Application of poverty measures for determining compensations for bodily injury

Anna Jędrzychowska[1]

Abstract

The present paper is an attempt to discuss the possibility to use poverty measures for determining the amount of compensation for bodily injury. This type of compensations can be adjudicated in a variety of cases: damages from the employer for an accident at work, damages for occupational disease, damages from the perpetrator for detriment to health and life or for death in a traffic accident, etc.

In the author's opinion, it is necessary to find an instrument, possibly being a combination (a synthesis) of several minor ones, to aid courts when determining compensations adjudicated for bodily injury. This paper will discuss whether poverty measures, e.g. equivalence scales, the Foster-Greer-Thorbecke measures, the Watts index, and measures used by Central Statistical Office (GUS) and EUROSTAT, can be a part of this instrument.

1. Introduction

The first part of this paper will briefly present legal bases related to determining compensations for bodily injury. Then, basic instruments applied to research on poverty will be described. And the final part will discuss the possibility to use the findings of the research on poverty measurement in the area of determining compensations for bodily injury.

2. Legal bases of damages for bodily injury

The Polish Civil Code provides for regulations being an interpretation pursuant to which courts award compensations to parties injured in accidents and to their close relatives. They include ones for which the applicable principle assumes that a compensation is due provided that the life situation of the injured party or their family has significantly deteriorated after the accident. If the injured party has lost their total or partial ability to work or their needs have increased or their prospects for the future have decreased, they may claim an appropriate disability pension.

In the situation where a person dies as a result of an accident, members of their family are entitled to claims aimed to minimise the loss or damage connected with the tragic life situation in which they have found themselves and to mitigate pain related to the loss. Such

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[1] Wroclaw University of Economics, Komandorska 118/120, 53-345 Wrocław, Poland, anna.jedrzychowska@ue.wroc.pl

benefits include but are not limited to damages for significant deterioration of the life situation. If, after the injured party's death, their relatives' life situation has significantly deteriorated, they are entitled to damages for this state of affairs. The assessment accounts for all circumstances affecting the close relatives' living conditions, and deterioration of their situation regards mainly their worse current financial situation but also refers to the loss of the practical capacity to improve living conditions in the future. The "significant deterioration" assessment depends on the extent of the negative financial consequences of a close relative's death. When assessing significant deterioration of the life situation of the closest relatives of the deceased, all factors affecting the life situation of such persons need to be taken into consideration if they result in repercussions in the financial sphere.

Therefore, it is necessary to prove that the life situation has significantly deteriorated as a consequence of death. In order to prove this premise, evidence-related issues, that is proving that the life situation of the closest relatives of the deceased has significantly deteriorated, are crucial. Suitable damages should consist in determining the broadly defined difference between the financial situation of the inured party's relatives after their death and a hypothetical situation referring to the future status in which they would have been if the death had not occurred. It concerns financial aspects of deterioration of the life situation and other detriments to the household.

3. Selected poverty measures

The principal methodological problem faced when studying the phenomenon of poverty is seeking a cut-off value for a given characteristic of the standard of living of the population that would separate the poor population (that is those whose achieved standard of living locates below the value) from the rest of the society. Such defined (Rawls, 1999) value is called a poverty line or a poverty threshold. The relevant literature normally differentiates between absolute poverty and relative poverty. Absolute poverty is the absence of sufficient funds for meeting basic financial needs, such as food in the first place, but also purchasing medicines and satisfying housing and social needs (Kośny, 2012).

The absolute objective poverty line is determined by means of the category of subsistence minimum and social minimum. The subsistence minimum is such a content of the goods and services basket that conditions the satisfaction of merely biological human needs, that is it allows the person's survival and ability to work. The social minimum constitutes such a content of this basket that satisfies existence and consumption needs at a level that is low yet sufficient to ensure reproduction of human vital forces at each stage of an individual's

psychophysical development, having and raising children, and uninterrupted maintenance of ties with the society. Consumption below the subsistence minimum (or at this level for a longer time) can result in biological degradation of the human body, and in the case of the social minimum social ties between an individual and the society are weakened in the first place, which, however, does not pose a threat (at least initially) to his or her independent existence (Beskid and Deniszczuk, 1995). The basket of goods and services constituting the social minimum is "richer" than the basket defined for the subsistence minimum. Therefore, the social minimum is not treated as the poverty line in strict terms but as a line below which the risk of poverty occurs. Hence, it determines the so-called upper objective poverty line, in contrast to the subsistence minimum, which is considered its bottom, the sharpest, line.

