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# What is the role of unequal sharing of resources within households?

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## Abstract

Common definitions of indicators to measure poverty and social exclusion are based on the household as level of analysis. However, the assumption of equal sharing within households might hinder the accuracy of poverty measures if disaggregated by social characteristics, e.g. by gender. Analysis of an EU-SILC module in 2010 on income inequality within households showed that the risk of poverty in Austria is about 40% higher for women than men when taking the unequal distribution of income within households of couples into account. This alternative approach shows much greater gender inequality than the usual concept of equal sharing with Austria showing a particular high level of gender differences compared to other European countries (cf. Ponthieux 2017). We plan to summarize evidence on unequal sharing of resources within households from the literature and already existing surveys, make exemplary calculations with the "traditional" shared resources method vs. individual shares for household income and poverty rates by sex and finally we want to draft recommendations of how the findings might be used to better measure disaggregated poverty in the UNECE region.

## 1. *Introduction: Equal sharing of resources – a theoretical concept only?*

One of the most common and known poverty measures is the at-risk-of-poverty rate. It is calculated on the basis of the equivalised household income, the available household income divided by the number of consumption equivalents in the household. People are considered to be at-risk-of-poverty if their equivalised household income is below the at-risk-of-poverty threshold, usually 60% of the median equaivalised income. Many **conceptual decisions** have to be taken and are usually made transparent in the definition of this indicator, namely (1) the choosing of an equivalence scale used to operationalize the idea of economies of scale with the aim of making households comparable that differ in their size and structure, (2) the actual value of the threshold as a reference value – if a household falls short of it it is considered poor or at-risk-of-income poverty. Together with this (3) a decision of how the threshold is calculated, as an absolute value or in relation to the total income distribution of the reference group (e.g. median equivalised income of a country's population in private households), has to be taken. More implicit but even as important is a **decision on how the persons in a household should be treated** as regards their income level and poverty status: are they by definition **treated equally or should each person be weighted by what he or she actually contributes to the household income or takes from the household income for spending**. The latter poses practical difficulties especially in cases of common social transfers and in the treatment of children and dependent persons in the household. The first – the assumption of equal sharing of resources – may also be an over-simplification. The question of intra-household distribution is usually ignored by standard poverty measures although the problem has been raised and named an "agenda for action" (Jenkins 1991). However, so far pooling of income has been implied when measuring a household's and its members' living standard by the European concepts for poverty indicators.[1] To be correct, we should then not be speaking of persons (or men/women/children) being income poor but of persons (or men/women/children) living in households that are income poor (cf. World Bank 2017, p. 44). The break-down of the total population by social characteristics on an individual basis is not giving fully correct numbers that way. Gender differences, for example, can accurately only be reported for single households.

Taken these general considerations as well as first empirical evidence we want to further test the assumption on equal sharing of resources within households. We want to explore **how much the assumption of equal sharing hinders the accuracy of poverty measures if disaggregated by social characteristics**, e.g. by sex. The aim is to make gender differences visibly that might be covered by the traditional poverty measurement concept. For this aim the "black box" household has to be cracked opened – at least as far as data availability on within household distributions allows for it.

## 2. *Summary of evidence: Empirical studies on the pooling /sharing of resources assumption*

Literature on the assumption of sharing of resources and it implications for economic theory on the household is manifold and cannot be reproduced here in great detail.[2] "Pooling of income" addresses the input side of household resources – who brings what amount of money into the household for

[1] See also Canberra Handbook, UNECE 2011: "While income is usually received by individuals, it is normally shared with other household members present e.g. spouse and children." (p. 9) and "This distribution reflects the assumption that household income is shared equally between all members of the household, and does not reflect the direct receipt of income by individuals. Because many household members receive no money income, e.g. younger children, such an assumption is hard to avoid in practice." (p. 28).

[2] For a very good overview on potential indicators of intra-household decision-making, related methodological challenges and data availability see the Literature Review: Measuring Intra-Household Decision-Making by Magdalena Krieger. This work has been done by the UNECE Task Force on measuring household power and decision-making.

common or exclusive use -, "sharing of income" addresses the outcome side – what can the household and its members afford. We will show examples for both approaches. To set the theoretical background very briefly we can summarize the last decades of economic theory relevant to this topic as follows: In general we can either think of the household as an entity with its members acting only as one unit (favored by economic theory in 1950s until the 1980s). That is called the "**unitary approach to economic behavior**" where incomes are pooled and shared; or we think of the household members as each trying to maximize his/her own utility function in a "**non-unitary model**". Here incomes are not generally assumed to be pooled. This second approach, pioneered by Manser-Brown and McElroy-Horney in the early 1980s, was to model family demands as a cooperative bargaining game. Then there were also other non-unitary approaches, that used either collective models (e.g. Chiappori) or non-cooperative models.

When in our understanding the "non-unitary model" is better reflecting reality we face some discrepancy in the use of the politically relevant indicators that rely on the "unitary model". To begin solving this we want to focus our literature review on practically oriented studies and empirical evidence in regard to measuring well-being and poverty. We hope to find some answers to the following two questions:

1) When leaving the pooling of resources assumption aside **what models can we use instead**? **How – as social statisticians dealing with household income data – can we arrive at models that adequately implement the degree of (non-)pooling and sharing?**
2) **How big is the difference between both approaches, i.e. how much bias is introduced** by acting upon the notion of the pooling of resources assumption vs. a "new" concept of pooling/non-pooling ratio.

