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Size or Content of the Pie? Source of Income and Perceived Income Adequacy of Older Europeans

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ABSTRACT

While public pensions are usually the main source of income in old age, other sources of income may have various consequences for pensioners' economic well-being across households and countries. In this study, we analyze how perceived income adequacy of older Europeans is shaped by the source and the income level. We hypothesize that the source of income can be related to a household's perceived income adequacy beyond the money it provides. We distinguish four categories of income sources: (old age) pensions, other social benefits, work, and capital. We show that the source of income is related to perceived adequacy beyond the money it provides. Compared with pensions, income from other social benefits or work is associated with lower, and income from capital with higher perceptions of adequacy. Perceived adequacy of income from different sources varied further across the household income level. The results convey important messages to the policy makers. Pensions are a powerful policy tool, as they provide positive externalities beyond their monetary value. Attention should also be paid to the low-income households' possibilities to save.

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KEYWORDS

Perceived income adequacy; retirement income; income composition; pensions; EU-SILC

Introduction

The economic well-being of older people is typically illustrated with objective measures such as the risk of poverty or pension benefit replacement rates. Since the beginning of the 2000s, also subjective economic well-being has gained interest and importance among policymakers and scientists. One reason for this development is the rising awareness of objective indirect measures' inability to reflect people's experiences comprehensively (Helliwell et al., 2017; Kwan & Walsh, 2018). Among older people, studies have identified a "satisfaction paradox": subjective economic well-being correlates only to a limited extent with objective economic well-being, such as measured by level of income (Isengard & König, 2021; Olson & Schober, 1993).

Pension benefits are the main source of household income in old age (OECD, 2017), although the importance of pension income within household

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income varies between countries (Ebbinghaus, 2021; Hinrichs & Lynch, 2010). Smaller shares of income are drawn often from work and capital. The prevalence of income gained from work and private wealth holdings for consumption smoothing in retirement can vary greatly between households, especially by their income level and socio-economic status (Brulé & Ravazzini, 2019; Weller, 2010; De Wind et al., 2016). In addition to this, the need to resort to other forms of social security transfers and to seek financial help from their families differs between households and countries, as well (Deindl & Brandt, 2010; European Commission, 2015).

In the light of recent pension reforms in almost all countries, the importance of income sources other than pension benefits is likely to increase for older Europeans in the coming years (Ebbinghaus, 2021; Hinrichs, 2021). This diversification of sources of income in old age raises the question whether this matters for the subjective economic well-being of older Europeans. Income generated through different economic activities could lead to differences in perceived income adequacy, even if the overall level of income remains the same. Furthermore, it is possible that different sources of income are associated with different consumption preferences and patterns, thereby changing perceived adequacy.

This article contributes to the research on income adequacy of older households by investigating the associations between sources of income and subjective views on the ability to make ends meet in a European comparative perspective. It addresses the following research question: does the source of income have any external spillover effects on perceived adequacy beyond the money it provides? We distinguish four categories of income sources: (old age) pensions, other social benefits, work, and capital. Moreover, we analyze the significance of income sources in more detail by exploring their relevance to perceived adequacy across the household income distribution. In this way, we aim to find out whether it is only the size of the pie that matters or do its contents play a role as well.

The article proceeds as follows: the second section presents the theoretical background and hypotheses based on previous research. The third section introduces the data and the analytic framework. The fourth section then presents the results, followed by their discussion in the light of the theoretical background. The last section concludes the study and considers the results from the viewpoint of policy implications.

Theoretical background and hypotheses

Perceived income adequacy is a central subjective measure of economic well-being and has become increasingly used also in studies on the economic well-being of older people (Gildner et al., 2019; Žiković, 2020, for a broader literature overview see for example: Palomäki, 2018). The measure captures

the perceived balance between available income and the ability to make ends meet at household level. One of the strengths of perceived income adequacy is that it enables the comparison between households and countries, as the measure reflects potential variation in needs and expenses owing e.g., to different level of health expenditures or housing costs.

Although incomes and expenses are associated with perceived adequacy, they do not tell the full story. The perception of adequacy can be influenced by additional factors, such as past livelihood experiences and the stage of the life course (Baldini et al., 2017). For example, Palomäki (2019) found that among older Europeans retirement from work worsened the perception of income adequacy beyond the level of income change, while retirement from unemployment improved this perception. This result suggested that while controlling for the level of income, the transition to old-age pension had positive externalities, possibly due to the change toward a more secure and less stigmatizing source of income.

