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# A Bridge Life Insurance for Households—Diagnosis and Motives

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**Abstract:** Purpose: The purpose of this article is to describe the initial concept of household bridging insurance. Design/methodology/approach: In the first part of the article, an extensive literature review is made. This is made to show the research gap of insufficient protection of households against destabilization resulting from the lost personal contribution. Data shown in the text present the scale of the loss of lost unpaid work (based on household time budgets). The existing methods of managing this loss, based on social insurance, are also shown. Findings: This paper discusses the possibility of creating a new insurance. Its need is indicated (research gap, the scale of the problem, and insufficient protection by the social insurance system) and a preliminary outline of its structure is indicated (annuities character, dynamic sum insured related to the lifecycle of the household). The article contains the theoretical background of the new product, and introduces further research on the use of multistate models in the construction and calculation of insurance premiums. Originality/value: So far, studies concerning, inter alia, personal damage indicate the lost personal contribution (unpaid work for household members) and even try to evaluate it. However, no private insurance has been proposed to mitigate the destabilization resulting from the death of an adult household member. The article therefore proposes a new life insurance (a separated policy or as an extension option) that would help the household to return to normal operation after the death of one of the household members.

**Keywords:** life insurance; personal finance; human capital



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## 1. Introduction

The concept of a life-insurance policy for households (HHs) presented herein was developed from this author's research on compensation for personal injury damage. The postulated insurance product was designed in response to the inadequate representation of the demand for financial support for HHs following the demise of a main provider, as demonstrated by multiple studies. This identified gap suggests an ostensible need for a revised life-insurance product addressed specifically to HHs, one that will provide them with adequate financial backing following the demise of a main provider while they struggle to adapt to the new situation. The product is not designed to provide full damage compensation, but rather to furnish the affected HHs with material support to alleviate the resulting income gap, to purchase or arrange for replacement of the missing material and personal contribution, and to cover any urgent needs that may arise in the context of their loss (such as psychological support or temporary work absence on the part of the remaining providers).

Modern societies offer solutions to finance this type of personal loss. In Poland, the social security system is primarily responsible for this range of services. However, the social security compensations and payouts offered are calculated in relation to minimum subsistence levels of income (without any regard for the significance and financial standing of HHs). In addition, many services of this type only cover the formally recognized members of a family—this may present additional barriers to collection of the associated

claims given the rapid cultural and lifestyle changes observed in multiple segments of the general population. In cases involving wrongful death, additional compensation may be sought by families from the guilty party. In this context, the civil law provides for the extension of claim rights to all HH members, regardless of formal family status. Wrongful death claims are typically covered by liability insurance (obligatory for drivers, medical personnel, and employers) or from private assets held by the guilty party. Because it is difficult to perform a satisfactory evaluation of the economic effects of a HH provider's demise, claims often need to be presented before court, which can deter HH members from seeking a compensation.

The above arguments emphasize the need for additional forms of insurance for HHs. The proposed solution should fulfil the following key requirements:

1. Providing coverage for two adult providers of a shared HH, with payout claimed after the demise of one;
2. Payout in the form of monthly annuities for a specified period of time;
3. Payout adjusted to actual needs dictated by the HH's lifecycle.

This paper presents a diagnostic evaluation of the need for the proposed insurance product, along with a justification for this type of product.

## 2. Household Finances—A Literature Survey

For many years, HH finances have been a topic of avid scientific dispute. In its earlier stages, the principal focus was on evaluations of aggregate values of HH income, consumption, and savings (for details, see Frenette 2014). One of the key components in this type of approach is the Keynesian assumption of direct correlations between income and consumption levels (Keynes 1936). The assumption holds that, for HHs, the average propensity to consume falls as income increases, following a decline in marginal propensity to consume. In later years, the Keynesian approach was empirically tested by Kuznets and Goldsmith (Kuznets 1942; Goldsmith 1955), the resulting evidence for which gave rise to the so-called Kuznets Consumption Puzzle. The authors demonstrated that, as disposable income rises, the share of consumption in HHs remains fairly constant over a long period of time. Further investigations were conducted in response to the intense individualization and financialization of HHs. Here we should point out the ongoing discussion in the literature of the introduction of excluded social groups (e.g., Latin Americans, Asians) and children into financial services—Shim et al. (2009, 2010); Xiao et al. (2009, 2011). In addition, cultural and country differences in consumer financial behavior are also examined (Xiao and Fan 2002; Fan and Xiao 2011; Yao et al. 2015). They indicate a continuous increase in the phenomenon of financialization.

A concept of HH lifecycles was developed, formally attributed to Fisher and Harrod, expanded upon by Ando and Modigiliani (1957), and widely disputed by many other authors (e.g., North (1994)—limitations of consumption; Thaler and Shefrin (1981)—the economic theory of self-control; Friedman (1957)—the permanent income hypothesis; Duesenberry (1949)—relative income theory). Initially, two stages of the HH lifecycle were distinguished—gainful employment stage and pension stage. This model was later expanded to include the initial stage of education (Ando and Modigiliani 1957). Each of the identified stages focuses on specific financial decisions—education mostly involves human capital investment, while the gainful employment stage emphasizes resource accumulation (also indebtedness) and is followed by rentier orientation in the final stage of the HH lifecycle. This concept was contested by observations (Campbell and Mankiw 1989) that HHs formulate their consumption plans based on expected income and that interest rates have no bearing upon their consumption decisions. Relations between consumption and interest rates were also explored by Parker (1999) and Hsieh (2003). However, the concept was heavily contested by White (1978) on the basis that the actual levels of savings of HHs do not fit the above formula, as the second stage of a HH lifecycle should be associated with savings and the third with consumption. In response to understandably critical arguments of this nature voiced against the various HH lifecycle models, the current scholarly focus is

on the concept of a lifecycle framework as a broader construct that includes a multitude of possible empirical models that present the effective inter-stage patterns related to HH allocation of time, effort and resources. There is still discussion in the literature about how HHs use, throughout their lives, financial services (of various kinds) to achieve their goals (e.g., Campbell 2006, p. 1553; Tufano 2009, p. 229; Xiao 2016). Koijen et al. (2016) developed a pair of risk measures, health and mortality delta, for the universe of life and health insurance products. Research by Xiao and Yao (2014), Campbell and Cocco (2003), and Koijen et al. (2009) refer to changes in the demand for credit products along with changes in the life phases of HH. During the lifecycle, along with the investing time, the increase of financial wealth and the decrease of human capital, households will go through the value ladder, from investing growth stocks transition to value (Betermier et al. 2017). Research using Chinese data show mixed evidence. Some research asserts that the lifecycle investment effect is insignificant (Wu and Qi 2007), but other research shows it exists to some degree (Wu et al. 2010). At the same time, it is important to emphasize that no universal pattern can be identified as fitting all HHs (Browning and Crossley 2001), and that analytical evaluations of HH finances should include the following elements: HH approaches to financial decisions and the preferences of individual members, characteristics and specifics of various types of HHs (including the biological structure of HHs and their child-bearing desires), and the particulars of effective phases of educational and vocational development (for details, see: Ellis 1988; Pahl 2005).

A large proportion of the available literature has been produced in response to the observed changes in HH structure. For instance, Pahl (1989) explored the increased trend towards cohabitation and the related asset isolation dilemmas (see also: Vogler 2005). Other topics include the impact of the social security system upon financial decisions made in times of a temporary fall in HH disposable income (Browning and Crossley 2001), and the relationships between the biological structure of HHs and changes in consumption patterns (Browning and Mette 2000). An emphasis is also placed on changing female roles in HHs, such as the gradual transition from a patriarchal to an egalitarian model of role distribution, which is related to the rise in vocational aspirations among women. Consequently, numerous authors (Pahl 1995, 2005; Burgoyne et al. 2006) insist on the proper recognition of several HH models, depending on their specific features and the patterns of financial decision-making adopted.

Another important issue is the scientific approach applied to the topic of financial planning by HHs, as part of general financial management approaches (Kapoor et al. 2001; Brounen et al. 2016). Financial planning should apply a long-term perspective and cover all the categories of assets and liabilities held by HHs (Campbell 2006; Jajuga et al. 2015, pp. 19–26). Therefore, it is necessary to properly recognize all elements of HH revenue and expenditure (including labor income and non-labor revenues: social security benefits, income from capital, loans and credits, endowments etc.). The effective HH revenue structure is a combination of fixed income (such as labor), periodic revenues (temporary social benefits), and incidental income (inheritance). Analyses of income in the context of financial planning should properly identify those HH activities that have a direct impact on the level of revenues. These may include the level of education (Cooper and Zhu 2014; Walker and Zhu 2013) or place of residence (Nelson and Patton 1990; Mullet et al. 1990; Gohmann et al. 1998). Inevitably, HH income is also influenced by external factors that include globalization processes (for their direct impact on national economic growth—United Nations 2012), demographic changes (for their strong impact on labor markets—Kowal et al. 2016), and the operation of social security systems (Kawiński 2016). Labor income, however, is highly susceptible to factors of a random nature. A good illustration of this can be found in the catalogue published in 1944 by the International Labor Organization (International Labour Organization (ILO) 1944), which lists the following risk factors: maternity, sickness, death of breadwinner, old age, unemployment, invalidity, and emergency expenses. This cohort of studies also extends to the context of pension/retirement income (Blau 2008; Laitner and Silverman 2005), redrawing attention

to the already emphasized significance of HH lifecycle stages for financial planning in the strict context of HH income. These revenues are counterbalanced by HH expenditure and liability. These can be divided into fixed expenditure (current consumption needs and living expenses), periodic dues (cost of child upbringing and education, healthcare and medical expenses) and incidental expenses (decision to buy a new car—regardless of whether it is planned or dictated by unforeseen circumstances). The structure and level of expenditures is influenced by HH needs. These may be expressed on a micro-scale (for instance, gender, HH lifecycle phase, HH biological structure, place of residence, health condition of HH members, education, social status, income level), and as part of a macro dimension (e.g., pricing of commodities and services, national economic growth, climate and geographic conditions, culture and social factors, market information) (Żelazna 2002; Xiao and Tao 2021). Analyses of HH finances should also strive to determine levels of individual and shared consumption (Jędrzychowska et al. 2018). The impact of the biological composition of HHs and the HH lifecycle is revisited in a later section of this paper.