This is because the financial status ensured thereby cannot be a barrier for participation in the work process and other forms of social life, which is permissible in the case of the subsistence minimum. Moreover, it has to fulfil the condition of maintaining social ties compliant with European standards employed when determining the poverty line. The content of the basket corresponding to the social minimum needs to be periodically revised due to changes in socioeconomic conditions in a given country. It is therefore obvious that when constructing such a basket, not only a greater scope of needs, but also a higher standard of their satisfaction, are taken into account. Additionally, what is equally significant is that the expenditure for satisfying needs at the social minimum level includes not only the expenditure for goods and services related to everyday consumption but also the expenditure for renewing resources of durable goods.

The most popular absolute lines used in international comparisons are the lines specifying the quantity of dollars allocated to a person a day (calculated in accordance with the purchasing power parity); based on an analysis of the poverty line in various countries all over the world USD 1 was adopted as the basic level (Ravalion et al., 2009). This type of an analysis shows poverty in the pan-European, rather than in the national, dimension. From the relative viewpoint, poverty rates in Poland do not diverge much from the new member states' average.

Long-term experiences in studying the economic position of households' budgets prove that the level of expenditure is a better measure of their affluence than the level of their current income. As a consequence, the average level of consumption expenditure of households is more and more often assumed in research as the basis for determining relative poverty lines. In the statistical sense, the relative poverty line is determined by a selected positional parameter of the distribution of a given economic category that illustrates the

standard of living of the society (in practice, exclusively in the financial aspect). Indicators informing about the income situation in households or the extent of their consumption expenditure are most frequently used for this purpose (Kośny, 2012).

In order to carry out research on poverty, it is important to conduct public opinion surveys on perceiving the attained standard of living. Leyden University elaborated the first method of determining the poverty line, i.e. the Leyden Poverty Line (LPL) and the Subjective Poverty Line (SPL). Apart from these two methods, another poverty line determination method was developed in the Social Studies Centre, the University of Antwerp, in 1977 – the Centre for Social Policy Poverty Line (CSP), also called – after its primary author's name – the Deleeck line. The basis for determining subjective poverty lines is carrying out polls (questionnaire surveys) or in-depth interviews in a group of respondents that is representative for a given community. In the LPL method, respondents are asked to attribute suitable income values to individual satisfaction (usefulness) levels (it is the so-called income assessment question). The SPL method, in turn, is based on the question about the minimum income necessary to fulfil basic needs, that is one that "makes ends meet" (the so-called minimum income question). The CSP method identifies the poor population based on the information about the declared minimum and actual income, as well as answers to the question about the analysed households' own assessment of their income situation (the so-called Deleeck question). First, individual lines are determined in those methods (for the examined individuals), which then provide poverty lines for the entire population and its particular groups as a result of the statistical aggregation process (Kośny, 2012).

The financial situation of families largely depends on their demographic structure. What affects the actually implemented consumption model is both the total income value in a household and the number of people to whom this income is allocated (Browning et al., 1994; Behrman 1997; Bargain et al., 2011).

Research on poverty normally allows for the number of people in a household and its impact on the consumption level. The income value allocated to one person can serve as the basis for comparisons between households and thus the basis for assessing whether a given household is poor or not. Due to the non-linear nature of relations between the number of people, the level of expenditure ensuring a similar standard of living, an artificially defined unit, called an equivalent unit, is adopted much more frequently. It usually corresponds to consumption of one adult person (or a couple). Then, relative changes in consumption are estimated in relation to this unit along with the growth in the number of people, and with their

ages usually taken into consideration. Generally, the relation between the number of people and their characteristics and the growth in costs of living is called an equivalence scale.

The scale defined with the formula is the cost function quotient of two household differing only in demographic characteristics. It is therefore a set of parameters permitting the measurement of the impact of the demographic composition of a household on its total costs of living. It is thought that the selection of an equivalence scale suitable for individual household types is as important as the proper definition of poverty (Deaton and Muellbauer 1980; Kośny, 2012). The equivalence scales that are most commonly applied for research on poverty are the normative type scales elaborated by the Organisation for Economic Cooperation and Development (OECD). The so-called OECD modified equivalence scale, according to which weight 1 is allocated to the first adult in a household, weight 0.5 – to every subsequent member of this household at the minimum age of 14, and weight 0.3 – to individual children (persons under 14), is used in Poland (Szulc, 2009). What is an advantage of this scale is its interpretational simplicity, unchangeability over time, and general applicability, which considerably facilitates international comparisons, whereas its drawback is arbitrariness, as a result of which it not always corresponds to the actual consumption of households in a given country. The EUROSTAT methodology determines the relative poverty line at the level of 60% of the equivalent income median.

