have open-ended contracts if they are self-employed or civil servants. We assimilate workers without contracts to fixed-term workers if they are apprentices, manual workers, or employees. We consider workers to have open-ended contracts if they have missing information on the type of contracts but are self-employed or civil servants. The information on the contract is not required to be considered a mini-job worker. Mini-job workers may receive welfare benefit (e.g., unemployment benefit). Mini-job monthly wages were increased to 450 euros from 2013 onwards.

[9] Results are consistent when distinguishing between homeowners with/without mortgages.

with cluster-robust standard errors to test our hypotheses. Fixed-effects regression only uses within-individual variation in outcome and explanatory variables to difference out time-constant unobserved heterogeneity (Allison, 2009). Growth curve modelling is a technique to investigate between-person differences in within-person change over time. It grasps continuous trajectories of change rather than comparing time-specific means as more standard panel regression models do. Fixed-effects modelling, in particular, estimates mean-level changes of individual trajectories (Curran et al., 2010). Growth curve modelling is well suited to our case because we have repeated measures nested within individuals and assume that atypical employment experiences have an incremental effect that accumulates over time. In more practical terms, growth curve models assume an overall underlying growth trajectory, that is, the average of individual-specific trajectories. The shape of this trajectory is defined by the time variables, in our case, age and, more importantly in our application, past-employment experiences. Standard employment is the reference category. Coefficients show how growth trajectories deviate, on average, from that of standard employment as a result of an additional year in atypical employment (permanent part-time, temporary, mini-job) or out of the labour market (unemployment, inactivity). To ease the interpretation, we implement linear models for the dummy dependent variable "asset poverty" as well. We run robustness checks with logistic regressions and find the same direction of coefficients (see column "Logit model" of Table 7.4.3). We perform analyses for the overall sample, as well as separately for men and women, for low- and high-educated people. High education levels correspond to SOEP categories higher vocational and higher education. We also perform analyses separately for West and East Germany and included them in the Appendix (Table 7.6.1).[10]

Finally, we perform supplementary analyses to provide insights in how atypical employment is related to financial asset accumulation. We examine three relevant factors, namely: i) the composition of asset portfolios, which may result in different return rates; ii) the role of labour incomes differences; iii) the saving propensity (Section *4.3* Supplementary analyses; section 7.3 of the Appendix).

## 4. Results

### 4.1. Descriptive results

Fig. 1 shows median levels of net financial equivalised (eq.) household assets and the average probability of being asset poor by working status and survey years with asset information. Standard and permanent part-time workers show the highest asset levels, around 13,000 euros on average, with a slight upward trend over the years. Temporary and mini-job workers are associated with significantly lower levels of assets, between 5000 and 8000 euros on average. These values are similar to those of inactive people, while the unemployed follow with the lowest levels of financial assets, lower than 1000 euros (not shown, see the Appendix Fig. 7.1).

We observe a similar picture concerning asset poverty. Standard and permanent part-time workers are associated with the lowest rates of asset poverty (generally lower than 30 %), followed by temporary, mini-job workers, and inactive people (around 40 %). For all these categories, asset poverty rates are reasonably stable over time. On the contrary, the asset poverty risk of the unemployed increased over the years, reaching 80 % in 2017 and widening the gap compared to the other working statuses (not shown, see the Appendix Fig. 7.1).

In line with previous studies, our results indicate asset poverty rates that are substantially higher than income poverty rates. In this respect, although not perfectly comparable, we can consider Eurostat data on income poverty (i.e., having an equivalised disposable household income below 60 % of the national equivalised disposable income) as a benchmark. For 2017, Eurostat estimates an income poverty risk of about 7 % for full-time workers and 14 % for part-time workers (regardless of their type of contract), 7 % and 18 % for workers with (respectively) open-ended and fixed-term contracts (regardless of their working hours).[11]

Standard and permanent part-time workers thus show the lowest risk of asset poverty. We performed additional descriptive analyses to investigate whether they also escape asset poverty more swiftly compared to other working statuses (see Appendix Table 7.2). Results show that asset poverty is persistent over time for all groups. There are, however, some differences. Over a period of five years, about half of standard and permanent part-time workers persist in asset poverty. The share is (almost) 70 per cent for temporary, mini-job workers, and the inactive, and 90 per cent for the unemployed.

### 4.2. Multivariable results

#### 4.2.1. Levels of financial assets

Our multivariate analyses are consistent with the descriptive statistics. Table 1 details the estimated effects of past employment experiences on levels of (net and gross) financial assets and consumer debts. For matters of space, here we only show the results of the main explanatory variables. We provide the complete models in the Appendix (Tables 7.4).