The two categories of HH finances identified above—revenue and expenses—should be supplemented by another group of factors, namely HH resources. The importance of this category relates to the use of resources for achieving HH goals, such as the desire to improve living standards. The available resources also help HHs maintain financial liquidity under temporary financial duress or a fall in income. It must be noted in this context that certain types of HH resources are not easily transferable (immovable resources are one such example). Aside from these, HH resources may include financial reserves, consumer goods (furniture, home appliances, vehicles, and apparel) and immaterial resources—mainly in the form of human capital. In general, literary sources associate human capital with the ability to generate revenue (Goldsmith 1983; Baek and DeVaney 2005). The current paper, however, requires a broader perspective on the immaterial aspect of HH resources—one that offers proper recognition of the individual effort of members expressed through labor and service for the benefit of the HH, also referred to as a personal contribution.

Underlining the insufficient recognition by the scientific community of the topic of HH resources (including unpaid work for HH), this author would like to refer to the report of the Munich Center for the Economics of Aging (Hanemann and Johannes 2020). This report (using SHARE data) discusses extensively the survivor pension programs and highlights the risk of poverty while being a widow or widower. However, it also fails to attempt to assess the value of the loss of personal capital and the organizational destabilization that results from a partner's death.

The utility of measurable indices of HH production output has been explored for decades, both in domestic and international studies, albeit solely in the context of national accounts. An emphasis is placed on the fact that personal effort from HH members presents an important contribution to the national GDP. This approach focuses on the macroeconomic scale, disregarding HH finances. Postulates from this segment include the introduction of extended national accounts, developed by a specialized Eurostat task force, to incorporate calculations of the non-marketable production of HHs as part of regular public statistics (Varjonen and Alto 2006).

As observed by Kuznets (1995) and Clark (1958), GDP values are greatly understated if formal calculations fail to recognize income in kind generated for the benefit of HHs by their members. Female scientists Walker and Gauger (1975) were the first to stress that the economic value of the female contribution to HH production is drastically underestimated in conventional statistical analyses, even though approximately two thirds of HH duties are delegated to female members, and contrasts with the observation that HH duties constitute between 60 and 80% of total HH production output value. In her analyses, Folbre (2006) evokes the term "care economy", with its key component of care work. This type of work expresses both the market and non-market value of services and labor rendered for the benefit of the HH and, as such, should be analyzed in parallel with other forms of HH production as it contributes to the general improvement of welfare. The significance of reliably estimating all the elements of production and the need to include them in

formal social and economic analyses have been stressed, among others, by Stiglitz et al. (2009). In a report produced at the behest of the President of the French Republic and the European Commission, the role of HHs as non-market producers is clearly recognized. This assumes that the apparent lack of market value does not preclude specific elements of the non-marketable production of HHs from being recognized as sources of otherwise tangible value. The above report also observes that, regardless of the volatile character of current economic conditions and social patterns, numerous tedious tasks that may safely be delegated to third-party market providers continue to be performed by HH members. These include, among others, home renovation, childcare and senior care, and meal preparation.

Invaluable input into the ongoing debate on the methods and (most of all) the need for an effective evaluation of the personal contribution of each HH member can be gained from research on compensation for personal damage claims. This segment of research emphasizes that these services constitute "unpaid (but still productive) household work" (Greenwood 1996, p. 89). Tinari deserves a special mention here for his extensive output on the subject (Tinari 1998, 2005, 2011a, 2011b) and for a compendium of the state of research (2016, as editor) on methods and prospects for personal damage compensation (in a broad sense of the term, i.e., not reduced to claims of personal loss). For the purposes of this paper, the most instructive observations are provided in chapter 10 of the above, which is devoted to a valuation of lost HH services and offers a list of prime elements that require proper consideration in this context, namely: categories of lost services, the volume and range of such services, and the estimation of their joint value. Categories invoked in the context of HH services include (without limitation) regular home maintenance, such as cleaning, shopping, and washing (Ward and Krueger 1994, p. 95), but also those of a more social dimension that are related to specific HH roles. These may include such values as sharing pastime activities, offering advice, or even being present (children rest safely in the presence of a parent) and being available to offer help in need (analogous to the services of public officers on paid duty, who are remunerated for time on duty rather than the number of interventions). This subject was elaborated upon by Olson and Rodgers (1999) who drew a distinction between services for the HH and services of an emotional nature. Due to the compound character of this category of services, the valuation task is difficult and rarely employed in practice with respect to claims for compensation. In a survey administered to members of the National Association of Forensic Economics (NAFE), only 11% of respondents said they included a measure of companionship services, and 19% said they included valuation of guidance, counsel and/or advice services (Slesnick et al. 2013, p. 90). Moreover, the forms of such services (and time needed to perform them—this aspect is revisited in a later section) are extremely volatile. Thus, the need to provide childcare arises after childbirth, to be later replaced by needs of another type, such as educational support. Another problematic issue raised in the professional literature is that of estimating the true value of lost services. Does the time spent by a HH member on a specific type of service correspond with that of a paid worker employed for the task? Dulaney et al. (1992) highlight the difference between the time needed to perform a task and the actual amount of time devoted to its performance. The authors also stress that HH members are more likely to perform a task as a team, while paid workers tend to operate single-handedly (but are potentially more time-efficient). These reservations gave rise to the concept of direct production valuation (based on time spent on a task), which is in opposition to the concept of purchasable labor (with standardized task performance times). In contrast to the above, we provide evidence to confirm that valuation based on purchasable labor is decidedly lower (Cushing and Rosenbaum 2012, p. 49). Another important caveat invoked in this context is the observation that time required to perform a task may vary between different stages in the HH lifecycle. These may arise in relation to HH composition structure (with a baby in the house, it takes more time to prepare a meal), but also to the age of the performer, as the labor efficiency of seniors is markedly lower than that of younger persons (Ireland 2011). In addition, studies on compensation claims suggest that identifying the real beneficiaries of certain HH tasks may be problematic

(Martin and Weinstein 2012, section 631; Olson and Rodgers 1999, p. 260). However, this does not constitute a problem in the context of this paper as the postulated individual life-insurance product is designed to provide a fixed value of support for HHs, irrespective of the particularities of personal loss experienced by each of the surviving members. Each approach requires proper knowledge of the time spent by HH members on such tasks and the time required to perform them. This type of information can be obtained, for instance, from the American Time Use Survey (dating back to 2003), and by national statistics offices. Inevitably, such values are mere averages, with substantial disproportions observed for specific types of HHs. Nonetheless, they serve their role as points of reference.

The final issue under scrutiny is the problem of valuation. The professional literature offers two methods: opportunity cost and replacement cost (Ireland 1999; Ireland and Ward 1999). The first method emphasizes the fact that, following the demise of a member responsible for given tasks, the duty of their performance falls upon another member. The latter will, as a result, forfeit their opportunity for gainful employment, at least for the time reserved to perform said duties. The negative consequence of this approach lies in the fact that valuations of this type emphasize the acquisition power of certain professions (thus, an MD delegated to kitchen duty will receive a remuneration ten times that of a security guard). The opposite approach calls for a valuation based on the pricing of service substitutes offered on the market. Thus, cooking tasks are valued by catering wages, house maintenance by those of cleaning operators, and so on. Although the former approach does not entail the need for identification of tasks, but rather the amount of time spent jointly on those tasks expressed in terms of forfeited profit, the latter method requires a list of specific tasks, along with the times assigned to each task and their pricing. Periodic surveys administered to NAFE members (Luthy et al. 2015) indicate that, when working out the value of lost HH services, most respondents prefer to use the "cost of hiring one or more individuals to replace the particular services that were lost" (p. 66). This 50% response matched the response in 2003, leading the authors to conclude that "Clearly, this is one area where there is not necessarily agreement among all forensic economists, but opinions are remarkably stable over time" (p. 82).

Invariably, scientists analyze the role of life insurance in securing HH. For example, Harris and Yelowitz (2018), using the Health and Retirement Study, examine individuals whose spouses died during or soon after his or her peak earning years and find that sizable lump-sum life-insurance payouts do not significantly influence spousal well-being. Satrovıc and Muslıja (2018) show economic and demographic determinants that are used to predict the demand for life insurance for 150 countries during the period 2005–2010. Claims raised on lost HH service as a form of tangible loss befalling surviving HH members are not hypothetical: many researchers provide evidence of such claims being raised and successfully won before a court of law (c.f. Dulaney et al. 1992, p. 124; Boss 1999, pp. 295–96).

Members of HH can buy many types of insurance. A wide variety of experimental methods used in research about insurance demand has been researched by Jaspersen (2016). In his work, he reviews 95 hypothetical surveys and experimental studies. In a review paper, Harrison and Ng (2019) argue that theories of the demand for insurance products are well developed, but the empirical literature has gaps. A lot of the scientific work concerns private health insurance. The theory and evidence concerning selection in competitive health insurance markets are reviewed by Geruso and Layton (2017). They also discuss the standard policy tools used to address the problems it creates. Based on 45 studies from countries such as the United States, Germany, the Netherlands, and Switzerland, Pendzialek et al. (2016) focused on a systematic review of empirical studies on price elasticity for health insurance. However, Saltzman (2019) estimated demand for health insurance using data from the California and Washington ACA exchanges. Using data from China Cheng and Yu (2019) found changes in demographic conditions associated with the one-child policy. Doiron and Kettlewell (2020) based their research on data from Australia. Panel research of young women showed that women purchase insurance in

preparation for pregnancy but transition out of insurance after they have finished family building. Nayak et al. (2018) studied customer preferences when purchasing a health-insurance policy. They also provided a total view of what customers expect from the health insurance industry and what the industry is prepared to provide. An overview of consumer financial issues in health care in the United States is provided by Sharpe (2016).