To begin with we want to give a brief summary of a work by **Ponthieux** (2017) – we chose this paper because it uses EU Statistics on Income and Living Conditions (EU-SILC) data, thus has comparable data for most European countries. The author tries to decompose the well-established poverty indicator "at-risk-of-poverty rate" by sex for women and men that live in couple households– like we will try to recalculate in the following section. She makes use of a question of the ad-hoc module of the EU-SILC survey in 2010 on "Intra-household sharing of resources" that asks: "What proportion of your personal income do you keep separate from the common household budget?" Answers are categorical with six choices:

1 All my personal income
2 More than half of my personal income
3 About half of my personal income
4 Less than half of my personal income
5 None
6 The respondent has no personal income

This question proves useful to assess the degree of income pooling. But, at the same time two problems arise if one wants to use this information for computations: The first is that only some income components are available on personal level. (employee income, pensions, some social transfers) others on the household level (inter-household transfers, some social transfers) – even for some income components that in single Member states are foreseen as individual transfers the common concept aggregates them at household level and thus loses information. The question listed above can only refer to the personal income parts. The second issue is that of pooling vs. sharing where she concedes: "…no pooling does not mean no sharing; conversely, income pooling does not necessarily entail equal or fair sharing." (p. 187). This means that when our aim is to know about the living standard of a single person the knowledge of the part of his/her income that is kept separately is only a proxy for that question of interest.

The model that is proposed with all practical restrictions of the data works on the assumption that income that is kept separate only increases the living standard of the income recipient. The part of the income that is pooled and all income components received at household level are attributed to both partners of a couple equally by equivalisation using the Eurostat-scale. What is kept separately is not equivalized. Thus the author arrives at different income values for each partner using this "modified" approach. As a first result she shows the share of income of men and women in the total household

income: As expected due to usually higher employment income (and pensions) of men they have more than half of the total household income in all Member states of the EU with the exception of Lithuania. The differences between men and women are rather small (biggest in Malta with about 42% for women vs. 58% for men). The explanation given is that better earnings by one (the male) partner are nearly perfectly counterbalanced by the couples' pooling regimes (p. 184f.) – at least when looking at country averages.

Using the same "modified" income and comparing it to the poverty threshold calculated by the standard methodology (60% of median for the targeted couples) the author shows a higher "modified" poverty risk for women as compared to men. In e.g. Austria women with this approach show a factor larger than 1.4 of the male poverty risk (p. 186f).

Summing up and trying to answer the questions previously raised: We can learn from this study that 1) a different model of within household income distribution can be calculated when **treating personal and household level income differently** and – if available like here – additional use can be made of a **question on the share of the personal income** that is used separately for the person him/herself. 2) For the extent of the bias in the poverty rates we see **large country differences of practically no gender differences for persons living in couple households in Lithuania to a factor of 1.5 in Greece and even 1.8 in Malta**.

Focussing more on the processes within the household in terms of decisions making rather than the outcome (living standard, poverty) **Mader et al. (2012)** come to the conclusions that **decisions on spending are taken differently in different household situations. They also use data of the module of EU-SILC 2010** and come to the conclusions that for Austria full sharing of resources and equal decision power of all household members is an ideal: Just 57 per cent of couples surveyed reported that they generally make decisions together, while 25 per cent of the couples disagree about who makes the general decisions. People with high levels of education and income are less likely to report that they and their partner make decisions together, while the unemployed and retired are most likely to report sharing decisions. Women are much more likely than men to make everyday decisions and decisions about the provisions for children, and couples in which the woman earns more money than the man are more likely to make decisions together. Large differences in education level within a couple correlate with a lower likelihood of making decisions together. Overall, men are more likely to make "big" financial decisions while women are more likely to make everyday spending decisions. In households with a higher income gap between men and women decision taking tends to be more unequal, which challenges the concept of a common access to the households resources irrespective of the individual contribution.

Trying to answer our two initial questions we can conclude from this paper: 1) **Unequal decision power on spending is very common**. Decision power seems to be dependent on the individual income share in household income, however it is not necessarily so. Also making a decision on how to spend the family income may not result in household members differently benefiting from that income. Thus from this research we find strong evidence that **full sharing our resources is not the standard case**; but knowing who makes what kind of decisions is not enough to find a new model of attributing individual living standards to members of that household. For question 2) the paper provides no evidence.

These findings are confirmed using the same data but for all EU-countries in another article by **Mader and Schneebaum (2013)**. They show that intra-household distribution of power and resources cannot - like in traditional economic models - be ignored. Gender roles play an important part in making decisions within a household.

**Guio and Van den Bosch (2018)** in a very recent paper put their focus on variables of material deprivation: **Do men and women in couples have the same material and financial possibilities, the same risk to be deprived?** Their paper is the first to present empirical evidence on this issue for a range of EU countries, using the **2015 wave of EU-SILC**, which contains a number of items on deprivation at the individual level. They map the extent of intra-couple inequality in deprivation, and analyse its determinants. Their findings point to a higher deprivation rate of women compared to men living together as couples, only access to internet is not significantly unevenly distributed. So one important finding here is that **measuring deprivation through individual rather than only**

**household items** (Can you afford vs. Can your household afford) unveils some gender differences that otherwise are lost in the black box of the household. So to our question 1) we would answer that – when we are able to leave the narrower concept of household income and look at absolute living standards and enforced lack – we can find ways to ask all persons individually on what they have available, can or cannot afford. Since not all goods of consumption are for the sole use of one individual (e.g. heating is of common use whereas clothing is not, some like a family car are in between) we also face the challenge to derive the 'sharing rule'. Guio and Van den Bosch summarize the economic literature in this field in their article.