In general, as shown by the age coefficients, net financial assets tend to increase during working age. There are, however, differences according to past working statuses. As mentioned before, standard employment is the reference category. Therefore, coefficients of other working status variables show how growth trajectories deviate from standard employment. We expected experiences in atypical employment to hinder asset accumulation (Hypothesis 1a). Testing all coefficients of atypical employments jointly, we get a negative (non-significant) effect. Turning to Hypothesis 2a, empirical results show differences among types of atypical employment. Asset growth rates of people with experience in permanent part-time do not substantially differ from those of standard workers. On the contrary, spells in temporary and mini-job employment are negatively related to net financial asset accumulation. Compared to standard employment, each additional year in these forms of atypical work is associated with lower growth rates (although not statistically significant). This is more pronounced for temporary than mini-jobs, as indicated by the larger negative coefficients. Finally, penalties in asset growth rates are substantial and significant for people who have been out of the labour market, pointing them out as the most vulnerable categories. Net financial assets increase considerably less over time as a result of additional years spent in unemployment or inactivity rather than in standard employment.

Analysis of gross financial assets and debts allow us to gain more insight into the detrimental effect of atypical employment. On the one hand, spells of mini-job, inactivity, and especially unemployment are negatively associated with growth rates of gross assets. Past experiences out of the labour market negatively affect levels of consumer debts as well. On the other hand, people with experiences in temporary employment show very similar gross asset growth trajectories as people in standard working positions. However, their growth rates of consumer debts increase more over the years. In other words, people in temporary employment tend to take up more consumer debts than standard workers.

#### 4.2.2. Levels of financial assets by gender and education level

We hypothesized that the negative effect of atypical employment is more pronounced for men and low-educated people (Hypotheses 3a and

[10] As robustness check, we run models with personal assets as outcome variable. We included them in the Appendix as well (Table 7.7.1).

[11] https://ec.europa.eu/eurostat/web/income-and-living-conditions/data/database

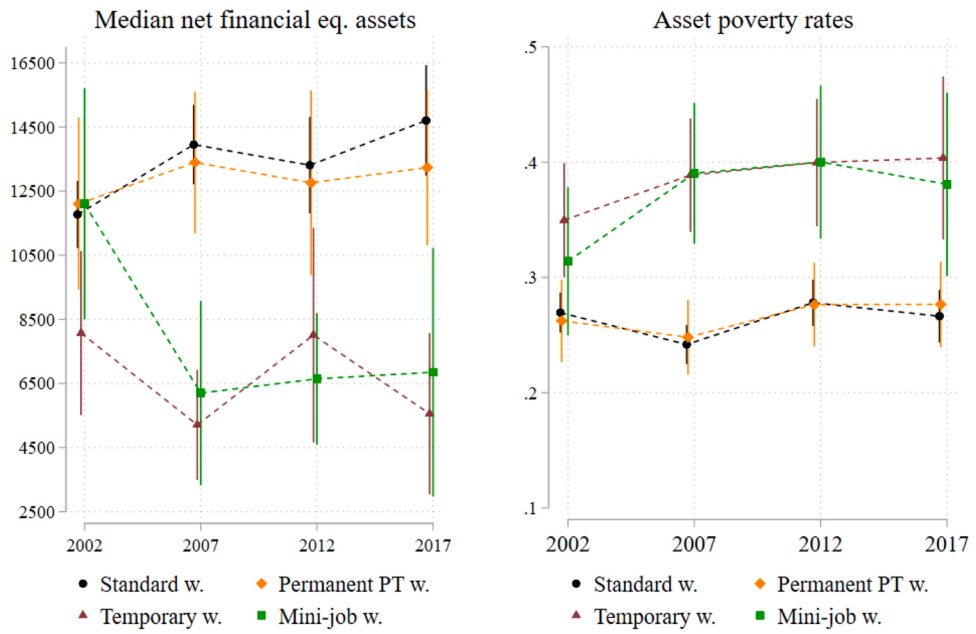


**Fig. 1.** Median net financial eq. household assets and average probability of being asset poor by working status. (Colour should be used in print) Note: predictions from imputation n.1, 95 % CI.
Source: SOEP (v37), weighted.

**Table 1**
Fixed effect growth curve models for financial (net and gross) assets and consumer debt.

| | *Net fin. assets* | *Gross fin. assets* | *Consumer debts* |
|---|---|---|---|
| Age | 0.044** | 0.041*** | 0.023* |
| *Employment trajectories (ref. category: cum. standard)* | | | |
| Cum. permanent PT | -0.008 | -0.001 | 0.009 |
| Cum. temporary | -0.081 | 0.007 | 0.118** |
| Cum. mini-job | -0.012 | -0.019 | 0.013 |
| Cum. unemployment | -0.129** | -0.185*** | -0.102*** |
| Cum. inactive | -0.109** | -0.081*** | -0.008 |
| *N* | 36320 | 36320 | 36320 |

+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001
Notes: Fixed effect linear models with response variables household equivalised net financial assets, gross financial assets, consumer debts; cluster-robust standard errors; control variables: type of household; children below 5 years old; having divorced; other workers; homeownership; region; crisis 2008. Full estimation results in Appendix Table 7.3.1 Source: SOEP (v37).