Additionally, a lot of work is related to disability insurance. Jimenez-Martın et al. (2019) explored the Spanish market and showed the relationship between economic conditions and disability insurance participation. According to data from the Swedish sickness insurance system, Engstrom et al. (2017) found that one of the interventions increases the flow to disability benefits by 20%. Armour (2018) presented research for the US Disability Insurance market and exploited a natural experiment in information provision. Researchers Le et al. (2019) also checked the US market and found that spousal coverage is associated with a reduced labor supply of secondary earners. The work on life insurance in HH financial management also includes Li and Trivedi (2016); Corea (2017); Han and Lavetti (2017); Soika (2018); Sloan et al. (2018); Briand and Lesueur (2019); Ali et al. (2019). These works concern the demand for insurance (factors shaping it) and are a discussion with classical models, e.g., the classical model of insurance demand proposed by Rothschild and Stiglitz (1976).

For subsequent deliberations, it is also necessary to emphasize another trend observed in professional literature, one stimulated by the growing significance of services purchased by HHs on the market (Chadeau 1985; Dąbrowska 2010). These are often associated with civilizational changes, such as the need to place more focus on leisure activities, and are typically realized through the delegation of certain other tedious services (both material and immaterial) to third-party providers (p. 249). One of the most potent examples in this regard is the growing servitization of elderly care, accompanied by the accretion of assets assigned for this purpose; for example, in the form of long-term care insurance (LTC) products.

## 3. Investigation of Motivations and Potential Developments for the Postulated Introduction of a Bridge Life-Insurance Product

The bulk of research discussed in the previous chapter focuses on the requirement to provide effective financial management solutions to HHs. Therefore, methods to optimize this process should be sought in the form of new products designed to provide dedicated support. This paper presents such a product: a bridge life-insurance policy formula aimed at providing material support to HHs faced with the loss of an adult member (typically a parent or a spouse).

Let us first examine the motives underpinning the proposed introduction of a bridge life-insurance product for HHs.

### *3.1. The Scale of the Early/Premature Death Phenomenon*

First, it is useful to note that sudden death constitutes the most challenging form of loss for HHs, at least in terms of adaptation to change. How pronounced is the statistical probability of an early death in Europe? Eurostat data for 2018 indicate that accidents were responsible for 8.7% of deaths before the age of 65 in the male population (37% of these were traffic accidents), and for 4.4% of deaths before the age of 65 in the female population (38.6% were traffic accidents). These values fall significantly for the 65+ age segment, with accidental deaths dropping to 2.5% of all deaths for males (13.6%—traffic accidents), and to 2.3% for women (8.4%—traffic accidents). Thus, it seems that the incidence of premature death is fairly contained. However, early death and its consequences should not by any means be considered moderate.

Another argument for the provision of material support for HHs faced with the loss of a member is the formal postponement of some claims. For deaths caused by default of a third party (such as traffic accidents, accidents at work, medical error, or homicide), compensation may be sought before a court of law (as already noted, this approach is well

supported in the professional literature), but the payout in such claims is inevitably delayed. Attention then turns to the average span of such claims, namely the time span between the incidence of death and passing of the final judgement. The analytical evaluation of 1875 verdicts passed by Polish civil courts (in the years 2017–2020 inclusive) in matters related to personal loss compensation claims from a surviving family member gave an average time span of 18 years between incidence and verdict, with a median of 2.8 years (this serves to justify the postulated duration of such support to be set at 3 years).

### 3.2. Social Security as a Source for Financing Premature Death Risk in Households

Another question raised in this context can be formulated as follows: do the affected HHs really need such support from a private source? After all, social security coverage should take care of their problem. However, the public social security system has its limitations. First, it does not extend to the entire population: a sizable proportion remains outside the system. In Poland, overall system participation was reported to be 28 million (data for 2021), which corresponds to 73% of the general population (26.6 million registered by the national Social Insurance Institution and 1.4 million on the Agricultural Social Insurance Fund). As a result, a large segment of the public is effectively devoid of support from this source. Another limitation is that aid instruments related to the death of a family member are only offered to HHs with a formal family status. This means that a large segment of the population in HHs formed on cohabitation patterns (fairly frequent in many countries, Poland included) have very limited access to this type of benefit. Informal partners will not receive any support, and the same applies to their offspring if they are not formally recognized by partners/parents before the proper registry office.

Regarding the recent changes observed in the structure of European populations, the following require special mention:

- The steady rise in out-of-wedlock births—Eurostat data suggest that the rate of live births outside marriage in the EU area grew from 25.4% in 2000 to 42.7% in 2019. This trend is evident in all European countries except for Latvia (a 2 percentage points (pp) decline between 2000 and 2019), Estonia and Sweden (a 0.8 pp decline). The highest rates were reported for Portugal (a 34.6 pp decline) and Spain (a 30.7 pp decline);
- A fall in the number of contracted marriages, which also serves as an indirect measure of the rise of informal relationship patterns—Eurostat data show that the crude marriage rate, namely the annual number of marriages per 1000 population, fell by 0.9 pp from 2000 to 2019. Eight member states (Estonia, Latvia, Lithuania, Hungary, Austria, Romania, Slovakia, and Sweden) registered a rise, with the most notable increase occurring in Latvia (by 2.8 pp, up to 6.6%). The most notable falls were registered for Cyprus (by 4.5 pp, down to 8.9%), Portugal (by 3 pp, down to 3.2%), and Denmark (by 1.9 pp, down to 3.5%);
- A rise in the average age of persons entering a contracted marriage and the associated postponement of child-bearing decisions—Eurostat data confirm that Europeans enter marriage at increasingly later stages in their lives. The average age of females entering formal marriage was 30.6 years of age in 2019 (an increase from 26.8 in 2000); for males, it was estimated at 33.3 years of age (compared to 29.6 in 2000). The most pronounced shifts were observed for Portugal and Spain. At the same time, the average age of first-time mothers is on the rise, and is presently calculated at 29.2 (a rise from 27.9 registered in 2010). However, a comparison of the two average values (age at first birth vs. age at marriage) for European women (data for 2019) suggests that in only three EU member states does the registered marriage come before the birth of a first child (in average terms)—Slovakia (ca. 7 months before first childbirth), Croatia (ca. 5 months) and Switzerland (ca. 4 months). The remaining states seem to follow the new trend where first childbirth occurs before the mother enters formal marriage. The most contrasting differences are observed in Sweden (where marriage comes, on average, 4 years and 8 months after the first child is born), France (4 years and 4 months), and Denmark (3 years and 2 months).

These three indicators, as perfect representations of ongoing changes in the structure of European societies, suggest a steady rise in the number of persons (cohabiting partners, non-recognized offspring) that may be effectively excluded from this form of social support (even if the deceased or their child was duly covered by the social security system).

The third important aspect is that both the pool and the amount of social security benefits assigned is simply inadequate. For instance, following the death of an adult breadwinner or parent, survivors may apply for one of the following two benefits (on top of the regular funeral benefit paid to cover last ceremony costs): surviving spouse and divorced spouse, and child-raising supplement for a single parent. The details of these are as follows:

- Surviving spouse and divorced spouse: a survivor pension in amounts decided by the number of authorized recipients and paid as a percentage of the old-age or invalidity pension to which the deceased was or would have been entitled:
    - One person: 85%;
    - Two persons: 90%;
    - Three or more persons: 95%.

  This amount is then divided equally among all recipients. The benefit is not means-tested. The survivor pension is paid in monthly instalments. Amounts are calculated from the associated old-age pension or invalidity pension (for existing entitlements) or based on regular calculations of pension received from the capital stored in pension accounts (if the deceased was gainfully employed). The latter scenario is particularly unfavorable to HHs. With the former scenario, HHs are better equipped to deal with a reduction in their income and are eligible to at least 80% of the income received prior to the fact. This may be perceived as an effective reduction of consumption by the value previously assigned to one HH member. The latter scenario follows a more complex path. First, the HH is accustomed to high living standards supported by the previous earnings of the now-deceased person, and the amount of pension will always be much lower than monthly earnings. The present pension replacement rate for Poland is approximately 43% of final earnings. This already indicates that the HH will be entitled to 80–95% of a sum representing a mere 43% of hitherto supplied gains. However, the problem extends far beyond this. The cited value of the pension replacement rate describes benefits received by a person entering their retirement age, namely with the "entire" capital already placed on their pension accounts. If death befalls a person with a short history of employment, their accounts may not provide a sufficient replacement rate. Therefore, the effective payoffs will never reach the 43% return margin. Similar types of benefit products can be found in the social security systems of other European countries;
- Child-raising supplement for a single parent: granted to the parent or guardian of a child or to a full-age student whose parents have died or who is not dependent on them further to a court decision on alimony, in the amount of PLN 193 (EUR 42) per child, up to a maximum of PLN 386 (EUR 85) per family. The amount is increased by PLN 80 (EUR 18) in the case of disabled children, but within the limit of PLN 160 (EUR 35) per family monthly amounts. (source: MISSOC-Mutual Information System on Social Protection n.d.). For comparison purposes, the average salary in Poland in 2020 was PLN 5 167.47 (EUR 1131), representing an average net gain of PLN 3 731.33 (EUR 816). Thus, the volume of such support is marginal. However, many member states do not provide this form of support. These include Bulgaria, Croatia, the Czech Republic, Germany, Greece, Hungary, Latvia, Luxemburg, Slovakia, Spain, and The Netherlands.