On the question 2) what differences this approach of surveying individual rather than household deprivation makes the authors find the following answers: There are also couples where the men are more strongly deprived than women; however, when aggregating the individual items into a deprivation scale they find more couples where the number of enforced lacks is higher for the woman (9.2%) than where the man is disadvantaged (6.5%). The **work status of the partners and their relative contribution to the joint income are important determinants** of the intra-couple gender deprivation gap. This finding supports our plan to model individual poverty risks by using individually earned income of the partners.

Recent research by **Burchardt and colleagues (2018)** of the LSE also deal with unequal deprivation within households with the aim to overcome restrictions of conventional indicators on the individual level. Their project is also using micro-data from **EU-SILC** to examine the sensitivity of poverty, deprivation and inequality estimates across European countries to different assumptions about the intra-household sharing of resources in complex households, and to identify the groups of people for whom intra-household inequality may have the largest impact. Provisional findings say **that especially in multi-family households individual's contribution to total household income make a difference** on the living standard. In their cross-cultural study they add **the economic, social and cultural dimension to intra-household decisions** and their impact.

For **measuring intra-household decision-making the UNECE paper by Krieger (2018)** gives a very useful summary of relevant questions from international surveys such as EU-SILC (Eurostat; Europe) and the GGS (UN; Europe, Australia, Japan) as well as from national surveys (Danish Expenditure Survey, British Household Panel, German Socio-Economic Panel, American NSFH, and Swiss Household Panel). Although, mostly those approaches remain on a qualitative basis (i.e. they often do not quantify the effect the decision process has on household resources) it is nevertheless easier to derive models of income regimes from answers to those questions than with no empirical evidence. We should of course be aware that this self-reported behaviour might by a subjective view of what is going on in the household and is possibly affected by factors as social desirability, effects of partners being present to an interview and the like. But: it is an important step to overcome the "black box" of households and it is better to know something with some uncertainty than to know nothing at all.

### *3. Analysis: Different methods of poverty measurement for couple households*

With **EU-SILC** there is an established instrument in the European Statistical System to measure household income. The methodology follows mostly Canberra Handbook recommendations with relative freedom for Member States how they actually fill income target variables (principle of output harmonization). Not only is a total household income available in the data set, but also individual income on personal level. This allows for analysis on the general question of **how apt the assumption of sharing of income is**. Furthermore the **special module of EU-SILC 2010** dealt with decision making within a household.

Since inequalities between women and men are of general social concern and with regard to income are also evident in other measures, e.g. the Gender Pay Gap based on individual work income, we want to find ways to better depict the **reality of women and men as to what concerns their access to household income and their being affected by poverty**.

The following section presents some **analysis of the impact** of poverty measurement on poverty rates within couple households: Exemplary calculations with alternative approaches are presented and

compared to the "traditional" shared resources method. How does the assumption of shared income prove its worth against the reality of who earns how much and how partners pool their personal income?

To challenge the assumption of full income pooling we followed the approach of breaking down the so called household income in a pooled and an individual share, which was first realized with EU-SILC data by Ponthieux (2017, pp.183). "The first advantage of using this information is that it allows one to avoid making extreme assumptions, such as full income pooling or complete income separation. A second advantage is that, instead of assuming that all individuals adopt one or another type of arrangements as in most previous papers, it allows for a variety of individual behaviour – including different arrangements within different households." (p. 177).

The fundamental assumption to this alternative to the standard (EU-indicator-)approach is that the share of personal income, that is reported to be kept separate, is at the individual´s own disposition and should therefore not be assumed as being absorbed in a total household income by applying any equivalence scale. Additionally, there is a part of the personal income that is shared and therefore available to all members of the household. To estimate the share of pooled income for each member of the household it has to be adjusted to the size and composition of the household for taking into account the economies of scale resulting from shared consumption. The sum of personal income and pooled income results in an "individual modified equivalised" income that allows to depict intra household differences depending on the pooling regime applied.

We recalculated Ponthieux´s **personal equivalised income approach** for Austria, using data from the 2010 EU-SILC module on intra-household sharing of resources, which in addition to detailed income components on the individual as well and household level provides information on the household´s pooling regime, operationalized by the question (PA010) "What proportion of your personal income do you keep separate from the common household budget?" (see also chapter 2).

The sample consisted of 1.739 heterosexual couples, where neither of the partners had a negative personal income, information was gained from personal interviews and no missing value for question PA010 was detected. Households with dependent children 24+ years where excluded likewise as those with additional grown up household members aged 24+ years or households with more than one couple, to limit the number of potential decision makers in the household to two. Finally the weighted dataset allowed analysis for 442.911 couples.