**Table 2**
Fixed effect growth curve models for financial net assets by gender and education level.

| ***Net financial assets*** | | | | |
|---|---|---|---|---|
| | ***Men*** | ***Women*** | ***Low-educ.*** | ***High-educ.*** |
| Age | 0.037+ | 0.065** | -0.006 | 0.139*** |
| *Employment trajectories (ref. category: cum. standard)* | | | | |
| Cum. permanent PT | -0.015 | -0.031 | -0.002 | 0.002 |
| Cum. temporary | -0.010 | -0.141+ | -0.108 | -0.019 |
| Cum. mini-job | -0.259 | -0.022 | -0.005 | 0.168 |
| Cum. unemployment | -0.166* | -0.103+ | -0.100* | -0.062 |
| Cum. inactive | -0.200** | -0.115** | -0.082* | -0.139* |
| *N* | 16118 | 20202 | 24496 | 11053 |

+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001
Notes: Fixed effect linear models with response variable household equivalised net financial assets; analyses are un separately for men, women, low-educated, high-educated; cluster-robust standard errors; control variables type of household; children below 5 years old; having divorced; other workers; homeownership; region; crisis 2008. Full estimation results in Appendix Table 7.3.2. Source: SOEP (v37).

3b). Table 2 shows the average estimated effect of past employment experiences by gender and education level.

For both men and women, net financial assets tend to increase. Concerning atypical employment, gender differences exist, but not necessarily as expected. In line with our hypotheses, additional years in mini-job are more detrimental for men than for women. However, the contrary is true for temporary employment. Coefficients are small, negative and rather similar for permanent part-time. Previous spells out of the labour market result in considerable penalties in asset growth rates for both, but more for men than women.

Concerning education levels, age coefficients show that net financial assets grow substantially for high-educated people over working age, but it does not substantially increase for low-educated people. These two groups, therefore, show substantial differences in asset growth regardless of past employment experiences. If we then investigate the detrimental effect of atypical employment, we find that, as expected, additional years in temporary jobs are more detrimental for low-educated than high-educated people. On the contrary, we do not find considerable differences for permanent part-time. In this case, asset growth rates do not substantially differ from standard employment for both groups. Additional years in mini-jobs lead to virtually the same growth trajectories as standard employment for low-educated people. For high-educated people, they result in higher asset growth rates. Previous spells in unemployment are more detrimental for low-educated than high-educated, while the contrary is true concerning inactivity spells.

### 4.2.3. *Asset poverty*

We test whether atypical employment increases the risk of asset poverty compared to standard employment (Hypotheses 1b and 2b). As illustrated in Table 3, empirical results do not support our hypotheses. Consistent with the literature and previous results on net financial assets, we find that the risk of asset poverty decreases over working age as indicated by the negative coefficient for age. Growth trajectories of the risk of asset poverty of people with past experiences in atypical employment do not substantially differ from those of standard workers. Testing all coefficients of atypical employments jointly, we get a small, positive and non-significant effect. Similarly, the effect size for

**Table 3**
Fixed effect growth curve models for asset poverty.

| | *Asset poverty* |
|---|---|
| Age | -0.004*** |
| *Employment trajectories (ref. category: cum. standard)* | |
| Cum. permanent PT | 0.002 |
| Cum. temporary | 0.002 |
| Cum. mini-job | -0.001 |
| Cum. unemployment | 0.017*** |
| Cum. inactive | 0.008*** |
| *N* | 36320 |

+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001
Notes: Fixed effect linear models with response variable asset poverty; cluster-robust standard errors; control variables: type of household; children below 5 years old; having divorced; other workers; homeownership; region; crisis 2008. Full estimation results in Appendix Table 7.3.3. Source: SOEP (v37).

permanent part-time, temporary, and mini-jobs is small and insignificant. However, coefficients are positive and significant for unemployment and inactivity, showing that additional years out of the labour market increase the risk of asset poverty compared to standard employment. Unemployment and inactivity are thus confirmed as the most detrimental experiences in terms of asset accumulation. Similarly, when distinguishing between gender and levels of education (Hypotheses 3a and 3b), we do not find relevant effects of atypical employment, neither substantial differences among these groups (see Appendix Table 7.4.4).

### *4.3. Supplementary analyses*

Finally, we perform supplementary analyses to shed light on the reasons behind these different accumulation patterns of financial assets. As mention before, atypical workers are likely to benefit less from investment or insurance opportunities offered by the company they work for. Also, they may be less inclined to make long-term investments. This may result in different asset portfolios than standard workers, which may lead to less profitable rates of return. Table 7.3.1 in the Appendix shows the median values of each component of financial assets by employment status.[12] We examine both the levels and the relative weight (i.e., how much of the overall gross financial assets is in each component by employment status). Values of permanent part-time workers do not substantially differ from those of standard workers. We find larger differences for temporary and mini-job workers instead. Both have significantly lower median levels than standard workers for private insurances and building loans, but especially for financial assets (e.g., stock equity, bank deposit). Also, financial assets represent a minor component of their portfolio than standard workers (i.e., a median share of 18 % of the total portfolio, compared to 25 % for standard workers). Finally, the unemployed confirm themselves as the most disadvantaged category, with minimum levels for all types of assets and an asset portfolio primarily composed by insurances and building loans. The inactive show similar (if not higher) values than temporary and mini-job workers.