Neither of these benefits is available to all families and, as can be seen, their value is extremely low.

The consequences of widowhood have been studied in the literature. The article by Zick and Smith (1986) used the Panel Study of Income Dynamics (PSID) and found that

both widowers and widows had more of poverty in the first five years of widowhood. Research concentrates on the economic consequences for women after the death of their husband—Hurd and Wise (1989) and Sevak et al. (2003). We also find studies containing international comparisons on the financial situation of widows (e.g., Ahn 2005, Bíró 2013). There is a discussion in the community about the survivor pension system—James (2009). However, this research concerns the moment of death "in old age", and does not cover the risk of death at an early age—the risk of premature death.

### 3.3. The Moment of Death Risk Realization in Relation to HH Lifecycle Phases

Another important aspect arises in relation to phases in HH lifecycle. For current purposes, deliberations are restricted to the target HHs of the postulated product, namely those with two adult members and a child/children. Based on information on HH time budgets (according Eurostat), target groups will represent the following HH lifecycle phase scenarios: a childless HH with two adults aged 45 or younger, a HH with the youngest child aged 6 or younger, a HH with the youngest child aged 7–17, a childless HH with two adults past the age of 45, HH with adults past the age of 65. Inevitably, some HHs will never yield any offspring (or will otherwise have no prospect of such HH development), but the mathematical multistate model for the postulated insurance product will operate on probabilities of transitions between states, and each subsequent phase model will be calculated with suitable adjustments. It is, therefore, useful to present an illustrative description of changes in human capital (i.e., personal contribution) for each of the categories identified above, and separately for male and female survivors:

- Total—all the categories identified in research, also those excepted from the illustrative set of target HHs (type I);
- Person in a couple with youngest child less than 6 years old (type II);
- Person in a couple with youngest child between 7 and 17 years old (type III);
- Person less than 45 years old, in a couple, with no children younger than 18 years old (type IV);
- Single parent with youngest child less than 18 years old (type V) (this is meant to illustrate changes following a death of a parent, as the scenario is not limited to widower HHs).

Categories of activities are also identified, by gender roles, describing the involvement of both sexes in HH duties. Three categories are included:

- Home maintenance: food management except dish washing, dish washing, housecleaning, household upkeep except housecleaning, laundry, ironing, handicraft and textile production/maintenance, gardening; other pet care, construction and repairs, shopping and services, travel related to shopping and services;
- Childcare, including supervision (without teaching), reading and talking, teaching, reading and communication with a child, transporting a child;
- Other HH duties: HH management, assisting a family member, travel related to other HH purposes.

Table 1 presents an overview of selected HH types and HH activities in average time units based on responses from 15 member states participating in the 2010 edition of a Eurostat survey. The most striking observation is that house maintenance and (obviously enough) childcare activities are largely intensified in HHs with children, and the main burden is generally borne by female members. By comparing couples with no children below the age of 18, couples with babies, and couples with adolescent offspring (7–17), it is clear that, for childless couples, the daily burden borne by women averages 176 min, and 96 min for their male partners. For a couple with a baby, these daily burdens reach 217 min for women and 92 min for men. For couples with an adolescent child, the burden reaches 242 min for women and 105 min for men. More importantly, the above figures describe the age of the youngest progeny, regardless of the actual number of children in the HH. For this reason, data for couples with children should be examined with care. Nonetheless,

the average value of female involvement in HH activities is twice that of males—this is another important aspect that merits attention. Several types of activities—HH upkeep (w/o housecleaning), gardening, other pet care, and construction and services—are more often performed by male HH members. With childcare activities, the burden placed on women is again twice that borne by men. For the third category—other HH duties—values for women and men are more equal, and differences are much less pronounced. It is also important to note that the average annual value of male capital placed in HH duties (Type I) is 815 h (9.3% of a year), compared to 1600 h for women (18.3% of a year). Thus, a female contribution to the benefit of their HH is considerably more pronounced and their loss will, as a result, be felt more acutely. Values of personal contribution reach their peak for HHs with an infant child (aged 6 or younger) and are observed in all types of HHs, amounting to 1089 h (12.4% of a year) for men, and 2427 h (27.7% of a year) for women.

**Table 1.** Average time spent performing activities (minutes) in particular types of households.

| | | **Type I** | | **Type II** | | **Type III** | | **Type IV** | | **Type V** | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Type of Activities** | **M** | **F** | **M** | **F** | **M** | **F** | **M** | **F** | **M** | **F** |
| Housework | Food management except for dish washing | 20 | 67 | 17 | 71 | 19 | 76 | 17 | 52 | 31 | 59 |
| | Dish washing | 6 | 23 | 5 | 24 | 5 | 26 | 5 | 18 | 9 | 20 |
| | Cleaning the dwelling | 10 | 38 | 9 | 41 | 9 | 44 | 8 | 29 | 16 | 35 |
| | Household upkeep except for cleaning the dwelling | 16 | 14 | 13 | 13 | 16 | 15 | 11 | 11 | 28 | 14 |
| | Laundry | 1 | 10 | 1 | 12 | 0 | 13 | 1 | 7 | 4 | 10 |
| | Ironing | 0 | 9 | 0 | 10 | 0 | 13 | 0 | 7 | 0 | 8 |
| | Handicraft and producing textiles, and other care for textiles | 0 | 5 | 0 | 2 | 0 | 3 | 0 | 2 | 0 | 2 |
| | Gardening; other pet care | 12 | 8 | 6 | 4 | 10 | 7 | 7 | 5 | 6 | 4 |
| | Construction and repairs | 14 | 2 | 14 | 2 | 16 | 2 | 14 | 3 | 8 | 1 |
| | Shopping and services | 22 | 29 | 18 | 26 | 20 | 30 | 23 | 28 | 25 | 29 |
| | Travel related to shopping and services | 11 | 14 | 9 | 12 | 10 | 13 | 10 | 14 | 13 | 14 |
| | Sum | 112 | 219 | 92 | 217 | 105 | 242 | 96 | 176 | 140 | 196 |
| Childcare | Childcare, except for teaching, reading, and talking | 7 | 21 | 40 | 112 | 6 | 16 | 1 | 2 | 17 | 48 |
| | Teaching, reading, and talking with a child | 7 | 11 | 35 | 49 | 9 | 17 | 0 | 0 | 20 | 28 |
| | Transporting a child | 2 | 4 | 7 | 15 | 4 | 8 | 0 | 0 | 6 | 12 |
| | Sum | 16 | 36 | 82 | 176 | 19 | 41 | 1 | 2 | 43 | 88 |
| Other household activities | Household management and helping a family member | 4 | 7 | 3 | 5 | 4 | 7 | 4 | 5 | 5 | 5 |
| | Travel related to other household purposes | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 3 | 0 |
| | Sum | 6 | 8 | 5 | 6 | 6 | 8 | 6 | 6 | 8 | 5 |
| | TOTAL for the day | 134 | 263 | 179 | 399 | 130 | 291 | 103 | 184 | 191 | 289 |

Another important observation derived from the data presented in Table 1 relates to changes in time budgets in HHs with a child in scenarios with both parents present, compared with those with a single parent. For HH maintenance activities, the contribution of a single father is higher than that of a male partner with a spouse (140 min per day for single fathers, and 92 or 105 min for male partners in couples, depending on the age of the youngest child). For women, this is reversed: single mothers spend less time on HH maintenance than those in couples. For the second category—childcare—and given the

fact that a single parent (Type V) is also a parent of an infant and then an adolescent child, weighted averages may be required to represent the average childcare contribution from each member over the entire 17-year span. The resulting annual averages are 30 min per day for a father and 89 min per day for a mother. Therefore, childcare contribution from a single mother will be comparable in value to that of a mother in a couple, while a single father will be required to assign a substantially greater time budget (from 30 to 43 min per day). This demonstrates that shifts in time budget following a death of an adult HH member must be properly recognized, particularly if a female member of a HH dies.

### 3.4. Loss of Household Services—A Latent Loss

The final aspect to merit special attention regarding the motives for devising the postulated insurance product for HHs relates to problems faced by surviving members of a HH following the demise of an adult member, particularly the losses resulting from such death and the extent of operational changes required to help them deal with the new situation. Based on the available catalogues of such losses (e.g., Tinari 2016), the consequences of death in a HH can be divided into three categories: loss of monetary income, loss of HH services (non-monetary income), and elevated needs.

Regarding loss of monetary income, a plethora of methods are used for compensation purposes. The UK is an example of a system based on actuarial life tables. Due to the lack of cohesion in court judgements passed in this context, a special commission was established in the 1970s and 1980s to advise on reforms and updates to the existing actuarial base. This resulted in the publication of the first edition in 1984 of *The Ogden Tables—Actuarial Tables, with Explanatory Notes for Use in Personal Injury and Fatal Accident Cases*. These were designed to support the evaluation of lump-sum compensation for loss related to personal injury—mainly the loss of monetary income and any cost incurred in relation to this (e.g., the cost of care). Tables were produced by a dedicated team under the guidance of Sir Michael Ogden, comprising expert actuaries and law specialists of the government Actuary Department. The tables have since been updated, modified, and improved in response to problems voiced by economists and to resolve issues related to their use in practice. However, despite the frequent modifications, the tables remain fairly limited and imperfect. Polemic criticisms of this method have been voiced by many researchers (e.g., Haberman and Bloomfield 1990; Ritchie 1994). The most recent edition can be accessed by its title: *Actuarial Tables, with Explanatory Notes for Use in Personal Injury and Fatal Accident Cases*, eighth edition updated May 2021 (Latimer-Sayer 2021).