In Austria full income pooling is the most common pooling regime among the couples surveyed: 46% of the respondents reported to keep none of their personal income separate from the common household budget. Only 1% report to keep all of their personal income separate and 7% report not to have any personal income. Results differ slightly whether there are dependent children in the household or not. Women report more often not to have any personal income (13% vs. 0.4% of men) and to keep all their personal income (2.5% vs. 0.2% of men). This information was used to calculate a coefficient to identify the individual contribution to the pooled household income, which stretches from 0% (all of the personal income is kept separately) to 100% (none of the personal income is kept separately). 75% of the respondents in the targeted couples mark a contribution of more than half of their personal income, 25% less than half.
By combining the partners' information a pooling regime could be identified for each couple: In one third of couples both partners pool all, in 21% both partners contribute the same share, in 18% the man reports to contribute a higher share and in 15% the woman reports to contribute a higher share.

Table 1: Pooling regimes in couple households in Austria

| Pooling regime | in % |
|---|---|
| Full pooling: both partners pool all | 32.8 |
| Partial pooling: both the same share | 20.6 |
| Partial pooling man higher share | 17.5 |
| Partial pooling woman higher share | 15.4 |
| No pooling: both partners keep all | 0.1 |
| Woman no income | 13.1 |
| Man no income | 0.4 |
| Total | 100 |

S: Statistics Austria, EU-SILC 2010.
Couple households in the dataset of the EU-SILC module 2010.

To compute an "individualized modified equivalised income" in a first step the personal income (sum of earnings, pensions, social benefits on personal level such as unemployment or disability allowances) is computed. To split it up in a personal and a pooled share it is then modified by the pooling coefficient. The common household income includes income from property, interests or dividends, inter household transfers including alimonies and social benefits on household level (e.g. family benefits); regular paid inter household transfers are deducted. To adjust the pooled income (personal income that is pooled by the couple + common household income) to the composition of the household it is equivalised by the OECD modified scale. In a last step the share of personal income kept separately is added to the equivalised household income for each partner. Children stay with their share of the equivalised household income.

Table 2 presents the relation between pooling regime and poverty risk and gives an overview of the computation for couples with different amounts of personal income and different pooling coefficients.

Table 2: Relation of pooling regime and poverty-risk in couple households with one child – exemplary calculations

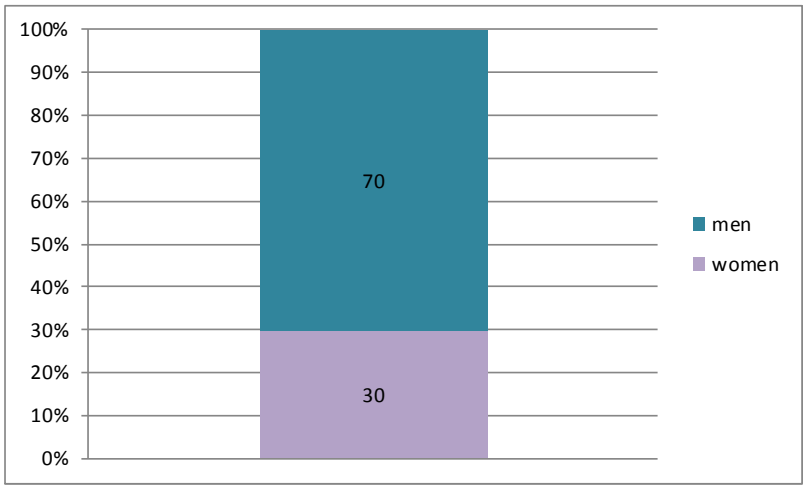
| | | Personal income | Household income | Disposable household income | Pooling coefficient | Private income | Personal income pooled | Household pooled income | Adjusted disposable household income | Modified equivalised income | At-risk-of poverty |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Pooling regime** | | pinc | hinc | dhinc= pincA+pincB+hinc | x | pincsep=pinc*x | incp=pinc-pincsep | phinc= hinc+incpA+incpB | dhinc_r= phinc+pincsepA+ pincsepB | equmod= phinc/eq+pincsep | equmod<60% of median of euqmod (=13.512) |
| **Scenario 1: partial pooling woman higher share** | Partner A male | 17.000 | 175 | 28.175 | **0,5** | 8.500 | 8.500 | 16.925 | 28.175 | 17.903 | not at-risk-of poverty |
| | Partner B female | 11.000 | 175 | 28.175 | **0,25** | 2.750 | 8.250 | 16.925 | 28.175 | 12.153 | at-risk-of poverty |
| | Child | | 175 | 28.175 | | | | 16.925 | 28.175 | | |
| **Scenario 2: partial pooling both the same share** | Partner A male | 17.000 | 175 | 28.175 | **0,5** | 8.500 | 8.500 | 14.175 | 28.175 | 16.375 | not at-risk-of poverty |
| | Partner B female | 11.000 | 175 | 28.175 | **0,5** | 5.500 | 5.500 | 14.175 | 28.175 | 13.375 | at-risk-of poverty |
| | Child | | 175 | 28.175 | | | | 14.175 | 28.175 | | |
| **Scenario 3: partial pooling man higher share** | Partner A male | 17.000 | 175 | 28.175 | **0,5** | 8.500 | 8.500 | 11.425 | 28.175 | 14.847 | not at-risk-of poverty |
| | Partner B female | 11.000 | 175 | 28.175 | **0,75** | 8.250 | 2.750 | 11.425 | 28.175 | 14.597 | not at-risk-of-poverty |
| | Child | | 175 | 28.175 | | | | 11.425 | 28.175 | | |
| **Scenario 4: full pooling** | Partner A male | 17.000 | 175 | 28.175 | **0** | 0 | 17.000 | 28.175 | 28.175 | 15.653 | not at-risk-of poverty |
| | Partner B female | 11.000 | 175 | 28.175 | **0** | 0 | 11.000 | 28.175 | 28.175 | 15.653 | not at-risk-of poverty |
| | Child | | 175 | 28.175 | | | | 28.175 | 28.175 | | |

S: Statistics Austria 2018.
Pooling coefficient x: share of personal income that is kept seperately by one of the partners.
eq: consumption equivalent according to Eurostat Scale - eq for a couple household with one child = 1.8
At-risk-of-poverty: threshold of 60% of median of modified equivalised income is computed only for couple households in the dataset of the EU-SILC 2010 module.