There are several reasons to argue that the source of income influences perceived income adequacy beyond the impact of income level. The first relates to the generation process. The theory of procedural utility suggests that people care not only about the outcomes of income generation, but also about the conditions and processes that are involved (Frey et al., 2004). People might assess adequacy more positively if income is generated by their own efforts or if they feel that they “deserve” that income from a particular source. People interact with institutions and evaluate these interactions according to their innate needs for autonomy and feelings of competence and fairness. If an income source is related to perceptions of ill treatment, stigma or unfairness, it may decrease subjective well-being (Benz, 2005).

Second, different sources of income can affect older people’s spending patterns and consumption preferences (Hurd & Rohwedder, 2008; Stoller & Stoller, 2003). Some sources of income are associated with specific expenses. For example, someone who works might need a car, but when retiring that need ceases to exist. It is also possible that different sources of income are accompanied with particular in-kind benefits, such as access to free healthcare. Finally, different sources of income might change perceived adequacy through consumption preferences. Someone receiving social benefits might have lower spending aspirations than someone who is employed.

In our study, income from pensions is used as the benchmark against which we compare perceived adequacy of income received from other sources. A vast majority of older Europeans receive some form of public pension. Pensions are often seen as the well-deserved outcome of long life of work (Svallfors, 2008; Van Oorschot, 2006). Especially when older people perceive that they are equally well-off as their peers, they tend to report high financial satisfaction, even if their income is diminished after retiring (Stoller & Stoller, 2003). Moreover, pensions provide predictability and security, as they usually

constitute a stable flow of income, which is known to increase financial satisfaction (Vera-Toscano et al., 2006). Certain expenditures related to work can be reduced, while expectations for spending are often tempered (Hansen et al., 2008; Stoller & Stoller, 2003). Moreover, due to having more leisure time, those retired from work can look for consumption goods more price-efficiently or substitute them with home produce (Hurd & Rohwedder, 2008). These factors should contribute to positive perceptions of adequacy.

By the same token, studies on attitudes toward welfare state provision have found that targeted social benefits receive less public support than universal programs (Svallfors, 2011). Moreover, targeted public programs often involve bureaucratic procedures of application, resulting in the feeling of loss of autonomy, stigma and disempowerment effects, which does not exist in the same sense for pension benefits (Livani & Graham, 2019). This leads us to expect that *compared to pension income, income from social benefits other than pensions is associated with a lower perceived income adequacy (H1)*.

The impact of income from work on perceived adequacy can be two-sided. On the one hand, empirical research has shown that at older age, the employed experience less financial difficulty than retirees (Litwin & Sapir, 2009). Income from work can have positive externalities because of feelings of empowerment and autonomy, as opposed to feelings of dependency generated by hierarchical processes where the decisions are made by others. Lux and Scherger (2017) also found positive effects of post-retirement work on life satisfaction.

On the other hand, financial strain has been found to predict working beyond retirement (De Wind et al., 2016) and, more generally, employment at older age to lead to lower financial satisfaction (Brown et al., 2014). Adequacy perceptions vary between older employed and retired persons because consumption aspirations for earned and pension income are different (Hazelrigg & Hardy, 1997; Hurd & Rohwedder, 2008). Prolonged working lives have been associated negatively with quality of life in wealthier and more developed parts of Europe, but positively in European regions where financial need is a more important motivation for work (Lakomý, 2019). Work assumedly shapes perceived income adequacy in various ways, and therefore we propose two contrasting hypotheses: *Compared to pension income, income from work is associated with a lower perceived income adequacy (H2a); income from work is associated with a higher perceived adequacy (H2b)*.

Similar to income from work, income from capital can generate a sense of self-reliance (Livani & Graham, 2019). Income from wealth is generally related to higher life satisfaction, independent of the income that it provides (Brulé & Suter, 2019; Frey & Stutzer, 2002; Headey & Wooden, 2004). The positive impact can be explained by a sense of security wealth provides (Hansen et al., 2008). Still, compared to e.g., pensions, income flows from financial assets may be more unstable and provide more uncertainty, therefore contributing to lower perceived adequacy. However, we expect the positive externalities of

wealth to outweigh the negative and we hypothesize that compared to pension income, *capital income is associated with higher perceived income adequacy (H3)*.