As described in the background section, a further reason behind the different patterns of financial asset accumulation may relate to labour income differences. We conduct a robustness check by including two additional control variables: (i) the presence and (ii) the level of individual labour incomes. Table 7.3.3 in the Appendix shows the regression outputs. The coefficients of the labour income level variable is positive and significant, thus labour income positively affects financial assets growth. However, results are consistent with the main analysis, and the effect size of the coefficients of atypical employment increases even slightly. This suggests that penalties in asset accumulation goes beyond labour income differences. Permanent part-time workers show similar accumulation patterns of financial assets than those in standard employment. On the contrary, we find lower growth rates for mini-job and (especially) temporary workers.

Different patterns of financial accumulation may be due to different saving propensity. Table 7.3.2 in the Appendix shows the median level of the amount households manage to save each month. The highest values are associated with standard workers followed, in order, by permanent part-time, temporary and mini-job workers. We also run a fixed-effect linear growth curve model with the amount of household monthly savings as outcome variable (Table 7.3.3). Here we observe that spells in permanent part-time and mini-jobs are associated with lower levels of savings than in standard employment (net of individual labour income differences). In contrast, spells in temporary employment result in higher growth rates of savings.

## 5. Discussion

This study investigated how experiences of atypical employment affect workers' accumulation of household financial assets and asset poverty risk in Germany. So far, the role of labour market process in asset accumulation has rarely been investigated. However, individual employment experiences may crucially shape households' assets. For instance, job stability may foster workers' propensity to make long-term investments that increase their households' assets. We drew on SOEP data to test three hypotheses: i) Compared to standard employment, experiences of atypical employment have a detrimental effect on the accumulation of financial assets and therefore increases the risk of asset poverty. ii) Among atypical works, part-time employment is less detrimental than temporary work and mini-jobs. iii) The detrimental effects of atypical employment are more pronounced for men and low educated people.

Empirical results shed light on the heterogeneity of atypical employment and only partially support our expectations. Concerning levels of net financial assets, we found that being out of the labour market (i.e., unemployment and inactivity) is the most detrimental experience in terms of financial asset accumulation. Descriptive statistics showed that the unemployed are at the lower end of the financial assets distribution. The inactive show similar levels of financial assets compared to temporary and mini-job workers, but lower levels than those in standard employment. Multivariate analysis pointed out how spells of out of the labour market result in lower financial asset growth rates. For unemployment experiences, this result may partly be traced to the design of long-term unemployment benefits themselves. Being mean-tested, they are likely to hinder asset accumulation.

Temporary work and mini-jobs lead to lower asset levels as well. These workers rank lower than their standard counterparts in the financial assets distribution. Past experiences in temporary and mini-job employment are associated with lower rates of asset accumulation. Also, temporary employment is likely to have an even larger detrimental effect if interspersed with periods of unemployment or inactivity. This risk is likely to have increased with the Covid-19 crisis, whose greatest economic consequences have often concentrated on temporary workers whose contracts have not been renewed. These results are particularly relevant since in Germany, as in many other countries, the risk of temporary employment has increased in recent years. Also, mini-jobs are extremely widespread among marginal groups (e.g., women, young, low skilled workers). Mini-jobs are a German peculiarity but may provide broad insights into the effects of low-paid atypical jobs.

With regard to permanent part-time, we did not find a detrimental effect. Together with standard workers, they hold the highest positions in the financial assets distribution. They also show financial assets growth rates similar to those in standard employment. This may be

[12] All outcome variables of these supplementary analyses are top- and bottom-coded, adjusted for inflation, equivalised with the OECD-modified equivalence scale.

because the part-time worker is often a secondary source of income within the household (see below), which often benefits from tax relief. In Germany, the household configuration with a (male) full-time worker and a part-time (female) worker is often strategically pursued by households due to the conservative welfare configuration. We can therefore expect the asset penalties of part-time work to be greater in the case of involuntary part-time, an issue worthy of further investigation.

To gain more insight into the effect of individual employment on household assets we also investigated gross financial assets and consumer debts. We found that past experiences in temporary jobs lead to very similar gross asset growth trajectories as standard employment while increasing consumer debt levels. Even if there are no gross asset penalties, the picture is still problematic because these debts do not represent any investment. We also found that spells of unemployment are associated with substantially lower levels of consumer debts. This may be related to financial institutions issuing consumer credit more reluctantly if people are unemployed, considering them financially unreliable. The fact that there is no detrimental effect for the inactive may depend on the household structure in which these people live (e.g., households with other income earners) and whether they have other forms of income (e.g., retirees under age 65). In addition, although worthy of further investigation, our supplementary analyses shed some lights on the reasons behind differences in accumulation patterns. They showed temporary and mini-job workers tend to have lower financial assets (e.g., stock equity, bank deposit) than their standard counterparts. Also, results pointed out that labour income levels positively affect asset accumulation. However, they also suggested that the reasons for the different patterns of accumulation across employment types go beyond differences in labour incomes and saving propensities.