Next scale is most commonly employed in international comparative studies, e.g. Luxemburg Income Study LIS scales. Contrary to OECD scales, LIS scales do not allow for ages of the household members. Moreover, in the case of these scales the selection of the elasticity coefficient is problematic. The results demonstrate that the number of people in a household explains the changeability of the examined equivalence scales to an extremely high extent (Kot, 2000). In the research on population income and expenditure, 35 equal equivalence scales (Szulc, 2009; Panek, 2007) applied in different countries are used. Apart from normative scales (determined by experts) used e.g. by GUS, (Kośny, 2012).

An equally significant problem concerns the selection of an appropriate poverty measure and the analysis of its scope and depth. Specifying the poverty line permits the commencement of determining its scale. To this end, poverty rate and income (or expenditure) gap measures are used. The former measure informs about the portion of a given society that lives below the poverty line and about the poverty scale. It is calculated by referring the number of households considered to be poor to the overall population. The income (or expenditure) gap indicator, in turn, defines poverty depth, that is it provides an

answer to the question about how much the average income (or expenditure) of a poor household are lower than the value assumed as the poverty line.

The simplest poverty measure is the extent of poverty P_0. It specifies the percentage of poor people in the population, while it ignores inequalities inside the group of the poor and income levels in this group. Despite the limited scope of information brought by this measure, it is most commonly employed in poverty analyses due to the simplicity of its interpretation. The income gap measure P_1 which describes the poverty depth, is slightly more expanded as it permits the assessment of the average difference between income and the poverty line with the assumption that this difference is zero for households that are not poor. The third measure – poverty severity P_2 enables not only the assessment of the distance of the poor from the poverty line but also income inequalities between the poor (Panek, 2007; Kośny, 2012):

$$P_\alpha = \frac{1}{N} \sum_{h=1}^{N_u} \left(\frac{z - y_h}{z} \right)^\alpha$$

where N means population size, N_u – the number of the poor, it determines the poverty line in this population, y_h – income (usually equivalent income) of a household h, and $\alpha \geq 0$ is a parameter. The enumerated measures, belonging to a broader class of Foster-Greer-Thirbecke poverty measures (Ravalion and Chen, 2003), are popular in Polish and international research, particularly in official statistics. However, an alternative poverty measure – the Watts index – is used more and more often (Kraay, 2006; Essama-Nssah and Lamber, 2006):

$$W = \frac{1}{N} \sum_{h=1}^{N_u} \ln \left(\frac{z}{y_h} \right).$$

With appropriately expanded set of postulated properties, the Watts index is the only poverty measure fulfilling all theoretical requirements (Rawls, 1999). Additionally, the Watts index allows the simultaneous inclusion of the percentage of the poor in the population and the inequality level in income distribution among the poor, whereby it is particularly useful when analysing changes in poverty.

Contemporarily, the multidimensional nature of poverty is emphasised increasingly more often (Bourguignon and Chakravarty 2003). Apart from financial poverty, other aspects affecting the functioning of an individual in the society are also taken into account. One of the most popular solutions is *Multidimensional Poverty Index* (MPI), proposed by Alkire and Santos (Alkire and Santos, 2010) and constituting the basis for assessing multidimensional poverty in the *Human Development Report* (UNDP 2010). It takes into account three basic dimensions: health, education and standard of living. Another example of this type of analysis

is the assessment of the social exclusion level carried out as part of the Social Diagnosis (Kośny, 2012). It distinguishes four exclusion and exclusion risk areas, namely physical (e.g. disability), structural (e.g. moving to the country), normative (e.g. solitude), and financial (e.g. unemployment) exclusion.

The methodology of research on poverty is an object of continuous interest of researchers all over the world, who are seeking increasingly better methods for its measurement. The criteria to be met by a "good" poverty measure, and even a range of axioms, have been formulated. And although individual methods of measuring this phenomenon are becoming more and more precise, the assumptions on which they are based, their drawbacks and advantages, cannot be forgotten.