Methods

Data

The empirical analysis of this study is based on the cross-sectional component of The European Union Statistics on Income and Living Conditions (EU-SILC) 2018 survey (Eurostat, 2019). The data covers 29 European countries. The sample is restricted to households where the household respondent was 65 years of age or over at the end of the income reference period (typically the previous calendar year), with a total sample size of 85,834. EU-SILC (or its country-components) is a widely applied source in the analysis of subjective economic well-being in Europe (see, for example: Cracolici et al. (2012, 2014); Palomäki (2017, 2019); Spitzer et al. (2018)).

Variables

Our dependent variable, *perceived income adequacy*, is measured as a households' self-perceived ability to make ends meet. The relevant question is phrased as follows: "A household may have different sources of income and more than one household member may contribute to it. Thinking of your household's total income, is your household able to make ends meet, namely, to pay for its usual expenses?" The six-point ready-classified answer categories are: 1) with great difficulty, 2) with difficulty, 3) with some difficulty, 4) fairly easily, 5) easily and 6) very easily. The distribution of perceived income adequacy is presented in Table 1.

The association between income sources and perceived income adequacy is explored with income shares of total household income. Based on EU-SILC's 17 income variables (Goedemé & Zardo Trindade, 2020), that are reported either at individual (*I*) or household (*H*) level as marked below, sources are

Table 1. Perceived income adequacy, % & n (weighted).

	%	n
With great difficulty	7.3	9.828
With difficulty	15.1	15.974
With some difficulty	31.2	24.779
Fairly easily	26.5	18.819
Easily	14.2	11.482
Very easily	5.7	4.952
All	100	85.834

further categorized into four specific components that reflect distinct income generation processes.

Social benefits covered under the European System of Integrated Social Protection Statistics (ESSPROS) are grouped under two variables. The first is labeled as *pensions* and it combines old-age (*I*) and survivor's (*I*) benefits, which are two major income sources in old age. All pension income gained from mandatory government and mandatory employer-based schemes is included. Survivor's benefits are included in pensions due to cross-country differences in rules regarding e.g., the eligibility conditions for spouses (MISSOC, 2019).

The second variable labeled *other benefits* includes benefits targeted at unemployment (*I*), sickness (*I*), disability (*I*), education (*I*), housing (*H*) family/children (*H*) and social exclusion not elsewhere classified (*H*). This category also includes regular inter-household cash transfers (*H*) and income received by people aged under 16 (*H*). These sources may include requirements for meeting certain criteria or for personal solicitation.

Work income groups employee cash or near cash income (*I*), cash benefits from self-employment including royalties (*I*) and company car (*I*). Employee cash or near cash income refers to wages and salaries paid in cash for time worked. For self-employment, cash benefits including royalties are included but the losses excluded because of the ambiguous relationship between negative income and perceived income adequacy.

Capital income includes incomes derived from voluntary individual private pension plans (*I*), rental income from a property or land (*H*) and interests, dividends, profit from capital investments in unincorporated businesses (*H*). All items refer to income received from these sources, not to actual wealth holdings. Private pensions refer to regular pensions and annuities that are received in the form of interest or dividend income from individual private insurance plans, organized independently from employers or government. Negative values for interests etc. were recorded in few countries and, similar to the treatment of losses from self-employment, these were excluded.

Adding the income from all these sources provides the basis for the second main explanatory variable, namely the total and absolute level of disposable *household income*. To adjust for differences in living standards across countries, household income is further converted into purchasing power parities and the household structure is adjusted for using the OECD equivalence scale. Household income is further logarithmized and centralized around the median income of all countries to make values comparable.

Several control variables are included. Table 2 presents the characteristics of the study population. While some studies find that women have more difficulties to make ends meet (Palomäki, 2017), other studies find no or opposite effects (Hazelrigg & Hardy, 1997; Litwin & Sapir, 2009; Stoller & Stoller, 2003). Three age groups are distinguished: 65 – 69, 70 – 74, and 75 and older.

Table 2. Sample statistics on independent variables (weighted), % & n.

	%	n
Gender		
Men	43.0	37.758
Women	57.0	48.076
All	100	85.834
Age		
65–69	28.9	26.025
70–74	24.3	21.909
75+	46.9	37.874
All	100	85.808
Household type		
One person	48.8	37.200
Two adults	41.3	39.999
Other	10.0	8.635
All	100	85.834
Perceived health		
Good/ very good	41.4	31.896
Fair	40.5	34.678
Bad/ very bad	18.1	18.055
All	100	84.629
Tenure status		
Owner	80.0	71.262
Renting	15.5	9.412
Rent-free accommodation	4.5	5.157
All	100	85.831

Compared to younger age groups, we expect older people to be financially more satisfied with lower incomes (Litwin & Sapir, 2009; Palomäki, 2017; Žiković, 2020).