Concerning differences by gender, results only partially supported our hypothesis. As expected, previous spells in mini-jobs are more detrimental for men. Consistent with the literature on labour income penalties, this can be traced back to the fact that this job position is generally held by the second earner. Mini-jobs have very low wages (400/450 euros per month), which makes it almost impossible to set aside savings, as reflected in our supplementary analyses. Moreover, men are often still the primary income earners within the household; if they are mini-jobbers, the household's net assets are significantly reduced. For women, in contrast, the wages of mini-jobs often have a supplementary function to the family income and, as such, benefit from tax relief. However, we also found that penalties in asset accumulation are larger for women than men in case of temporary employment. This result suggested that differences between temporary and standard employment (for example, in terms of investment opportunities) are likely to be greater for women than for men and deserves further investigation.

Financial assets grow more for high-educated people, regardless of their employment trajectories. This may be because high-educated people tend to be more familiar with financial instruments, and thus make more investments and accumulate more assets. On the other hand, disadvantages of low education are more pronounced in temporary employment and unemployment. This last result may be explained by the different levels of unemployment benefits, which depend on the level of labour income from previous work and thus tend to be higher for the high-educated.

Finally, we found that asset poverty risk increases only for experiences in unemployment and inactivity, not for atypical employment. Being out of the labour market confirm itself as the most detrimental experience in terms of financial resources. It is relevant here to recall that asset poverty is quite persistent over time, especially in Germany, where wealth inequalities are substantial. This may account for the absence of a substantial effect of temporary spells and mini-jobs, although they correlate with lower growth rates of financial assets.

It is worth noting how our results could be affected by overcontrol bias. Fixed-effect models account for time-constant heterogeneity, whereas control variables allow us to estimate the effect net of observed time-varying heterogeneity. However, we may have controlled away part of the effect of atypical employment because it may be that some time-varying events such as divorce occurred as a result of atypical employment. At the same time, divorce may be an important cause of atypical employment. Future research may apply alternative empirical approaches such as marginal structural modelling to avoid this shortcoming.

However, our study still allows us to derive relevant policy implications. Results make us suppose that a crucial element for asset accumulation depends on how atypical employment results in volatile employment trajectories, interspersed by periods of unemployment and inactivity. In this regard, we need policy measures to increase job stability, as well as adequate social transfers to support households' resources when one or more members are out of the labour market. Also, results show that the detrimental effect of atypical employment varies across socio-demographic groups. Further studies may investigate the effects on personal assets to better grasp inequalities related to gender or education level. This issue is very relevant in countries like Germany, where part-time and mini-jobs have a strong gender connotation and temporary employment is more widespread among the low-educated. Another socio-demographic dimension that would deserve special attention is the differences between native workers and those with migrant backgrounds, who often face poorer employment conditions.

Overall, our study represents a crucial contribution to deepening our knowledge of the relationship between the labour market and asset accumulation. This is a relevant gap to fill because recent trends of labour market flexibilization have resulted in an increasing risk of being atypically employed or experiencing spells of unemployment. Also, these trends have strengthened the role of financial assets as a resource essential to household well-being. Financial assets have always been a critical resource for households. In times of labour income uncertainty, their importance is likely to grow even more.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.rssm.2023.100803.

## References

Allison, P. D. (2009). *Fixed Effects Regression Models*. Sage publications.

Alvaredo, F., Garbinti, B., & Piketty, T. (2017). On the share of inheritance in aggregate wealth: Europe and the USA, 1900–2010. *Economica, 84*, 239–260. https://doi.org/10.1111/ecca.12233

Azpitarte, F. (2012). Measuring poverty using both income and wealth. A cross-country comparison between the U.S. and Spain. *Review of Income and Wealth, 58*(1), 24–50. https://doi.org/10.1111/j.1475-4991.2011.00481

Barbieri, P. (2009). Flexible employment and inequality in Europe. *European Sociological Review, 25*(6), 621–628. https://doi.org/10.1093/esr/jcp020

Bardasi, E., & Gornick, J. C. (2008). Working for less? Women's part-time wage penalties across countries. *Feminist Economics, 14*, 37–72. https://doi.org/10.1080/13545700701716649

Bargain, O., Caliendo, M., Haan, P., & Orsini, K. (2010). "Making work pay" in a rationed labor market. *Journal of Population Economics, 23*(1), 323–351. https://doi.org/10.1007/s00148-008-0220-9

Barnette, J. (2019). *Wealth After Job Displacement. Kent.* http://www.personal.kent.edu/~jbarne25/Barnette-Wealth-Consumption-Loss.pdf.

Bartels, C., & Schröder, C. (2020), *2. Income, consumption and wealth inequality in Germany: Three concepts, three stories? Forum for a New Economy Basic Papers*.