Conclusion

In Poland, it is the Institute of Labour and Social Studies in Warsaw that determines the subsistence minimum and the social minimum for the purpose of research on poverty. The social minimum has been calculated in empirical research already since 1981, while the subsistence minimum was measurably specified for the first time as late as in 1995, and is also provided in empirical research. In September 2013, the social minimum for a single-person household amounted to PLN 1,060 and for a two-person household (in total) – PLN 1,760. For a couple with a small child it is PLN 2,788, and with a child over 14 – PLN 2,630. These values are publicised. Hence, they can be used in jurisdiction in the process of awarding compensations, yet it should be borne in mind that due to the compensation nature of damages their amounts have to present a noticeable economic value to the injured party. This means that they cannot be a measure for damages but they are only supposed to help decide whether a given household is below the social minimum or the subsistence minimum after the accident. They can also be an instrument for proving that the situation of a household has improved in terms of finance (budget). An example of such a decision can be the case of concerning damages after a son and a brother died in a traffic accident[2]. According to the court, the boy's death resulted in deteriorating his parents' life situation but this deterioration was not high enough to state that it was significant. After their son's death, the spouses' situation was not drastically upset in the financial aspect. In fact, the only real detriment was lost income in respect of a business activity. The spouses pursued it with their son's help and after his death they were unable to continue it on their own. However, it was

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[2] Judgment in case I ACa 1373/12 [2013] Łódź (this information about case is from website with all case from Polish courts – http://orzeczenia.ms.gov.pl

stated that this activity was marginal. One more objection can be raised to measures based on baskets of goods, namely changes in basic household needs, where the party injured in an accident is a person undergoing long-term treatment. In such a case, medicines and treatment costs are among the necessary supplementation of the basket of goods for such a family.

The two above indicators are, however, imperfect also in terms of the equal consumption level attributed to each household member. Equivalence scales, which – apart from the total income – allow for its distribution among the family members in accordance with demographic characteristics, seem to be more applicable here. The equivalence scale for a household with a given demographic composition informs how many times its income needs to change (decrease or increase) so that it can achieve the same consumption level as the reference household. The court's knowledge gathered in the course of the proceedings is sufficient to apply, for instance, the pan-European OECD scale. When using this measure, efforts need to be taken to determine the family income and structure before and after the accident in a reliable manner. Based on a comparison of these two values, deterioration (or improvement) of the financial situation in the household and the size of this change can be stated. The usefulness of this measure can be illustrated by the case regarding the death of children in a traffic accident[3]. The deceased siblings contributed to providing for the family: the daughter took care of the house as well as of the grandmother and the mother, while the son helped in household chores. After his daughter died, the father had to resign from work and take care of the ill. The family's financial situation has become tragic: they now live at the poverty line. Their financial situation has deteriorated and it is virtually impossible that their living conditions will improve.

It cannot be expected that detailed poverty depth and structure analyses will be conducted in various Polish regions during court proceedings. However, the viewpoint that knowledge about areas being at particular risk of poverty can influence the court's opinion about the permanence of the poverty phenomenon that affected a given family after an accident seems to be grounded. An example of research to be used by courts is numerous social diagnoses prepared by GUS and publicised. A premise can also be derived based on the decision providing that: Due to the level of education and professional qualifications of the claimant and the current situation on the labour market in the region of the claimant's residence– the

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[3] Judgment in case I C 102/12 [2013] Siedlce

unemployment rate is higher there than the national average), it can be stated that the claimant will find it much more difficult to commence work anew[4].

It also needs to be emphasised that a broad – not only income-related – approach to poverty is necessary in jurisdiction. Two decisions can serve as an example here: in the case of a person who has become physically and mentally disabled after an accident[5] – helplessness, readaptation difficulties, problems with studying, loss of many ways of being active (sport, driving a car) and virtual exclusion from the labour market, and hence being doomed to living at the poverty line without prospects for significant improvement of this state of affairs; and disability pension for parents after their children's death in a traffic accident[6] – The deceased siblings contributed to providing for the family: the daughter took care of the house as well as of the grandmother and the mother, while the son helped in household chores. After his daughter died, the father had to resign from work and take care of the ill. The family's financial situation has become tragic: they now live at the poverty line. Their financial situation has deteriorated and it is virtually impossible that their living conditions will improve.

Therefore, the mentioned methods used in the *Human Development Report* (UNDP 2010) and in the Social Diagnosis should be appreciated. Yet, like in the case of poverty measures, in this case courts will probably rely their opinions on existing studies rather than apply the measure instrument and scales employed therein on their own.

It is important to select a proper poverty measurement method that would be adequate to the socioeconomic situation of the examined population. Moreover, particular measurement methods need to be appropriately selected for the analysed community that is they need to allow for its specificity. Therefore, it is believed that few poverty measurement instruments (e.g. equivalence scales) may be used in jurisdiction concerned with compensations, or judges may rely on expert studies prepared e.g. for GUS.

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[4] Judgment in case I C 1313/11 [2011] Białystok
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