We distinguish between one-person households, two-person households and households with three or more members. Making ends meet has been perceived as easier among older people living in a relationship than among persons living alone (Palomäki, 2017). However, more household members to be provided for and adult children living in the same household increase financial difficulties (Stoller & Stoller, 2003; Tanturri et al., 2008).

We use perceived health (bad/very bad, fair, good/very good) to measure differences in health of the respondents. Poorer health has been associated with greater financial difficulties (Litwin & Sapir, 2009; Polvinen et al., 2019; Stoller & Stoller, 2003). Finally, as we expect that people who own their house are more likely to be better able to make ends meet, we include a variable that distinguishes between homeowners, renters and those who enjoy rent-free accommodation.

Analytic strategy

Analysis of the association between income sources and perceived income adequacy is performed with standard OLS linear regression in two parts. In the

Table 3. The associations between income sources and perceived income adequacy among older people (65+) in Europe, linear regression analysis with country-fixed effects.

	(1)	(2)	(3)	(4)	(5)	(6)
Women (ref. Men)	-0.14***	-0.14***	-0.13***	-0.13***	-0.13***	-0.13***
70–74 (ref. 65 – 69)	0.03***	0.02*	0.02*	0.02*	0.03***	0.01
75+	0.12***	0.10***	0.10***	0.10***	0.11***	0.09***
2 adults (ref. 1 adult)	0.03***	0.03***	0.03***	0.04***	0.04***	0.05***
Other households	-0.16***	-0.12***	-0.13***	-0.11***	-0.15***	-0.06***
Fair health (ref. Good)	-0.26***	-0.26***	-0.25***	-0.26***	-0.25***	-0.25***
Poor health	-0.59***	-0.59***	-0.57***	-0.59***	-0.58***	-0.56***
Renting (ref. Owner)	-0.38***	-0.38***	-0.35***	-0.38***	-0.36***	-0.32***
Rent-free accommodation	-0.07***	-0.06***	-0.05***	-0.07***	-0.06***	-0.04**
Hh. Income (log.)	0.67***	0.68***	0.65***	0.69***	0.65***	0.65***
Pensions		0.13***				
Other benefits			-0.75***			-0.74***
Work income				-0.17***		-0.17***
Capital income					0.82***	0.77***
Constant	4.23***	4.12***	4.24***	4.24***	4.19***	4.20***
Observations	84,586	84,586	84,586	84,586	84,586	84,586
R ²	0.49	0.50	0.50	0.50	0.50	0.50
Adjusted R ²	0.49	0.49	0.50	0.50	0.50	0.50
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes

Perceived income adequacy: Ability to make ends meet: 1 = With great difficulty to 6 = Very easily.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

first part, multivariate analysis shows the coefficients for control variables, household income and each income source individually. In the final model we introduce all sources (which together add up to one) simultaneously, applying pensions as the reference category. All models control for differences across countries through introducing country dummies in the analysis. This way we account for unobserved differences between countries, for example, in the shares of income sources due to variation in pension systems and social policies as well as cross-national variation in living standards. To address this issue, we also perform the analysis by country. These results are reported in broad lines in the end of the Results section and presented in [Appendix A](#).

The second part of the analysis further elaborates on the relationship between income sources and household income level by introducing their interactions in the models. The results are presented in [Figure 1](#), showing the average marginal effects of income sources on perceived income adequacy (based on individual models) at selected percentile points of the household income distribution. The table of the models including the interaction terms between income sources and household income level is presented in [Appendix B](#).

We acknowledge that treating the dependent variable as linear (or cardinal) may not reflect the reality in a perfect way as the nature of the dependent variable is in essence ordinal. But the assumption of cardinality, interpreted as a one-unit increase having similar well-being effects throughout the scale, eases the interpretation of results. The linear approach has shown to produce similar results with ordinal responses in life satisfaction questions (Ferrer-

i-Carbonell & Frijters, 2004). As a robustness check we also performed ordinal logit regression models both with six categories of the dependent variable (Appendix C) and binary categorization to evaluate the odds of experiencing great difficulties or difficulties. These analyses provided similar results as the OLS models.