Basten, C., Fagereng, A., & Telle, K. (2016). Saving and portfolio allocation before and after job loss. *Journal of Money, Credit, and Banking, 48*(2–3), 293–324. https://doi.org/10.1111/jmcb.12301

Black, S.E., Devereux, P.J., Landaud, F., Salvanes, K. (2022). The (un)importance of inheritance. ⟨https://www.sandraeblack.com/wp-content/uploads/2022/01/inheritances_bdls.pdf⟩.

Black, S. E., Devereux, P. J., Landaud, F., & Salvanes, K. (2020). *Where does wealth come from?*. Cambridge: National Bureau of Economic Research Working Paper Series.
Bloemen, H. G., & Stancanelli, E. (2005). Financial wealth, consumption smoothing and income shocks arising from job loss. *Economica, 72*(287), 431–452. https://doi.org/10.1111/j.0013-0427.2005.00424.x
Booth, A. L., Francesconi, M., & Frank, J. (2002). Temporary jobs: Stepping stones or dead ends. *The Economic Journal, 112*(480), F189–F213. https://doi.org/10.1111/1468-0297.00043
Brady, D., & Biegert, T. (2017). The Rise of precarious employment in Germany, *936*. *SOEPpapers*. Berlin: Deutsches Institut für Wirtschaftsforschung (DIW),. https://doi.org/10.2139/ssrn.3099401
Brandolini, A., Magri, S., & Smeeding, T. M. (2010). Asset-based measurement of poverty. *Journal of Policy Analysis and Management, 29*(2), 267–284. https://doi.org/10.1002/pam.20491
Browning, M., Crossley, T. F., & Smith, E. (2007). Asset accumulation and short-term employment. *Review of Economic Dynamics, 10*, 400–423. https://doi.org/10.1016/j.red.2006.12.002
Corneo, G., Bönke, T., & Westermeier, C. (2016). Erbschaft und Eigenleistung im Vermögen der Deutschen: Eine Verteilungsanalyse. *Perspektiven der Wirtschaftspolitik, 17*(1), 35–53. https://doi.org/10.1515/pwp-2016-0003
Crettaz, E. (2013). A state-of-the-art review of working poverty in advanced economies: theoretical models, measurement issues and risk groups. *Journal of European Social Policy, 23*(4), 347–362. https://doi.org/10.1177/0958928713507470
Curran, P. J., Obeidat, K., & Losardo, D. (2010). Twelve frequently asked questions about growth curve modeling. *Journal of Cognition and Development, 11*(2), 121–136. https://doi.org/10.1080/15248371003699969
Daysal, N. M., Lovenheim, M. F., & Wasser, D. N. (2022). The correlation of net and gross wealth across generations: The Role of Parent Income and Child Age. *AEA Papers and Proceedings, 112*, 73–77. https://doi.org/10.1257/pandp.20221058
DiPrete, T. A., Goux, D., Maurin, E., & Quesnel-Vallée, A. (2006). Work and pay in flexible and regulated labor markets: A generalized perspective on institutional evolution and inequality trends in Europe and the U.S. *Research in Social Stratification and Mobility, 24*(3), 311–332. https://doi.org/10.1016/j.rssm.2006.04.001
Drobnič, S., Blossfeld, H. P., & Rohwer, G. (1999). Dynamics of women's employment patterns over the family life course: A comparison of the United States and Germany. *Journal of Marriage and Family, 61*(1), 133–146. https://doi.org/10.2307/353889
Ehlert, M. (2012). Buffering income loss due to unemployment: Family and welfare state influences on income after job loss in the United States and western Germany. *Social Science Research, 41*, 843–860. https://doi.org/10.1016/j.ssresearch.2012.02.002
Filandri, M., & Struffolino, E. (2021). Povertà e ricchezza tra le famiglie di lavoratori in Italia: trent'anni di svantaggio cumulativo [Poverty and wealth among working families in Italy: Thirty years of cumulative disadvantage]. *Sociologia del lavoro, 61*, 97–121. https://doi.org/10.3280/SL2021-161006
Filandri, M., & Struffolino, E. (2019). Individual and household in-work poverty in Europe: Understanding the role of labor market characteristics. *European Societies, 21*(1), 130–157. https://doi.org/10.1080/14616696.2018.1536800
Frick, J. R., & Grabka, M. M. (2009). Zur Entwicklung der Vermögensungleichheit in Deutschland. *Berliner Journal für Soziologie, 19*(4), 577–600. https://doi.org/10.1007/s11609-009-0112-1
Fulda, B. E., & Lersch, P. M. (2018). Planning until death do us part: partnership status and financial planning horizon. *Journal of Marriage and Family, 80*(2), 409–425. https://doi.org/10.1111/jomf.12458
Fuller, S., & Stecy-Hildebrandt, N. (2015). Career pathways for temporary workers: exploring heterogeneous mobility dynamics with sequence analysis. *Social Science Research, 50*, 76–99. https://doi.org/10.1016/j.ssresearch.2014.11.003
Gash, V., & McGinnity, F. (2007). Fixed-term contracts – the new European inequality? Comparing men and women in west Germany and France. *Socio-Economic Review, 5*(3), 467–496. https://doi.org/10.1093/ser/mwl020
Gebel, M. (2013). Is a temporary job better than unemployment? A cross-country comparison based on British, German, and Swiss panel data. *SOEPpaper No, 543*. https://doi.org/10.2139/ssrn.2228073
Gebel, M. (2010). Early career consequences of temporary employment in Germany and the U.K. *Work. Employment & Society, 24*(4), 641–660. https://doi.org/10.1177/0950017010380645
Gebel, M. (2009). Fixed-term contracts at labour market entry in West Germany: Implications for job search and first job quality. *European Sociological Review, 25*(6), 661–675. https://doi.org/10.1093/esr/jcp005
Gießelmann, M. (2015). Differences in the patterns of in-work poverty in Germany and the U.K. *European Societies, 17*(1), 27–46. https://doi.org/10.1080/14616696.2014.968796
Gießelmann, M., & Lohmann, H. (2008). The different roles of low-wage work in Germany: regional, demographical and temporal variances in the poverty risk of low-paid workers. In H. Andreß, & H. Lohmann (Eds.), *The working poor in Europe, Employment, Poverty and Globalization* (pp. 96–123). Cheltenham: Edward Elgar Publishing.
Giesecke, J. (2009). Socio-economic risks of atypical employment relationships: evidence from the German labour market. *European Sociological Review, 25*, 629–646. https://doi.org/10.1093/esr/jcp012
Giesecke, J., & Groß, M. (2004). External labour market flexibility and social inequality: temporary employment in Germany and the U.K. *European Societies, 6*(3), 347–382. https://doi.org/10.1080/1461669042000231456