The partners´ individual modified equivalised incomes are not necessarily the same, as assumed in the standard approach but depend on the individual personal income as well as on the pooling regime applied in the specific household. Only if both partners pool all, equivalised incomes are the same for the man and the woman.

This approach aims to explore income gaps between partners to challenge standard indicators on poverty. Figure 1 shows the distribution of partner´s personal incomes for couples in the dataset of EU-SILC module 2010.

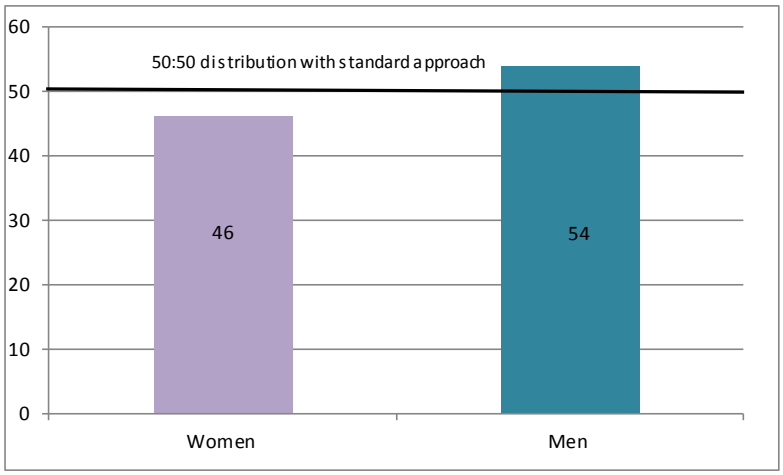
Figure 1: Intra-household distribution of partners' personal income (in %)




S: Statistics Austria, EU-SILC 2010.
Couple households in the dataset of the EU-SILC module 2010.

As gender gaps are no longer hidden behind the equivalisation of all income components they can be observed in the equivalised income as well which leads to the possibility of estimating a ”modified risk-of-poverty” on the individual level.

Figure 2: Intra-household distribution of modified equivalised income between partners (in %)




S: Statistics Austria, EU-SILC 2010.
Couple households in the dataset of the EU-SILC module 2010.

The computation of a modified risk-of-poverty uses the common methodology of the at-risk-of-poverty threshold equal to 60% of the median of the distribution of equivalised incomes, here modified equivalised incomes. Table 3 shows the poverty risk of women and men in the given sample with the Eurostat standard approach and with an adjusted at-risk-of poverty threshold as well as for the alternative approach developed by Ponthieux et al.

Table 3: At-risk-of-poverty by sex I

| | At-risk-of poverty in % | |
|---|---|---|
| | **Men** | **Women** |
| Standard approach | 8.0 | 8.0 |
| Standard approach with adjusted at-risk-of poverty threshold for couple households | 9.8 | 9.8 |
| Personal equivalised income approach | 9.2 | 17.2 |

S: Statistics Austria, EU-SILC 2010.
Couple households in the dataset of the EU-SILC module 2010.

Whereas in the standard approach the risk-of-poverty is the same for both partners the alternative calculations show a gender ratio of the modified poverty risk (women/men) of 1.9.

Ponthieux´s approach opens new possibilities to assess gender inequalities within the household. For the moment they are restricted to heterosexual couples and do not consider other household comparisons with several adults. Neither does it satisfactorily assess the poverty risk for children, as it is not forseen that they “receive” a share of the parents´ personal income additional to the equivalised part. A next step could be to look at the impact this difference between poverty risks for men and women in couple households has on total poverty rates by gender, i.e. including single households where there is no necessity to find a new methodology and where we already see considerable

differences between women and men.[3] Details concerning the accumulation of income components on the individual or the household level (e.g. alimonies received by only one partner) are open to discussion as well to get to a more precise estimation of the personal versus the household income. Last but not least this methodology is at the moment restricted to EU-SILC data, more precise to the dataset of the 2010 module. The knowledge of the pooling system applied in the household is crucial to the calculations, to make this approach universally applicable an equivalent to this has to be developed.

Another attempt to disaggregate the common at-risk-of-poverty indicator for a special research issue, namely in-work-poverty, was presented by Heuberger and Knittler (2018). In their approach the authors show a possibility to measure the individual poverty risk within the household context. The assumption of economies of scale and the household context stays central for the definition of the poverty risk but is no longer brought in by the equivalisation of income. It is rather **an alternative risk-of-poverty threshold** that is adjusted per household and takes into account the number of people contributing to the household income. In contrary to the standard approach the at-risk-of-poverty threshold is applied to a newly computed **individual personal income** for each member of the household.