In the United States, lost income is calculated—in principle—from gross wages, and most states insist on discounting the values of lost income, services, and the future cost of medical care from current values. In contrast with the British system, which is based on a unified system of multipliers directly accessible by court officers, the US approach is based on opinions from court-appointed expert economists, actuaries, and other specialists (e.g., psychologists in relation to lost non-material income). This procedure is applied per case and may differ widely depending on local state jurisdiction. A complete evaluation of the US system can be found in Ward (2009), while examples of economic analyses for individual US states are presented in Tinari (2016); Spizman and Tinari (2011); Anderson and Roberts (1989); Bryan and Linke (1988); Lane and Glennon (1985); Gilbert (1994, 1997); Thornton et al. (1997); Rodgers et al. (1996).

Importantly, Ward (2009) also provides a comparative analysis or calculation results obtained from two sources, the Ogden Tables (6th edition) and the VCF fund tables. Conclusions from analyses of factors included in the comparison demonstrate that neither source properly recognizes levels of education. In addition, the Ogden Tables disregard the impact of unemployment and disability in the cycle of vocational development. In consequence—as concluded by Ward—the Ogden Tables tend to undervalue the volume of compensation dues of younger generations and overestimate the dues of elder employees. Finally, Ward emphasizes that while the tables offer good predictability and cohesiveness, the US approach has the benefit of being formed through market competition and expert

economic input in the crucible of the courtroom, and the concepts are subject to debates and public critique.

As demonstrated above, this particular type of loss receives proper research support, with vivid disputes and a wealth of instruments designed for the purpose. Attention now shifts to the problem of the lost immaterial income of HHs, which refers to the loss of human capital defined in terms of HH services and duties and the problem of elevated needs resulting from the demise of a HH member. Practical consequences of these two aspects are presented below, complete with real-life examples of changes observed in the context studied. In place of a standard questionnaire survey, this author decided to formulate conclusions from rulings and substantiations of real-life court cases issued in relation to compensation claims raised by physical persons following the death of a family member. Information presented before the court can safely be considered equivalent to a questionnaire survey or interview. Furthermore, the gravity of proceedings and the dignity of a courtroom may in fact improve their reliability for the purpose of this study. The following are some of the most illustrative excerpts from rulings made by Polish courts of law in the cases studied, by type of consequence produced (case signatures are provided in square brackets):

- Disruption of the course of education or decline of school results (the eldest son—aged 20, a student at the University of Health and Sports Science—was forced to drop the course in order to attend to the needs of the agricultural holding left by the deceased father [case signature I C 828/11]; a second-year student had to take a sabbatical following the demise of both parents [XII C 42/19; when her father died, a daughter dropped her studies for psychological and financial reasons, and moved back to live with her mother [I C 420/15]);
- Disruption of employment (3 months work leave following the death of a cohabiting fiancée [V ACa 849/12]; a widow on 6 months work leave following the demise of her husband [I C 832/12]; limitation of gainful employment resulting from the need to take over house maintenance and childcare duties by the surviving male cohabitant with an infant daughter [I C 304/12]);
- Discontinuation or change of employment (upon the death of her partner and father of unborn child, a six-months-pregnant survivor requires full support—the survivor's mother decides to leave her job to help [I C 777/16]);
- Taking up gainful employment by a person unaccustomed to the task (following the death of the only breadwinner, a widow is forced to work as a sewist [I C 832/12]);
- Discontinuation or limitation of economic activities (a widow is compelled to discontinue a family business [I C 828/11]; a widow drastically limits the scope of her agricultural business and is forced to delegate some services to third-party providers [I ACa 878/12]);
- Changes in career development (following the death of his father, a son is forced to decline a profitable position with a pharmaceutical company to provide care, support, and full attendance for his mother [I C 420/15]);
- Taking over or delegating duties and services after a departed HH member (after his wife died, a widower is incompetent to take over the fiscal duties and other aspects of financial management of his now one-man HH and is compelled to delegate them to his son [I C 896/11]; care duties over an infant child after the death of his mother and prolonged hospitalization of his father are assumed by the brother of the late mother [I ACa 896/13]; a sister helps her brother deal with house management duties when his wife dies, such as washing, cleaning, and cooking, and the verdict calls for limitation of such involvement [III Ca 517/18]; a widow aged 33 is helped by her mother who moves in with her to offer house management and childcare support [I C 120/18]; following the demise of her husband, the scope of his colossal immaterial involvement and strenuous physical labor, such as cleaning, cooking, gardening, car servicing and construction work appliance servicing, was beyond the capabilities of the widow and many tasks had to be purchased on the market, such as mowing, roof

repairs, etc./[I C 219/14]: when her mother died, her daughter aged 11 had to take over childcare duties for her younger brothers, including babysitting and education [I C 851/12]);

- Change of residence (when her husband died, a widow aged 46 moved with her children to another city [I C 876/13]; a widow with two children moved to live with her father in a cramped space, as her previous residence was no longer affordable [I ACa 78/16]; a widow was forced to vacate parts of residence after the share previously promised as assigned to the deceased husband had been declared by the late husband's parents as the property of the deceased's sister—the verdict supported the duty to vacate [I ACa 807/12]);
- Auctioning of material assets (after her husband died, a widow was pressed to sell their car [I C 518/12]; after her husband died, a widow could not find solace in living alone and asked her son and his family to move in with her. She was then driven to sell the house and build a new one near her son, which was in accordance with previous arrangements with the late husband, but well below the planned standard [I ACa 922/16]);
- Change of HH plans and prospects (when a son died, his intentions to invest in a workshop with the prospect of employing his father and similar plans made with reference to the late man's brother were no longer feasible [I ACa 307/12]; a surviving member of a steady cohabiting HH who is engaged with the marriage date already set and applicable expenses covered is forced to surrender all plans, including the forgoing house construction plans [V ACa 849/12]; following the death of his father, an eldest son takes over the agricultural business, while the youngest son aged 15 is forced to revise his plans of becoming a farmer and urged to apply for a culinary school [I ACa 878/12]; following the tragic death of a husband, family plans for house construction are shattered [I C 120/18]; a late father was planning a house development project and brewery in tandem with his son, with loans already taken out in the amount of ca. PLN 2.5 m/EUR 500,000/[I ACa 922/16]);
- Need for psychological support, including pharmacotherapy (one and a half years after the demise of her sister, a woman is still in need of psychological intervention and therapy [I C 858/12]; for one year, a widow receives anti-psychotic and stress moderation treatment [I ACa 843/12], a mother experiences emotional breakdown and takes medication prescribed for the purpose after death of her son, with a two-year history of particularly acute symptoms [I ACa 845/12]).

As is evident from the above examples, a premature death potentially brings a whole wealth of diverse consequences covering both the vocational and functional aspects of HH operation. In addition, some of the consequences tend to correspond with or reinforce one another, for instance: the extra burden of house management will naturally limit the scope of gainful employment or disrupt the educational path of those affected by a sudden loss.

## 4. Results—The Concept of a Bridge Life-Insurance Product for Households

Based on conclusions derived from analytical studies of professional literature, it can safely be stated that the financial aspects of HHs continue to constitute a major focus of economic analyses. New instruments, processes, and financial products should be sought to offer adequate support for HHs for the effective realization of HH goals adjusted in line with specific phases and scenarios of the HH lifecycle.

However, given previous deliberations on factors that serve to destabilize HH operation under specific scenarios, it must be noted that the specificity of effects produced by the demise of an adult HH member (and not at all limited to the purely emotional responses associated with such a loss) is not yet adequately reflected in research. Most attention is placed on lost material income. Although a few attempts have been made to explore the context of human capital in HHs, this is chiefly in relation to HH investments in education of their members made with a view to improving future HH revenues. Therefore, following the demise of an adult HH member, the survivors not only face a

loss of material income (related to education) but also the loss of specific non-monetary services and personal contributions to the benefit of the HH which were hitherto provided by the late member. The effective volume of such contributions was presented in an earlier section of this paper. In practice, only two economic domains place a mild emphasis on the valuation of selected aspects related to the personal contribution of HH members, namely macroeconomic studies (in relation to satellite accounts) and economic analyses of law and compensation of personal loss. This paper presents the potential implementation of results produced by the two domains regarding analyses of HH finances. This takes the form of a bridge life-insurance product for HHs as a vehicle allowing for the transfer of the risk of a temporary HH dysfunction following the demise of an adult provider.

Clearly, this purpose may well be served by a regular life-insurance product properly adjusted to account for this type of loss. However, as already noted, dysfunctions resulting from the demise of an adult HH member are mostly of a transient nature and can be addressed by a separate bridge-type product designed to provide temporary assistance to HHs for a period that enables them to adjust to change in their operational patterns. The postulated product would provide temporary financial support for a set period of time (e.g., three years) to help the survivors make necessary replacements and adjustments related to lost immaterial income and/or a portion of the lost monetary income (e.g., before they receive a full compensation verdict or before a child reaches adulthood).

Some elements of the lost immaterial income are easily measurable, typically by referring to market pricing for a similar type of service (in this context, it may be useful to reinforce the already mentioned servitization trends observed among HHs). The broad scope of potential types of immaterial loss borne by HHs has already been outlined, so in this section some of their most obvious "market substitutes" are provided. The list of measurable and readily replaceable services includes the following (with their market substitute presented in brackets):

- Housework (housekeeper);
- Childcare (nursery, babysitter);
- Transport, such as taking children to school, shopping, etc. (cab service);
- Educational support (coach, tutor);
- Psychological support for children (professional therapist);
- provision of HH services associated with the late member's profession—a car mechanic responsible for service and care of the family car, a dentist provides free service to family members (purchase of the service on the market, but only in person-power, as the necessary purchases are still required; thus, the effective loss for the HH may be estimated at 40% of the market price);
- Access to social services, medical service packages, trade benefits, etc. (purchase of a market product);
- Passing own skills and abilities on to children: swimming, skiing, playing an instrument (a market product of the relevant category).

It is clear that, aside from determination of the catalogue of lost services, a method is needed to assess their proportionate time assignment, including the person-hour load per service required to cover the loss and their relevant market value.