Girouard, N., Kennedy, M., & André, C. (2006). Has the rise in debt made households more vulnerable?. In *OECD Economics Department Working Papers, 535* Paris: OECD Publishing. https://doi.org/10.1787/352035704305
Grabka, M. M., & Westermeier, C. (2015). Editing and multiple imputation of item nonresponse in the wealth module of the German Socio-Economic Panel. *SOEP Survey, 272*.
Grabka, M. M., & Westermeier, C. (2014). Persistently high wealth inequality in Germany. *DIW Economic Bulletin, 4*, 3–15.
Granados, P. G. (2019). The part-time wage gap across the wage distribution. *DIW Discussion Papers No, 1791*. https://doi.org/10.2139/ssrn.3342046
Hall, P. A., & Soskice, D. (2001). An introduction to varities of capitalism. In P. A. Hall, & D. Soskice (Eds.), *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage* (pp. 1–68). Oxford: Oxford University Press.
Hällsten, M., & Thaning, M. (2022). Wealth as one of the 'Big Four' SES dimensions in intergenerational transmissions. *Social Forces, 100*(4), 1533–1560. https://doi.org/10.1093/sf/soab080
Household Finance and Consumption Network. (2021). The household finance and consumption survey wave 2017: Statistical Tables.
Jäntti, M., Sierminska, E. M., & Van Kerm, P. (2015). Modeling the joint distribution of income and wealth. *Measurement of Poverty*. In *, Deprivation, and Economic Mobility, Research on Economic Inequality, 23* pp. 301–327). Bingley: Emerald Group Publishing Limited. https://doi.org/10.1108/S1049-258520150000023010
Killewald, A., Pfeffer, F. T., & Schachner, J. N. (2017). Wealth inequality and accumulation. *Annual Review of Sociology, 43*, 379–404. https://doi.org/10.1146/annurev-soc-060116-053331
König, J., & Longmuir, M. (2021). Wage risk and portfolio choice: the role of correlated returns. *DIW Berlin Discussion, 1974*. https://doi.org/10.2139/ssrn.3935574
Konle-Seidl, R. (2021). Precarious but popular? The German mini-job scheme in comparative research on work and welfare. *Journal of International and Comparative Social Policy, 37*(3), 293–306. https://doi.org/10.1017/ics.2021.11
Kuypers, S., & Marx, I. (2021). Poverty in the E.U. using augmented measures of financial resources: The Role of Assets and Debt. *Journal of European Social Policy, 31*(5), 496–516. https://doi.org/10.1177/09589287211040421
Kuypers, S., & Marx, I. (2018). Estimation of joint income-wealth poverty: A sensitivity analysis. *Social Indicator Research, 136*, 117–137. https://doi.org/10.1007/s11205-016-1529-5
Latner, J. P. (2022). Temporary employment in Europe: stagnating rates and rising risks. *European Societies, 24*(4), 383–408. https://doi.org/10.1080/14616696.2022.2072930
Lersch, P. M., & Dewilde, C. (2015). Employment insecurity and first-time homeownership: evidence from twenty-two European countries. *Environment and Planning A, 47*(3), 607–624. https://doi.org/10.1068/a130358p
Lersch, P. M., Grabka, M. M., Rüß, K., & Schröder, C. (2021). Wealth of children from single-parent families: Low levels and high inequality in Germany. *Journal of European Social Policy, 31*(5), 565–579. https://doi.org/10.1177/09589287211040412
Lersch, P. M., Schulz, W., & Leckie, G. (2020). The variability of occupational attainment: How prestige trajectories diversified within birth cohorts over the twentieth century. *American Sociological Review, 85*(6), 1084–1116. https://doi.org/10.1177/0003122420966324
Lohmann, H., & Crettaz, E. (2018). Explaining cross-countries differences in in-work poverty. In H. Lohmann, & I. Marx (Eds.), *Handbook on In-Work Poverty* (pp. 50–68). Cheltenham: Edward Elgar.
Lohmann, H., & Marx, I. (2008). The different faces of in-work poverty across welfare state regimes. In H. Andreß, & H. Lohmann (Eds.), *The working poor in Europe, Employment, Poverty and Globalization* (pp. 17–46). Cheltenham: Edward Elagar Publishing.
Maitre, B., Nolan, B., & Whelan, Christopher T. (2012). Low-pay, in-work poverty and economic vulnerability: A comparative analysis using Eu-Silc. *The Manchester School, 80*, 99–116. https://doi.org/10.1111/j.1467-9957.2011.02230.x
Marx, I., Vanhille, J., & Verbist, G. (2012). Combating in-work poverty in continental Europe: an investigation using the Belgian case. *Journal of Social Policy, 41*(1), 19–41. https://doi.org/10.1017/S0047279411000341
McGinnity, F., Mertens, A., & Gundert, S. (2005). A bad start? Fixed-term contracts and the transition from education to work in West Germany. *European Sociological Review, 21*(4), 359–374. https://doi.org/10.1093/esr/jci025
McGrath, D. M., & Keister, L. A. (2008). The effect of temporary employment on asset accumulation processes. *Work and Occupations, 35*(2), 196–222. https://doi.org/10.1177/0730888407312275
McKernan, S., Ratcliffe C., Vinopal K. (2009). *Do assets help families cope with adverse events?* Brief. Washington. ⟨https://www.urban.org/sites/default/files/publication/33001/411994-Do-Assets-Help-Families-Cope-with-Adverse-Events-.PDF⟩.
Mertens, A., & McGinnity, F. (2004). Wages and wage growth of fixed-term workers in east and west Germany. *Konjunkturpolitik, 50*(2), 139–163.
Nutz, T., & Lersch, P. M. (2021). Gendered employment trajectories and individual wealth at older ages in Eastern and Western Germany. *Advances in Life Course Research, 47*, Article 100374. https://doi.org/10.1016/j.alcr.2020.100374
Ozturk, G.B., Gallo, W.T. (2013). *Effect of job loss on wealth accumulation of older workers*. CUNY School of Public Health at Hunter College. Working paper.
Painter II, M. A. (2010). Get a job and keep it! High school employment and adult wealth accumulation. *Research in Social Stratification and Mobility, 28*, 233–249. https://doi.org/10.1016/j.rssm.2010.01.006
Pfeffer, F. T., & Waitkus, N. (2021). The Wealth inequality of nations. *American Sociological Review, 86*(4), 567–602. https://doi.org/10.1177/00031224211027800
Ponomarenko, V. (2017). *Wealth accumulation over the life course. The role of disadvantages across the employment history. University of Luxembourg* (available from). Working paper, (available from) ⟨https://orbilu.uni.lu/handle/10993/29219⟩.
Ponthieux, S. (2018). Gender and in-work poverty. In H. Lohmann, & I. Marx (Eds.), *Handbook on In-Work Poverty*. Cheltenham: Edward Elgar Publishing.