To compute this alternative at-risk-of poverty threshold the authors use the common at-risk-of-poverty threshold of 60% of median income to reset the equivalisation by multiplying it by the factor resulting from the OECD´s equivalent scale for each household. Adjustment to the household's composition is made by division through the number of earners in the household. This threshold marks the minimum income each grown up member of the household has to obtain on an individual level not to be identified as at-risk-of-poverty. According to the number of adults and dependent children living in a household, results differ to the standard approach; for single or one parent households there is no difference in the adult´s results.

To compute the individual income earned income as well as social transfers and income from social security on the individual level are taken into account in a first step. Then to estimate the individual share of the income components on household level their sum is divided by the number of adults in the household. The sum of earned personal income and the share of household income for each adult are compared to the household specific poverty threshold to identify whether a person is at-risk-of-poverty or not.

For their specific group of interest, working adults, Heuberger and Knittler found out that especially for women there is a great difference in the poverty risk when applying their alternative approach. Throughout all sociodemographic groups they are reported to have a higher in-work-poverty risk than men (and as in the standard approach), whereas in the standard approach the risk of in-work-poverty is approximately the same for both sexes (2018, p.240). Combining both concepts allows them to understand financial dependencies within a household, for example when a woman is at-risk-of-poverty with her individual income but not with the equivalised income, which assumes, that she is financially supported by her partner or other household members.

We applied this approach of an alternative at-risk-of poverty threshold to the sample of EU-SILC 2010[4] in a very basic way, using the personal income and the household income as computed by Ponthieux. As the dataset comprised only households with couples (and maybe dependent children) the at-risk-of-poverty threshold was in all cases multiplied by the sum of the household´s equivalent weights and divided by two. The personal income was complemented by the household income divided by two, which does not consider the existence of children in the household. (Table 4 gives an overview of the calculation.)

[3] Calculated with data of EU-SILC 2010 the risk-of-poverty rate in single households in Austria is 25%: for men it is 20%, for women 28%.

[4] Thus using the same data as in the calculation according to the first model above for the sake of comparability of results.

Table 4: Individual poverty risk within the household context – exemplary calculations

| | | Personal income | Household income | Individual personal income | At-risk-of poverty with alternative threshold |
|---|---|---|---|---|---|
| | | pinc | hinc | ipnc=pinc+hinc/2 | ipinc<threspov60 * eq / 2 (=11.134) |
| **Houshold 1** | Partner A male | 17.000 | 175 | 17.088 | not at risk of poverty |
| | Partner B female | 12.000 | 175 | 12.088 | not at risk of poverty |
| | children | | | not considerd | |
| | | | | | |
| **Household 2** | Partner A male | 17.000 | 175 | 17.088 | not at risk of poverty |
| | Partner B female | 9.600 | 175 | 9.688 | at risk of poverty |
| | children | | | not considerd | |

S: Statistics Austria 2018.
threspov60 = at-risk-of poverty threshold at 60% of median of the equivalized income according to Eurostat Definition for EU-SILC 2010.
eq: consumption equivalent according to Eurostat scale - eq for a couple household with one child = 1.8

Results show a far higher at-risk-of-poverty-rate for women than for men in couple households, regardless of the number of dependent children. This seems reasonable as there are 13% of women and only 0.4% of men who do not have any personal income. In terms of Ponthieux´s approach, non-pooling is assumed for all households here, which means that individuals are expected not to profit from their partners income at all. The gender ratio (women/men) of this alternative threshold approach rises to 13.5 versus 1.9 for the calculations according to Ponthieux. Focusing on households where both partners have a personal income the gender ratio is at 12.2.

Table 5: At-risk-of-poverty by sex II

| | At-risk-of poverty in % | |
|---|---|---|
| | **Men** | **Women** |
| Standard approach | 8.0 | 8.0 |
| Individual personal income approach and alternative threshold | 2.5 | 33.8 |
| Individual personal income approach and alternative threshold for couples with personal income >0 | 1.9 | 23.2 |

S: Statistics Austria, EU-SILC 2010.
Couple households in the dataset of the EU-SILC module 2010.

This approach shows, that there is a possibility to combine household and individual perspective even when focusing on individual incomes. Established for the context of working poor it is a supplement to existing indicators. To measure income gaps within households in general, further development could additionally consider the number of children in the household for the computation of the threshold as well as for the income situations of adults. Maybe the construction of an adjustable at-risk-of-poverty threshold for households in different living conditions apart from the one using the Eurostat scale could also contribute to further results.

These first attempts to individualize poverty figures show that there are conceivable adjustments to existing measures on several levels: For the purpose of gaining an in-depth-look at the intra household distribution additional questions on the pooling regime and detailed information on income

components can improve survey tools. On the output side attention can be paid to alternative instruments and calculations for equivalisation as well as to the refinement of common indicators for special sociodemographic subgroups. In terms of results, there is the possibility that findings and analytical deductions will differ according to the approach chosen. Therefore the application of newly developed poverty measures should be well adjusted to the respective research issue and empirical problems. Analysis of differences in results gained from existing compared to alternative measures can enrich the discussion about their relevance and contribute to further development.

## *4. Recommendations: How to better measure disaggregated poverty*

As our literature study showed since the 1980s theoretical economical as well as recent empirical studies have **rejected income pooling**, finding that earned income and social transfers received individually by the partners of couple families significantly affect demand patterns when total income (or expenditure) is held constant. Also for the absolute living standard there is strong evidence that not necessarily all members of a household have the same material possessions, the same possibilities to socially and culturally participate in society.