Results

Descriptive results

Table 4 shows that among all households, the largest share of income comes from pensions. The share of pensions differs somewhat between the lower income groups but is substantially lower among the highest income quintile. Altogether, other sources comprise slightly under one-fifth of household income on average, with work income's share being one-tenth and with smaller shares of capital and other benefits. The share of other benefits is somewhat smaller along higher incomes, but differences between quintiles are relatively minor. At the same time, the shares of incomes received from work and capital are substantially greater among higher incomes.

Multivariate findings

Model 1 in Table 3, including only the household income and background variables, shows that women, the younger, those with poorer health, renting their homes and with lower incomes experience their incomes as less adequate than men, the older, those with better health, owning their homes and with higher incomes. Older people living in two-adult households perceive slightly fewer difficulties, while those in other compositions perceive more difficulties in making ends meet than older people living alone.

Models 2–5 (Table 3) show that including the variables for the income sources does not change the association between income level and perceived income adequacy. This means that income level, i.e. “the size of the pie,” has a clear and independent association with perceived income adequacy regardless of its sources. The models, however, also show that “the content of the pie” matters, as the effects are sizable. Model 2 shows that pensions are associated with slightly higher perceived income adequacy, signaling that when the share of pensions is higher, the perception of adequate income also increases. Model

Table 4. Income shares (mean of 0 – 1) by household income quintiles (weighted).

	1 (Lowest)	2	3	4	5 (Highest)	All
Pensions	0.86	0.87	0.84	0.82	0.71	0.82
Other benefits	0.05	0.04	0.04	0.03	0.02	0.04
Work income	0.07	0.07	0.08	0.10	0.16	0.09
Capital income	0.02	0.02	0.03	0.06	0.11	0.05

3 indicates a negative association between other benefits and perceived income adequacy. In other words, receiving income from various types of social benefits is associated with a lower ability to make ends meet. This result supports our hypothesis H1.

A higher share of income from work is also associated with lower perceived income adequacy (Model 4), although to a lesser extent than other benefits. This result support hypothesis H2a instead of hypothesis H2b. Model 5 shows that a higher share of income from capital is associated with a higher perceived income adequacy, supporting hypothesis H3. This result indicates that older people who draw income from private pensions, rentals and interest perceive their income as more adequate.

When including all sources of income simultaneously, the perceived adequacy of other benefits remains substantially lower and for capital higher in comparison to pensions (Model 6). The direction of the associations with other benefits and capital income were expected based on the theory.

The relevance of income sources for perceived adequacy is further scrutinized by including interaction terms between income sources and the household income level in the analysis. The interactions account for the possibility that the impact of income sources on adequacy differs between low- and high-income households. Figure 1 shows that this is the case to some extent. We