The key properties of the postulated life-insurance product are as follows:

1. Insurance covers two adult members (breadwinners) in a HH, and is effected upon the demise of one such person (a form of "first risk insurance").

The postulated product is designed for HHs with children or to those likely to have children. In addition, the term breadwinner extends to providers of exclusively immaterial income, such as housework and childcare duties. Originally, the concept envisaged a whole-of-life type of insurance—in this scenario, support would be offered without time limitation, even for HHs with adult and self-reliant progeny, up to the moment of demise of one of the policy holders. A set term solution may be adopted in its stead, to ensure the product does not extend past the moment the offspring reaches adulthood. However, this

author favors the whole-of-life approach, as the destabilizing effects produced by loss of a family member will not be any less acute past that point.

2. Support is paid in monthly instalments for a set period of time.

The product is intended to provide support for a period of time required by a HH to adapt to the new situation. This would involve provision of material resources in volumes adequate to the loss experienced by survivors and expressed by a drop in material income, non-monetary income, and/or elevated needs. In an earlier section, the list of easily measurable elements of such a loss was established—these may serve as a basis for the effective determination of adequate payout volumes.

The value of loss experienced by a HH can be calculated as the sum of values associated with the existing financial streams that offer the prospect of replacing the lost services (in a broad sense of the term, i.e., including the loss of social and emotional relations). As already noted, this type of calculation is akin to those adopted in macroeconomic analyses, particularly in evaluations of HH productive value, satellite accounts, and the social cost of traffic accidents. Moreover, the amount of insurance should not be set at a fixed value, as the passing of an adult provider may realize the risk at any given phase of the HH lifecycle.

3. Payout volumes are adjusted to the phase of the HH lifecycle.

The amount of insurance would be a variable sum, and payout would be calculated in relation to the HH lifecycle phase in which the risk was realized. For instance, the procedure following the death of a mother of two infant children would entail calculating her previous non-monetary contribution for the benefit of both children and her partner—washing, cooking, cleaning, assistance, transport, etc. When such a death occurs two decades later, the HH situation is substantially different, and losses in this category will be decidedly less pronounced. Similar scenarios may be presented in relation to the lost monetary income, with values established for a vocationally active person being substantially different to those for a pensioner. As already established, the product does not entail a lump-sum payoff, but is provided in monthly instalments in amounts adequate to replace the lost services associated with particular stages of a HH lifecycle. It may also involve diminishing return rates, such as 100% of pension payout in the first year, followed by 70% for the second year of insurance coverage and 50% for the third year. This approach would offer a considerable reduction in insurance premiums, and reflect the fact that adjustments in such scenarios progress in a fluid fashion: some problems are solved early after the fact, others require more time and effort.

Inevitably, the postulated product does not offer protection against any destabilizing factor that may apply in the context of a loss, as some losses are simply irreplaceable and certain services cannot be "purchased" on the market. This context calls for realization of the risk of decline in HH situations and quality of life. Consequences in this category include the following:

- Severing of family ties;
- Loss of intimacy and the prospect of family support;
- Change in lifestyle (e.g., less time for leisure and social activities);
- Lost prospects for skill acquisition (e.g., comfort of training in affable conditions);
- The risk of losing social contacts and reduction in social status (particularly in scenarios where the late person was a member of an elite social group—lawyer, member of a medical profession, etc.);
- The risk of decreased self-assessment in orphans;
- Limitation of time assigned for leisure, personal development, regeneration, and respite.

These categories are not included in the volume of compensation, and may be sought by way of compensation for pain and suffering.

In conclusion, with respect to the proposed insurance product, it may be helpful to note that HHs may safely be covered against the risk of decrease in monetary and non-monetary income by whole-of-life products, with insurance amounts adjusted to the practical requirements of HHs. Although such a solution offers greater benefits, its

practical implementation may face the barrier engendered by the general lack of financial knowledge and awareness of practical consequences that may arise following the demise of a breadwinner. The difference in insurance premiums may form another barrier to such development. Therefore, the postulated bridge life-insurance product for HHs should not be regarded as a complete answer to the problem of loss, but as an instrument bridging the apparent gap in support experienced by many HHs following the loss of an adult member; for instance, up to the moment when their liability claims are duly recognized and settled.

## 5. Conclusions

The paper presents a bridge life-insurance product addressed to HHs that is designed to cover the risk of temporary destabilization of HH functions caused by the death of a breadwinner—this term also extends to providers of exclusively immaterial income, such as housework and childcare duties.

It demonstrates that the postulated product may comprise dynamic insurance sums, with values related to phases in HH lifecycle and payout in monthly instalments. Support would be offered for a set period of time, making this an attractive alternative to standard, properly calculated personal life-insurance products.

There are still some issues to be resolved before the concept presented herein takes its final form. The first task is to design an adequate multistate model capable of recognizing value of loss for each phase of the HH lifecycle, complete with a matrix of phase-to-phase transitions. The valuation of losses associated with each phase requires a catalogue of lost services, their range, market substitutes (if any), and the associated price of service (per hour). Conversely, the dynamic construct of the matrix of transitions requires proper recognition of probabilities (both of the demise on an adult HH member and of a child being born (firstborn or otherwise). In addition, the model should recognize changes in HH lifecycle, such as children coming of age or an adult member taking retirement. The proposed product will also need to be examined in the context of national legislations; for example, to ensure that absence of certain requirements or standards (e.g., the requirement of fixed sum) shall not be questioned. Finally, based on actuarial principles and data produced by the multi-stage model, proper estimations of insurance premiums for such a product should be performed to verify whether the product is affordable to HHs under local economic conditions. These issues will be addressed in further studies.

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## References

Ahn, Namkee. 2005. Economic Consequences of Widowhood in Europe: Cross-country and Gender Differences, European Network of Economic Policy Research Institutes (ENEPRI) Working Paper No. 32. Available online: www.enepri.org/Publications/WP032.pdf (accessed on 1 February 2022).

Ali, S. Nageeb, Maximilian Mihm, Lucas Siga, and Chloe Tergiman. 2019. Adverse and Advantageous Selection in the Laboratory. *American Economic Review* 111: 2152–78. [CrossRef]

Anderson, Gary A., and David L. Roberts. 1989. Stability in the present value assessment of lost earnings. *The Journal of Risk and Insurance* 56: 50–66. [CrossRef]

Ando, Albert K., and Franco Modigiliani. 1957. Tests of the life cycle hypothesis of savings comments and suggestions. *Bulletin of the Oxford University Institute of Economics & Statistics* 19: 99–124.

Armour, Philip. 2018. The role of information in disability insurance application: An analysis of the social security statement phase-in. *American Economic Journal: Economic Policy* 10: 1–41. [CrossRef]
Baek, Eunyoung, and Sharon A. DeVaney. 2005. Human capital, bequest motives, risk, and the purchase of life insurance. *Journal of Personal Finance, Middletown* 4: 62–84.
Betermier, Sebastian, Laurente E. Calvet, and Paolo Sodini. 2017. Who are the value and growth investors? *The Journal of Finance* 72: 5–46. [CrossRef]
Bíró, Aniko. 2013. Adverse effects of widowhood in Europe. *Advances in Life Course Research* 18: 68–82. [CrossRef]
Blau, David M. 2008. Retirement and Consumption in a Life Cycle Model. *Journal of Labor Economics* 26: 35–71. [CrossRef]
Boss, Pauline. 1999. A qualitative assessment of loss in the family system. In *Reading 24 in Assessing Family Loss in Wrongful Death Litigation: The Special Roles of Lost Services and Personal Consumption*. Tucson: Lawyers & Judges Publishing Co., pp. 289–301.
Briand, Steve, and Jean-Yves Lesueur. 2019. Does Health Care Program Participation Favor Advantageous Selection? *Some Econometric Results from Insurance Company Data, No. halshs-02194880.* Available online: Ideas.repec.org/p/hal/journl/halshs-02194886.html (accessed on 1 February 2022).
Brounen, Dirk, Kees G. Koedijk, and Rachel A. J. Pownall. 2016. Household financial planning and savings behavior. *Journal of International Money and Finance* 69: 95–107. [CrossRef]
Browning, Martin, and Ejnæs Mette. 2000. *Consumption and Children*. Mimeo: University of Copenhagen.
Browning, Martin, and Thomas F. Crossley. 2001. The Life-Cycle Model of Consumption and Saving. *Journal of Economic Perspectives* 15: 3–22. [CrossRef]
Bryan, William, and Charles M. Linke. 1988. The estimation of the age/earnings profiles in wrongful death and injury cases: Comment. *The Journal of Risk and Insurance* 55: 168–73. [CrossRef]
Burgoyne, Carole B., Victoria Clarke, Janet Reibstein, and Anne Edmunds. 2006. 'All My Worldly Goods I Share with you'? Managing Money at the Transition to Heterosexual Marriage. *The Sociological Review* 54: 619–37. [CrossRef]
Campbell, John Y. 2006. Household Finance. *The Journal of Finance* 61: 1553–604. [CrossRef]
Campbell, John Y., and Gregory Mankiw. 1989. Consumption, Income, and Interest Rates: Reinterpreting the Time Series Evidence. *NBER Macroeconomic Annual.* 4: 185–216. [CrossRef]
Campbell, John Y., and Joao F. Cocco. 2003. Household risk management and optimal mortgage choice. *The Quarterly Journal of Economics* 118: 1449–94. [CrossRef]
Chadeau, Ann. 1985. Measuring Household Activities: Some International Comparison. *Review of Income and Wealth*, 237–253. [CrossRef]
Cheng, Jiang, and Lu Yu. 2019. Life and health insurance consumption in China: Demographic and environmental risks. *The Geneva Papers on Risk and Insurance* 44: 67–101. [CrossRef]
Clark, Colin. 1958. The Economics of Housework. *Bulletin of the Oxford Institute of Statistics*, 205–11.
Cooper, Russell, and Guozong Zhu. 2014. *Household Finance over the Life-Cycle: What does Education Contribute?* Cambridge: National Bureau of Economic Research Working Paper, No. 20684.
Corea, Francesco. 2017. Big data and insurance: Advantageous selection in European markets. *Data Science Journal* 16: 1–15. [CrossRef]
Cushing, Matthew J., and David I. Rosenbaum. 2012. Valuing household services: A new look at the replacement cost approach. *Journal of Legal Economics* 19: 37–60.
Dąbrowska, Anna. 2010. *Serwicyzacja Konsumpcji w Polskich Gospodarstwach Domowych: Uwarunkowania i Tendencje*. Warszawa: Difin.
Doiron, Denise, and Nathan Kettlewell. 2020. Family formation and the demand for health insurance. *Health Economics* 29: 523–33. [CrossRef] [PubMed]
Duesenberry, James S. 1949. *Income, Saving and the Theory of Consumer Behavior*. Cambridge: Harvard University Press.
Dulaney, Ronald A., John H. Fitzgerald, Matthew S. Swenson, and John H. Wicks. 1992. Market valuation of household production. *Journal of Forensic Economics* 5: 115–26. [CrossRef]
Ellis, Frank. 1988. *Peasant Economics: Farm Households and Agrarian Development*. Cambridge: Cambridge University Press.
Engstrom, Per, Pathric Hagglund, and Per Johansson. 2017. Early interventions and disability insurance: Experience from a field experiment. *The Economic Journal* 127: 363–92. [CrossRef]
Fan, Jessie X., and Jing Jang Xiao. 2011. Cross-cultural differences in risk tolerance: A comparison between Chinese and Americans. *Journal of Personal Finance* 5: 54–75.
Folbre, Nancy. 2006. Measuring Care: Gender, Empowerment and the Care Economy. *Journal of Human Development* 7: 183–99. [CrossRef]
Frenette, Marc. 2014. An investment of a lifetime?: The long-term labour market premiums associated with a postsecondary education. In *Analytical Studies Branch Research Paper Series 1205–9153, No. 359*. Ottawa: Statistics Canada.
Friedman, Milton. 1957. *A Theory of the Consumption Function.* Princeton: Princeton University Press.
Geruso, Michael, and Timothy J. Layton. 2017. Selection in health insurance markets and its policy remedies. *Journal of Economic Perspectives* 31: 23–50. [CrossRef]
Gilbert, Roy F. 1994. Estimates of earnings growth rates based on earnings profiles. *Journal of Legal Economics* 4: 1–18.
Gilbert, Roy F. 1997. Long-term and short-term changes in earnings profiles. *Journal of Forensic Economics* 10: 29–49. [CrossRef]
Gohmann, Stephan F., Myra J. McCrickard, and Frank Slesnick. 1998. Age-earnings profiles estimates: Do they change over time? *Journal of Forensic Economics* 11: 173–90. [CrossRef]