Our knowledge about the living standard of persons, especially on low living standards and poverty, is – thanks to many national and international initiatives (e.g. the Stiglitz-Sen-Fitoussi Commission, the World Bank Commission on Global Poverty, the Europe 2020-strategy, the Sustainable Development Goals of the UN) constantly rising. It has been understood that it is not enough to know about the economic power of a society but to look at **distributions of wealth and living situations within the population**. We appreciate methodological and empirical work which is recently going on in many countries to develop or further develop data collections to **measure households' living standards**; some – also in non-EU countries – built after the example of EU-SILC.

For reasons of measurement and comparability – e.g. when following the Canberra handbooks' recommendations on household income measurement – the **measurement unit often is the private household**. This conceptual decision has many advantages (e.g. comparability, relatively easy to collect) but also disadvantages (e.g. the situation of persons in collective households or not registered persons is lost).[5] When there is any chance to enhance the data collections by individual information we strongly plead to **think of individual distributions within households already in the design phase of the questionnaires**. These considerations can be directed 1) at material living standard of persons in households and 2) at income distributions within households.

1) EU-SILC, is a good example going in this direction of **measuring absolute living standard on a personal and household level**, if only in the last years: Individual items to measure material deprivation on the personal level for all adults have gradually been introduced since 2009 to accompany those established indicators on the households level. The EU material and social deprivation indicator, based on the new items has been approved in 2017 by the Indicator Sub-Group of the EU Social Protection Committee. It includes five items at personal level retained after a thorough study[6]. First in-depth analysis of the impact of these individual items of material deprivation on deprivation rates for men and women have been done be Guio and Van den Bosch (2018) and have been summarized above.

The next step in EU-SILC was to consider also the **special situation of children**. It was agreed that it was both not enough to have only items relevant for the living situation for the total population and to measure them only on the household level. While on the first point, the design and validation of child specific items (e.g. outdoor leisure equipment, go on school trips) much progress has been made, we think that what concerns the measurement issue we are not there yet. In March 2018, a new indicator on child deprivation (the child deprivation rate), based on the child deprivation module of 2014 was agreed at the EU level and will be included in the portfolio of social indicators. However, here we still face some of the measurement problems that have been – rightly as we think – criticised for the the measurement of deprivation at household level: If in a given household at least one child lacks an item as surveyed from their parents, it is then assumed that all the children belonging to that household lack that item. So there is no possibility to disaggregate child deprivation for households with more than one child. Thus the specific situation of boys and girls or by age of the children is lost due to the question design. We would therefore further **recommend to test if at least some of the child specific deprivation items can be measured at the individual level**.

[5] The focus on households as a consumption unit is, however, not found all around the world: the US poverty measures shows a more strict approach to define a family (consisting of a married couple or any related family member) as the analysis unit. Household members not related to each other are counted as poor or non-poor according to their personal income. Cf. United States Census Bureau https://www.census.gov/topics/income-poverty/poverty/guidance/poverty-measures.html

[6] Measuring material deprivation in the EU: Indicators for the whole population and child-specific indicators - http://ec.europa.eu/eurostat/documents/3888793/5853037/KS-RA-12-018-EN.PDF

2) For **having an empirical basis to disaggregate household income** and assume an individual living standard of household members we have seen that it proves worthwhile to have some measure that gives insight into the "black box" of the household and shows how individual income components are treated. This can be – as seen in the example of the work by Ponthieux (2017) – a relatively simple proxy **measure on the proportion of personal income kept separate from the common household budget.** Plus, it would be good to know **how common household income components (e.g. family transfers) are split**. Here – as we have shown in our own calculations in chapter 3 – much can be done on a modelling basis, but the more empirical evidence there is and the less you have to work with assumptions the better. It is in our view not necessary to have very detailed information on how families treat their household income in every data collection – although it is a very personal decision and by modelling we for sure loose some of the variance that exists in reality. But it could also be a possibility to **further test and develop several pooling/splitting assumptions with special data collections dedicated to that topic and apply them to general income surveys where necessary**.

Any other dimension of potential inequality could be explored as regards the sensitivity to gender differences – e.g. wealth including the ownership of a household's dwelling (and the impact of adding/leaving out imputed rent in the household income calculation). Other factors of well-being and living conditions like time use, satisfaction, personal networks and psychological measures are usually gathered for individuals and are therefore not so problematic for profiles of living standard.

Also, for both strands – the individual absolute living standard and the individual income drawn from the household income – there are for sure some **measurement issues worth exploring**. The issue of **interviewing all the relevant individuals in the household** – not only one household respondent – is a basic starting point; it may be regarded as costly but collecting information at the individual level is only the way to get valid data on the individual situation. As summed up by Krieger (2018) many studies have pointed to the difference that can be made by the **interview situation**, e.g. if a partner is present during the interview or not. Also the issues of proxies, missing information of one partner, mode effects, interviewer effects (e.g. the interviewer's gender) could be explored. **Questionnaire design issues** are also of uttermost importance to guarantee common understanding of questions and answer options between respondents.
Our recommendation is in line with **World Bank Recommendation 13** (cf. Atkinson/World Bank 2017, p. 114) to **disaggregate poverty figures by gender and age**. Although we have put an emphasis on the dimension of gender inequalities within households in this short paper we agree that many more breakdowns by individual characteristics might be worth exploring. Especially as to what concerns the **situation of children within their households** it might be interesting to **distinguish different household types** by age and number of children and/or adults and look into their situation. We will therefore very keenly follow up on what Burchardt and colleagues are recently working on to learn more on what different households can do to provide for their children. Also it would be worthwhile to test the hypotheses some studies have already confirmed that children appear to do better when their mothers control a larger fraction of the family income (Thomas, 1990; Hoddinott and Haddad, 1991).