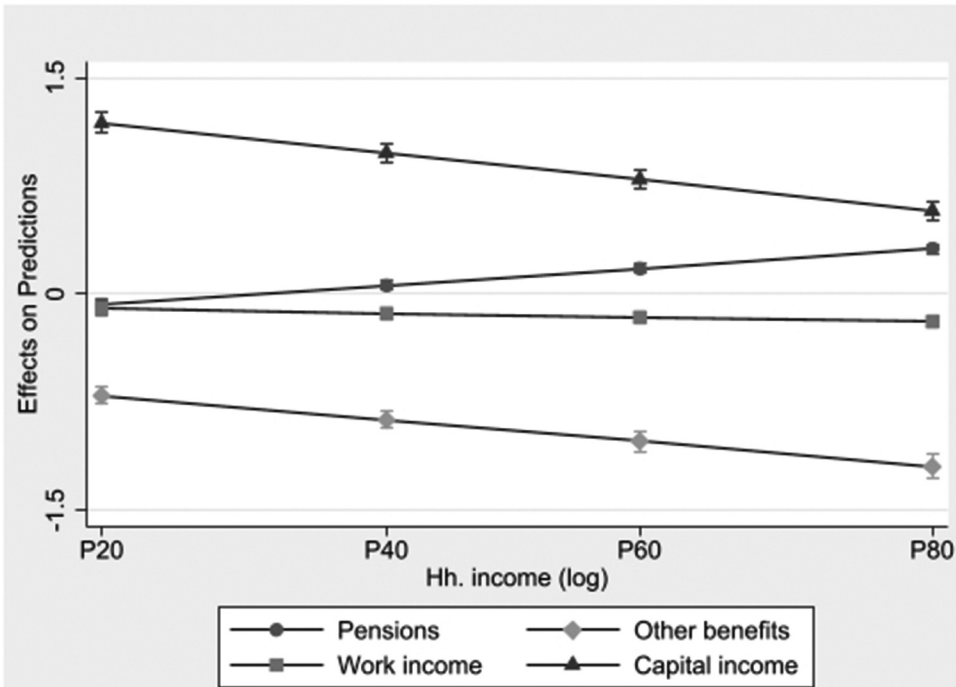


Figure 1. The average marginal effects of income sources on perceived income adequacy by household income level & 95% CIs.

find that the positive externalities of pension income are higher for people with higher incomes. For other benefits, the negative externalities are greater for higher-income households than for households at the lower end of the income distribution. The externalities of work income are negative throughout the income distribution with only small differences between high and low incomes. At the same time, the earlier observed positive externalities of capital income are smaller for higher-income households, indicating that people with lower incomes benefit to a greater extent of capital income. When all interactions are entered the model simultaneously and pension income is applied as the reference group, their signs remain similar (Model 5, [Appendix B](#)).

Analysis by country

As a robustness check and to observe whether the associations of source of income with perceived income adequacy are similar across countries, we additionally performed the analysis of model 6 in [Table 3](#) for each country individually ([Appendix A](#)). In all countries, the associations with income from other social benefits are negative and reach statistical significance (except for Switzerland and Denmark), although the sizes of the coefficients vary somewhat. The associations of income from work with our dependent variable are also predominantly negative but do not reach statistical significance in a great number of countries. The largest negative coefficients for share of work income can be found in Estonia, Cyprus, Finland, and Slovenia. In line with the overall results, there is a positive association of the share of capital income with perceived income adequacy in nearly all countries (except Bulgaria, Lithuania, and Slovenia), yet again in a large number of countries associations are not statistically significant. Large and statistically significant coefficients are found in Romania and Slovakia, and to a lesser extent in Ireland, Austria, Spain, and Luxemburg.

Discussion

This study analyzed the relationship between income sources and perceived income adequacy among older European people. We showed that both income level and income sources matter for perceived income adequacy. Higher income is perceived as more adequate, but the perceptions also depend on the source of income. When older people draw more of their household income from social benefits other than pensions, income is perceived as less adequate. The same applies to income from work, but to a lesser extent. At the same time, when relatively more income is received from capital, assessment of adequacy is higher. Moreover, we found that the externalities of income sources vary between low- and high- income pensioners.

Many of the results are in line with previous research on subjective well-being (Livani & Graham, 2019). Pensions hold positive attributes and increase higher perceived income adequacy. These attributes may include accessibility and predictability, but also feelings of deservingness and entitlement.

A bigger share of income from pensions contributes to perceived adequacy to a greater extent among higher income levels. This finding can stem from the meritorious nature of earnings-related and contribution-based pensions, a higher share of income from pensions reflecting higher earnings during working life. This form of distribution of pension income might be seen as fair and in line with perceptions of deservingness among the higher-income households, thereby contributing to greater perceived adequacy (Stoller & Stoller, 2003).

In comparison, we find negative externalities related to being dependent on other social benefits. These benefits are typically means- or income-tested and can come with additional bureaucracy, reinforcing feelings of uncertainty, loss of autonomy and stigma that further decreases perceived income adequacy. Analysis by income level showed that the stigma effect of receiving social benefits is possibly greater for higher incomes and therefore leads to lower perceived adequacy. Livani and Graham (2019) also concluded that stigma effects of public transfers were weaker for the poor. Past experiences of income scarcity have also proven to affect current perceptions (Baldini et al., 2017). Households with lower incomes may be more used to applying and receiving social benefits, leading to a greater adjustment of needs and resources.

Our findings of the negative externalities of work income are in line with previous results by De Wind et al. (2016) and Brown et al. (2014) and contrast that of Litwin and Sapir (2009). According to our results, income from work is associated with lower perceived income adequacy than that of pension income. We found no substantial differences in this effect between lower- and higher-income households. It should be noted that this finding concerns households where the household respondents were nearly all above the retirement age. This supports the view that working in old age is an indication of financial strain in our country sample, but other explanations may exist as well. The roles of income sharing processes between household members and expectations regarding different income sources are topics for future research.