Schneebaum, A., Rehm, M., Mader, K., & Hollan, K. (2018). The gender wealth gap across European countries. *Review of Income and Wealth, 64*, 295–331. https://doi.org/10.1111/roiw.12281

Smeeding, T. M. (2016). Poverty meausurement. In D. Brady, & L. M. Burton (Eds.), *The Oxford Handbook of the Social Science of Poverty* (pp. 21–46). New York: Oxford University Press.

Thelen, K. (2014). *Varieties of Liberalization and the New Politics of Social Solidarity*. New York: Cambridge University Press. https://doi.org/10.1017/CBO9781107282001

Trappe, H., Pollmann-Schult, M., & Schmitt, C. (2015). The rise and decline of the male breadwinner model: Institutional underpinnings and future expectations. *European Sociological Review, 31*(2), 230–242. https://doi.org/10.1093/esr/jcv015

Weinkopf, C. (2009). Germany: Precarious employment and the rise of mini-jobs. In L. Vosko, M. MacDonald, & I. Campbell (Eds.), *Gender and the Contours of Precarious Employment* (pp. 177–193). London: Routledge.

Westhoff, L. (2022). Wage differences between atypical and standard workers in European countries: Moving beyond average effects. *European Sociological Review*, 1–16. https://doi.org/10.1093/esr/jcac015