Lastly, we are not in the position to give practical recommendations on taxation and social systems. Nevertheless, our findings could be directly **policy relevant** and may point in the direction of favouring individual transfers in the social system over social transfers that are targeted at the household level. When the aim is not to reinforce (gender) inequalities within households and under the assumption that the earned income of women is still generally lower than that of men, it has to be considered **who the recipient of a social transfer is within the household**: Lundberg, Pollak, and Wales (1997) reported the effects of a policy change in the United Kingdom that transferred a substantial child allowance from husbands to wives in the late 1970s. They find strong evidence that the redistribution of income within households caused by this policy change lead to relatively greater expenditures on women's goods and children's goods. This could according to them be interpreted as a further validation of rejecting the pooling hypothesis.

***Recommendations in short***

1. The question of intra-household distribution is usually ignored by standard poverty measures. **The assumption of equal sharing hinders the accuracy of poverty measures if disaggregated by social characteristics.**We therefore recommend to do **poverty analysis adding any information on income distributions within households available**.
2. Availability of **information on income distributions within households** is mostly the case for countries using register income information but need not be restricted to those. The precondition is that **income is collected on a detailed level and income components can be attributed to household members**. If that is not the case, survey questions on the within-household distribution of household income have been tested that work quite fine. We suggest this method based on personal and household income components for any **analysis that aims at learning about social transfer and wage systems**.
3. As a second option to disaggregate poverty figures we propose the collection of **items on material well-being and deprivation on a personal level within the household**.This option may be more prone to **subjective preferences and behaviour patterns** but might be a good solution for NSIs with a strong tradition and data on consumption (and when there is a possibility to disaggregate these data within a household).
4. If possible a **combination** of income and absolute material living standards is preferable – we expect that **information on material living standard items might be very useful to validate the assumptions of within household income distributions**.
5. Our summary of current practices showed that either way of **collecting and analysing personal income and/or personal material living standard is feasible** within all kinds of social surveys like EU-SILC with relatively little additional effort. We recommend that NSIS do **sensitivity analysis for poverty profiles** to find out about the exact differences by sex (or any other break-down) according to methodological and conceptual choices (full vs. partial pooling vs. full separation of resources).
6. **We promote the presentation of individual poverty rates for men, women, children or other socio-demographic subgroups based on a redefined methodology overcoming the very strong and restrictive assumptions of within household equality as this will shed a different light on those groups and lead to refined social policy making.**

## 5. *Literature*


Burchardt, T. and Karagiannaki, E. (2018). Intra-household inequality and material deprivation and poverty in Europe. Presentation for the Social Situation Monitor Seminar "Multidimensional Poverty in the EU", March 2018. Additional information on the project from the LSE Website:

http://sticerd.lse.ac.uk/case/_new/research/Intra-household/

Heuberger, R. and Knittler, K. (2018): Armut und Erwerbsarbeit – ein neuer Indikator. In: Statistische Nachrichten 03/2018, pp 226-241.

Jenkins, S.P. (1991). Poverty measurement and the within-household distribution: Agenda for action. In: Journal for Social Policy, Vol 20, No. 4, pp 457-483.

Guio, A.-C. and Van den Bosch, K. (2018). Deprivation among couples: sharing or unequal division? Draft paper for the Net-SILC3 International Conference Athens, April 2018.

Hoddinott, J. and Haddad, L. (1991). Household Expenditures, Child Anthropometric Status and the Intrahousehold Division of Income: Evidence from the Cote d'Ivoire.

Krieger, M. (2018). Literature Review: Measuring Intra-Household Decision-Making. Unpublished working document of the UNECE Task Force on measuring household power and decision-making.

Lundberg, S.J., Pollak, R.A., Wales, T.J. (1997). Do Husbands and Wives Pool Their Resources? Evidence from the United Kingdom Child Benefit. In: The Journal of Human Ressources XXXII/3. pp 463-480.

Mader K., Schneebaum A., Skina-Tabue M., Till-Tentschert U. (2012). Intrahaushaltsverteilung von Ressourcen. Geschlechtsspezifische Verteilung von Einkommen und Entscheidungsmacht. In: Statistische Nachrichten 12/2012, pp 983-994.

Ponthieux, S. (2017). Intra-household pooling and sharing of resources: a tentative "modified" equivalised income. In: Atkinson, A.B., Guio, A.-C., Marlier, E. (2017): Monitoring Social Inclusion in Europe. Eurostat, pp 175-189.

Mader, K. and Schneebaum, A. (2013). Zur geschlechtsspezifischen Intrahaushaltsverteilung von Entscheidungsmacht in Europa. Wirtschaft und Gesellschaft, 39 (3). pp. 361-403. Available at: http://epub.wu.ac.at/4867/

Thomas, D. (1990). Intra-Household Resource Allocation: An Inferential Approach. In: Journal of Human Resources, University of Wisconsin Press, vol. 25(4). pp. 635-664.

World Bank (2017). Monitoring Global Poverty: Report of the Commission on Global Poverty. Available at: https://elibrary.worldbank.org/doi/book/10.1596/978-1-4648-0961-3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