Furthermore, we found that capital income is associated with considerable positive externalities. These may be related to a higher sense of self-reliance and autonomy resulting from an individual's own income generation (Livani & Graham, 2019), but also result from a greater sense of security and self-esteem. The relative benefits of capital income, however, are lower among higher incomes. Especially among lower-income households income from capital may present a bonus that eases their ability to make ends meet.

Altogether, the source of income matters for perceived income adequacy. This result is in line with a study by Palomäki (2019), showing that retirement route shapes perceived income adequacy beyond its association with income change. These studies indicate that subjective economic well-being is affected not only by the level of income, but also, for example, by the institutional and life-course context in which the income is generated.

Limitations

This study comes with some limitations. More comprehensive data on households' financial resources and expenses would provide a more complete picture. Savings further constitute a sizable part of households' financial assets in some European countries (Christelis et al., 2009). Economic well-being is also linked with the availability and affordability of social services and in-kind benefits (Vaalavuo, 2019). In addition, people aged 65 and over, and especially those aged 75 and over have less debt than younger people (European Commission, 2015). These aspects improve or worsen older people's economic position, but they mostly neither turn into real cash nor are easily valued. Furthermore, closer attention could be paid to the impact different forms of work and various employment statuses (e.g., part-time vs. full-time employment and salaried employment vs. self-employment) on perceived income adequacy.

This study provides a cross-sectional view on perceived income adequacy. However, it should be noted that the level and sources of income at older age are the outcome of events and decisions earlier in life. For example, couples' decisions to continue, reduce or leave work when their children are born affect income in later life (Möhring & Weiland, 2021). Similarly, having income from capital at older age requires that one decides to save and invest at younger age. More research using a life-course perspective and longitudinal data is therefore desirable.

Finally, subjective views of economic well-being are also shaped by a country's economic situation, social policies and governing societal norms about redistribution and what makes an adequate standard of living. In the robustness analysis, we found substantial variation in the associations between sources of income and perceived income adequacy across countries, especially for income from work and capital. In contrast to Lakomý's (2019) findings on the relation between extended working lives and subjective quality of life, we found no clear geographical divide between the richer and poorer parts of Europe and the relation between the share of income that comes from work and the ability to make ends meet. Moreover, there was also no obvious pattern along geographical lines or by welfare state typology for countries where capital had a positive relation with perceived adequacy. Future research could pay more attention to the mechanisms

behind cross-country differences in perceived income adequacy, looking at, for example, the influence of public pension coverage and replacement rates on the need to work in old age, as well as the role of private pension prevalence and the maturity of financial markets in the possibilities for saving and investing for retirement.

Conclusion

Our results show that both the size and content of the pie matter for economic well-being in older age. Pensions provide positive externalities besides the money they offer. Other social benefits as well as income from work, do not generally provide similar levels of perceived income adequacy as pensions. This therefore suggests that policymakers can improve older people's well-being by securing pension adequacy. Adequate pensions have a crucial role not only in providing protection against risk of poverty (see e.g., Ebbinghaus, 2021) but also improving perceived income adequacy by providing a secure and stable flow of income.

Income from capital holds positive attributes as well. Policymakers should enhance the possibilities of low-income households for saving and investing, and promote financial literacy. This is particularly important in countries where old-age income already relies heavily on private, third pillar provision or where recent pension reforms have been guided by the ideas of privatization and individualization of retirement risks. Furthermore, it should be noted that different income sources are reflections of developments over the life course. Therefore, considering the long-term effects of such developments on people's well-being in old age, policies should take into account access to work, decent earnings and possibilities to save and invest, starting at a young age.

Key points

- Both income level and income sources matter for perceived income adequacy
- Other social benefits and work income lead to lower and capital income to higher adequacy than pensions
- Adequate pensions not only alleviate poverty but also fortify perceived income adequacy
- Opportunities for low-income households to gain capital income (or private pensions) should be supported

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Appendix A. The associations between income sources and perceived income adequacy by country among older people (65+) in Europe, linear regression analysis*