Goldsmith, Raymond W. 1955. *A Study of Saving in the United States*. New York: Greenwood Press.
Goldsmith, Art. 1983. Household Life Cycle Protection: Human Capital versus Life Insurance. *The Journal of Risk and Insurance* 50: 473–86. [CrossRef]
Greenwood, Daphne T. 1996. Estimating hours of lost household production using time-use data: A caution. *Litigation Economics Digest* 2: 89–91.
Haberman, Steven, and Della Suzanne Freeth Bloomfield. 1990. Work time lost to sickness, unemployment and stoppages: Measurement and application. *Journal of the Institute of Actuaries* 117: 533–78. [CrossRef]
Han, Tony, and Kurt Lavetti. 2017. Does Part D abet advantageous selection in Medicare Advantage? *Journal of Health Economics* 56: 368–82. [CrossRef] [PubMed]
Hanemann, Felizia, and Rausch Johannes. 2020. *Poor Survivors?* Muenchen: Economic Consequences of Death of Spouse, Munich Center for the Economics of Aging.
Harris, Timothy F., and Aaron Yelowitz. 2018. Life insurance holdings and well-being of surviving spouses. *Contemporary Economic Policy* 36: 526–38. [CrossRef]
Harrison, Glenn. W., and Jia Min Ng. 2019. Behavioral insurance and economic theory: A literature review. *Risk Management and Insurance Review* 22: 133–82. [CrossRef]
Hsieh, Chang-Tai. 2003. Do Consumers React to Anticipated Income Changes? Evidence from the Alaska Permanent Fund. *American Economic Review* 93: 397–405. [CrossRef]
Hurd, Michael D., and David A. Wise. 1989. *The Wealth and Poverty of Widows: Assets Before and After the Husband's Death, Economics of Aging*. Edited by David A. Wise. Chicago: University of Chicago Press.
International Labour Organization (ILO). 1944. R067-Income Security Recommendation. Available online: www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_INSTRUMENT_ID:312405 (accessed on 10 March 2022).
Ireland, Thomas R. 1999. Opportunity cost versus replacement cost in a lost service analysis for a wrongful death action. *Reading 6 in Ireland and Depperschmidt* 6: 55–64.
Ireland, Thomas. R. 2011. Uses of the American Time Use Survey to measure household services: What works and does not work. *Journal of Legal Economics* 18: 61–77.
Ireland, Thomas. R., and John O. Ward, eds. 1999. Replacement cost valuation of production by homemakers: Conceptual questions and measurement problems. *Reading 12 in Ireland and Depperschmidt*, 131–142.
Jajuga, Krzysztof, Łukasz Feldman, Radosław Pietrzyk, and Paweł Rokita. 2015. *Integrated Risk Model in Household Life Cycle*. Wrocław: Publishing House of Wrocław Univesity of Economics.
James, Estelle. 2009. *Rethinking Survivor Benefits*. Washington: World Bank.
Jaspersen, Johannes. G. 2016. Hypothetical surveys and experimental studies of insurance demand: A review. *Journal of Risk and Insurance* 83: 217–55. [CrossRef]
Jędrzychowska, Anna, Radosław Pietrzyk, and Rokita Paweł. 2018. Oszacowanie poziomu konsumpcji indywidualnej i wspólnej w gospodarstwach domowych. In *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*. vol. 508, pp. 66–78.
Jimenez-Martın, Sergi, Arnau Juanmarti Mestres, and Judit Vall Castello. 2019. Great Recession and disability insurance in Spain. *Empirical Economics* 56: 1623–45. [CrossRef]
Kapoor, Johannes R., Les R. Dlabay, and Robert J. Hughes. 2001. *Personal Finance*. Boston: McGraw Hill/Irwin.
Kawiński, Marcin. 2016. Systemy zabezpieczenia społecznego—organizacja i rozwój. In *Ubezpieczenia*. Edited by W. Ronka-Chmielowiec. Warszawa: C.H. Beck, pp. 467–81.
Keynes, John Maynard. 1936. *The General Theory of Employment, Interest and Money*. New York: Harcourt, Brace.
Koijen, Ralph S., Otto Van Hemert, and Stijn Van Nieuwerburgh. 2009. Mortgage timing. *Journal of Financial Economics* 93: 292–324. [CrossRef]
Koijen, Ralph S. J., Stijn Van Nieuwerburgh, and Motohiro Yogo. 2016. Health and mortality delta: Assessing the welfare cost of household insurance choice. *The Journal of Finance* 71: 957–1009. [CrossRef]
Kowal, Paul, Daniel Goodkind, and Wan He. 2016. *An Aging World: 2015, International Population Reports*. Washington, DC: U.S. Government Printing Office. Available online: Census.gov/library/publications/2016/demo/P95-16-1.html (accessed on 10 March 2022).
Kuznets, Simon. 1942. *Uses of National Income in Peace and War*. New York: National Bureau of Economic Research.
Kuznets, Simon. 1995. National Income and Its Composition, 7979–7938, National Bureau in Economic Research, 1994. *What is Household Non-Market Production Worth?* Edited by Ann Chadeau. OECD Economic Studies, No. 18. Available online: http://www.oecd.org/eco/outlook/34252981.pdf (accessed on 10 March 2022).
Laitner J., and D. Silverman. 2005. *Estimating Life-Cycle Parameters from Consumption Behavior at Retirement*. National Bureau of Economic Research NBER Working Paper 11163. [CrossRef]
Lane, Julia, and Dennis Glennon. 1985. The estimation of age/earnings profiles in wrongful death and injury cases. *Journal of Risk and Insurance* 52: 686–95. [CrossRef]
Latimer-Sayer, William, ed. 2021. Actuarial Tables with Explanatory Notes for Use in Personal Injury and Fatal Accident Cases Eighth Edition (updated) (updated May 2021), Government Actuary's Department. Available online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/989906/Ogden_Tables_8th_Edition_Updated_Final_25.5.21.pdf (accessed on 10 March 2022).