	Other benefits	Work income	Capital income	R2
Austria	-2.09***	-0.00	1.18***	0.20
Belgium	-1.14***	-0.11	0.80**	0.27
Bulgaria	-0.43***	-0.36***	-0.58**	0.28
Switzerland	-0.59	-0.31*	0.64***	0.18
Cyprus	-1.46***	-0.78***	0.20	0.53
Czech Republic	-1.33***	-0.43***	0.95**	0.20
Denmark	-0.38	-0.15	0.22	0.09
Estonia	-0.71**	-0.83***	0.56	0.23
Greece	-0.63***	-0.20***	0.47***	0.17
Spain	-0.95***	-0.19*	1.04***	0.20
Finland	-0.91**	-0.62***	0.20	0.15
France	-0.35*	-0.27*	0.16	0.29
Croatia	-0.24*	-0.13	0.48*	0.36
Hungary	-1.22***	-0.16	0.02	0.24
Ireland	-0.70**	-0.22	1.20***	0.16
Italy	-1.07***	0.02	0.90***	0.18
Lithuania	-0.68**	-0.20	0.97*	0.23
Luxemburg	-1.50***	-0.16	1.11**	0.23
Lithuania	-1.03***	-0.13	-0.09	0.27
Malta	-1.36***	-0.37*	0.89***	0.15
Netherlands	-1.67***	-0.05	0.35	0.21
Norway	-0.69***	-0.18	0.21	0.17
Poland	-0.89***	-0.22**	0.47	0.31
Portugal	-0.40**	-0.31***	0.79***	0.32
Romania	-0.46**	0.15	4.86*	0.32
Sweden	-1.48***	-0.39*	0.18	0.21
Slovenia	-0.31*	-0.63***	-0.47	0.29
Slovakia	-0.57*	-0.34**	8.64***	0.20
United Kingdom	-0.73***	-0.31***	0.80***	0.21

* The analysis includes same controls as model 6 in Table 3.

Appendix B. Interactions between household income and share of income sources on perceived income adequacy among older people (65+) in Europe, linear regression analysis with country fixed-effects

	(1) Ability to make ends meet	(2) Ability to make ends meet	(3) Ability to make ends meet	(4) Ability to make ends meet	(5) Ability to make ends meet
Pensions	0.20***				
Pensions * Hh. income	0.37***				
Other benefits		-1.05***			-1.08***
Other benefits * Hh. income		-0.47***			-0.59***
Work income			-0.16***		-0.24***
Work income * Hh. income			-0.088***		-0.18***

(Continued)

(Continued).

Capital income				0.76***	0.67***
Capital income *				-0.58***	-0.65***
Hh. income					
Constant	4.03***	4.23***	4.24***	4.16***	4.16***
Observations	84,586	84,586	84,586	84,586	84,586
R ²	0.50	0.50	0.50	0.50	0.51
Adjusted R ²	0.50	0.50	0.50	0.50	0.51

Perceived income adequacy: Ability to make ends meet: 1 = With great difficulty to 6 = Very easily.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Appendix C. The associations between income sources and perceived income adequacy among older people (65+) in Europe, ordered logit analysis with country fixed-effects

	(1)	(2)	(3)	(4)	(5)	(6)
	Ability to make ends meet	Ability to make ends meet	Ability to make ends meet	Ability to make ends meet	Ability to make ends meet	Ability to make ends meet
Women (ref. Men)	0.78***	0.79***	0.79***	0.78***	0.78***	0.80***
70–74 (ref. 65–69)	1.08***	1.05**	1.05**	1.05**	1.07***	1.02
75+	1.26***	1.22***	1.23***	1.22***	1.25***	1.19***
2 adults ref. (1 adult)	1.04*	1.05***	1.05**	1.05***	1.05***	1.08***
Other households	0.72***	0.83***	0.77***	0.82***	0.74***	0.91***
Mediocre health ref. (Good)	0.62***	0.62***	0.63***	0.62***	0.62***	0.63***
Poor health	0.33***	0.33***	0.34***	0.33***	0.33***	0.34***
Renting ref. (Owner)	0.49***	0.50***	0.53***	0.49***	0.51***	0.55***
Free accommodation	0.89***	0.89***	0.92**	0.89***	0.89***	0.92**
Hh. income (log)	4.11***	4.35***	3.98***	4.31***	3.89***	3.98***
Pensions		1.49***				
Other benefits			0.20***			0.19***
Work income				0.67***		0.67***
Capital income					4.16***	3.66***
Observations	84,586	84,586	84,586	84,586	84,586	84,586
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes

Exponentiated coefficients.

Perceived income adequacy: Ability to make ends meet: 1 = With great difficulty to 6 = Very easily.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.