Le, Nga, Wim Groot, Sonila M. Tomini, and Florian Tomini. 2019. Effects of health insurance on labour supply: A systematic review. *International Journal of Manpower* 40: 4. [CrossRef]
Li, Qian, and Pravin K. Trivedi. 2016. Adverse and advantageous selection in the Medicare supplemental market: A Bayesian analysis of prescription drug expenditure. *Health Economics* 25: 192–211. [CrossRef] [PubMed]
Luthy, Michael R., Michael L. Brookshire, David Rosenbaum, David Schap, and Frank L. Slesnick. 2015. A 2015 survey of forensic economists: Their methods, estimates, and perspectives. *Journal of Forensic Economics* 26: 53–83. [CrossRef]
Martin, Gerard D., and M. A. Weinstein. 2012. *Determining Economic Damages*. Costa Mesa: James Publishing, Inc.
MISSOC-Mutual Information System on Social Protection. n.d. Available online: https://www.missoc.org/missoc-database/comparative-tables/ (accessed on 10 March 2022).
Mullet, Matthew J., David M. Nelson, and Robert T. Patton. 1990. Alternative measures of earnings growth. *Journal of Forensic Economics* 3: 29–50. [CrossRef]
Nayak, Bishwajit, Bala Krishnamoorthy, Som Sekhar Bhattacharrya, and Prasanta Pathak. 2018. Customer preferences for health insurance product attributes. *Journal of Services Research* 18: 59–77.
Nelson, David M., and Robert T. Patton. 1990. Measuring earnings growth in the U.S. *Journal of Legal Economics* 3: 11–22.
North, Douglass. 1994. Economic Performance Through Time. *The American Economic Review* 84: 359–68.
Olson, Gerald W., and James D. Rodgers. 1999. The problem of valuing emotional services: An analysis of legal and economic criteria. *Reading 21 in Ireland and Depperschmidt* 21: 253–62.
Pahl, Jan. 1989. *Money and Marriage*. New York: St. Martin's Press.
Pahl, Jan. 1995. His money, her money: Recent research on financial organisation in marriage. *Journal of Economic Psychology* 16: 361–76. [CrossRef]
Pahl, Jan. 2005. Individualisation in Couple Finances: Who Pays for the Children? *Social Policy and Society* 4: 381–91. [CrossRef]
Parker, Jonathan A. 1999. The Reaction of Household Consumption to Predictable Changes in Payroll Tax Rates. *American Economic Review* 89: 959–73. [CrossRef]
Pendzialek, Jonas B., Dusan Simic, and Stephanie Stock. 2016. Differences in price elasticities of demand for health 23 insurance: A systematic review. *The European Journal of Health Economics* 17: 5–21. [CrossRef]
Ritchie, David. 1994. Smith v Manchester awards: How do courts assess loss of capacity on the labour market. *Journal of Personal Injury Litigation* 4: 103–7.
Rodgers, James D., Michael L. Brookshire, and Robert J. Thornton. 1996. Forecasting earnings using age-earnings profiles and longitudinal data. *Journal of Forensic Economics* 9: 169–210. [CrossRef]
Rothschild, Michael, and Joseph Stiglitz. 1976. Equilibrium in competitive insurance markets: An essay on the economics of imperfect information. *Quarterly Journal of Economics* 90: 629–49. [CrossRef]
Saltzman, Emory. 2019. Demand for health insurance: Evidence from the California and Washington ACA exchanges. *Journal of Health Economics* 63: 197–222. [CrossRef] [PubMed]
Satrovıc, Elma, and Adnan Muslıja. 2018. Economic and demographic determinants of the demand for life insurance: Multivariate analysis. *Journal of Management and Economics Research* 1: 102–15. [CrossRef]
Sevak, Purvi, David R. Weir, and Robert J. Willis. 2003. The Economic Consequences of a Husband's Death: Evidence from the HRS and AHEAD. *Social Security Bulletin* 65: 31–45.
Sharpe, Deanna L. 2016. Chapter 22: Consumer financial issues in health care. In *Handbook of Consumer Finance Research*, 2nd ed. Edited by Jing Jang Xiao. New York: Springer, pp. 267–80.
Shim, Soyeon, Jing Jang Xiao, Bonie Barber, and Angela Lyons. 2009. Pathway to life success: A conceptual model of financial well-being for young adults. *Journal of Applied Developmental Psychology* 30: 708–23. [CrossRef]
Shim, Soyeon, Bonie Barber, Noel Card, Jing Jian Xiao, and Joyce Serido. 2010. Financial socialization of first-year college students: The roles of parents, work, and education. *Journal of Youth and Adolescence* 39: 1457–70. [CrossRef]
Slesnick, Frank L., Michael R. Luthy, and Michael L. Brookshire. 2013. A 2012 survey of forensic economists: Their methods, estimates, and perspectives. *Journal of Forensic Economics* 24: 67–99. [CrossRef]
Sloan, Frank A., Patricia A. Robinson, and Lindsey M. Eldred. 2018. Advantageous selection, moral hazard, and insurer sorting on risk in the US automobile insurance market. *Journal of Risk and Insurance* 85: 545–75.
Soika, Sebastian. 2018. Moral hazard and advantageous selection in private disability insurance. *The Geneva Papers on Risk and Insurance-Issues and Practice* 43: 97–125. [CrossRef]
Spizman, Lawrence, and Frank D. Tinari. 2011. Assessing Economic Damages in Personal Injury and Wrongful Death Litigation: The State of New York. *Journal of Forensic Economics* 22: 75–100. [CrossRef]
Stiglitz, Joseph E., Amartya Sen, and Jean-Paul Fitoussi. 2009. Report by the Commission in the Measurement of Economic Performance and Social Progress. Available online: http://www.stiglitz-sen-fitoussi.fr/documents/rapport_anglais.pdf (accessed on 10 March 2022).
Thaler, Richard, and Hersh Shefrin. 1981. An Economic Theory of Self-Control. *Journal of Political Economy* 89: 392–406. [CrossRef]
Thornton, Robert J., James D. Rodgers, and Michael L. Brookshire. 1997. On the interpretation of age–earnings profiles. *Journal of Labour Research* 18: 351–65. [CrossRef]
Tinari, Frank D. 1998. Household services: Toward a more comprehensive measure. *Journal of Forensic Economics* 11: 253–65. [CrossRef]

Tinari, Frank D. 2005. A note on household services: Toward a more comprehensive measurement. *Journal of Forensic Economics* 17: 383–85.
Tinari, Frank. D. 2011a. Comment on "Green v. Bittner and Progeny". *Forensic Rehabilitation and Economics* 4: 109–12.
Tinari, Frank D. 2011b. Comment on Smith, Smith & Uhl, "Estimating the value of family household management services: Approaches and markups". *Forensic Rehabilitation and Economics* 4: 33–36.
Tinari, Frank D., ed. 2016. *Forensic Economics*. Palgrave Macmillan: Assessing Personal Damages in Civil Litigation.
Tufano, Peter. 2009. Consumer finance. *Annual Review Financial Economics* 1: 227–47. [CrossRef]
United Nations. 2012. *Development and Globalization: Facts and Figures 2012*. Switzerland: United Nations Publication.
Varjonen, Johanna, and Kristiina Alto. 2006. *Household Production and Consumption in Finland 2001*. Helsinki: Household Satellite Account, Tilastokeskus Statistikcentralen Statistics Finland & National Consumer Research Centre, pp. 3–70.
Vogler, Carolyn. 2005. Cohabiting couples: Rethinking money in the household at the beginning of the twenty first century. *Sociological Review* 53: 1–29. [CrossRef]
Walker, Kathryn E., and William H. Gauger. 1975. Time and Its Dollar Value in Household Work. *Family Economics Review* 60: 8–13.
Walker, Ian, and Yu Zhu. 2013. *The Impact of University Degrees on the Lifecycle of Earnings: Some Further Analysis*, Bis Research Paper NO. 112.
Ward, John O. 2009. Economic damages and tort reform: A comparative analysis of the calculation of economic damages in personal injury and death litigation in the United States and the United Kingdom. Personal Injury and Wrongful Death Damages Calculations: Transatlantic DialogueEdited by John O. Ward and Robert J. Thornton. Contemporary Studies in Economic and Financial AnalysisBingy: Emerald Group Publishing Limited, vol. 91.
Ward, John O., and Kurt V. Krueger. 1994. *Establishing Damages in Catastrophic Injury Litigation*. Tucson: Lawyers & Judges Publishing Co., Inc.
White, Betsy Buttrill. 1978. Empirical Tests of the Life Cycle Hypothesis. *The American Economic Review* 68: 547–60.
Wu, Yangru W., and Yaxuan Qi. 2007. Liquidity, lifecycle, and heterogeneity of investment portfolio: Empirical analyses of Chinese investor behavior. *Economic Research* 42: 97–110.
Wu, W., J. Yi, and J. Zheng. 2010. Investment structures of Chinese households: Empirical analyses based on lifecycle, wealth and housing. *Economic Research* 45: 72–82.
Xiao, Jing Jian, ed. 2016. *Handbook of Consumer Finance Research*, 2nd ed. New York: Springer.
Xiao, Jing Jian, and Jessie X. Fan. 2002. A comparison of saving motives of urban Chinese and American workers. *Family and Consumer Sciences Research Journal* 30: 463–95. [CrossRef]
Xiao, Jing Jian, and Chunsheng Tao. 2021. Consumer finance/household finance: The definition and scope. *China Finance Review International* 11: 1–25. [CrossRef]
Xiao, Jing Jian, and Rui Yao. 2014. Consumer debt delinquency by family lifecycle categories. *International Journal of Bank Marketing* 32: 43–59. [CrossRef]
Xiao, Jing Jian, Chuanyi Tang, and Soyeon Shim. 2009. Acting for happiness: Financial behavior and life satisfaction of college students. *Social Indicator Research* 92: 53–68. [CrossRef]
Xiao, Jing Jian, Chuanyi Tang, Joyce Serido, and Soyeon Shim. 2011. Antecedents and consequences of risky credit behavior among college students: Application and extension of the Theory of Planned Behavior. *Journal of Public Policy and Marketing* 30: 239–45. [CrossRef]
Yao, Rui, Jing Jang Xiao, and Li Liao. 2015. Effects of age on saving motives of Chinese urban consumers. *Journal of Family and Economic Issues* 36: 224–38. [CrossRef]
Żelazna, Krystyna. 2002. *Ekonomika Konsumpcji: Elementy Teorii*. Warszawa: SGGW.
Zick, Cathleen D., and Ken R. Smith. 1986. Immediate and Delayed Effects of Widowhood on Poverty: Patterns from the 1970s. *The Gerontologist* 26: 669–75. [CrossRef]