INCOME DECLINE IN RETIREMENT IN EASTERN EUROPE: A CASE STUDY IN SLOVAKIA

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Abstract: This paper measures and explains fundamental structural dimensions in income decline in retirement in Slovakia. We test for existence of individual effects (age, gender and education), close social context (children and family status), and wide social and economic context (population density, specific regional economy, stage of business cycle) on variability of disposable income through 2005 to 2013. The findings support traditional stratification retained mostly in differentiation by education level translated into different levels of career, but also provide evidence of crucial importance of structure of household which can stabilize much of disadvantage from more and more insecure careers of individuals.

Keywords: education, household, insecurity, pension, retirement

1 INTRODUCTION

Aging of human population is one of the important social processes having long-term highly complex consequences for development at the global level. At the same time, life of local communities can be changed fundamentally during a relatively short time. Decrease in fertility levels in advanced societies, increasing share of seniors in population and unknown path of technologically progressing economy raise questions concerning economic security of future pensioners. Although the importance of family support systems is undeniable, changing social and economic climate has complicated care for aging relatives along traditional paths.

Demographic changes currently reduce the scale of active generations supporting the retired generation through pension systems. Technological changes in economy in the same time reduce demand for labor through increasing effectiveness, including recent automation wave. Coincidentally, the Slovak population finds itself in the process of relatively rapid aging, while also heavily dependent on manufacturing employment in automotive industry. Additionally, the same population is located on the periphery of migration network within the EU regional structure, supplying significant share of its young generation, relocating abroad during or shortly after graduation from schools. Such situation represents a serious practical threat especially to economic security of future senior generations and their well being.

Economic insecurity is defined as the anxiety produced by lack of economic safety, inability to obtain protection against subjective, significant potential economic loss (Osberg and Sharpe, 2014). It significantly overlaps with the concept of life quality. Certain ways of avoiding potential economic loss in unknown future have been developed into both informal and formalized networks of solidarity, and also commercialized into insurance sector, both public and private. However, the availability of insurance products depends on the overall development level, making it less common in poor countries. Therefore, it becomes methodologically demanding to compare economic security levels among different social contexts and economic development settings. Rohde et al. (2015) define a measure of insecurity as the source of psychological stress endured by the individual resulting from uninsured economic hazards. Western et al. (2012) understand insecurity as the risk of economic loss linked with the unpredictability of social change. They also add that the problem of economic insecurity originates in stratification dynamics. Not all elderly citizens face the threat of economic insecurity equally.

Hsu (2010) reminds about the distinction between absolute and relative income, which is expected to explain more about subjective prosperity. Relativity aspect includes feeling secure in the environment, social comparison, or expectancy of economic status. Findings of his study indicate that economic stability is an essential dimension for the elderly. However, the effect of changing economic satisfaction was not found large enough to influence life satisfaction in general. He offers an argument pointing at the varying stability in memory of people. Jones et al. (2008) has found income distribution more equal among retired households, but also that the level of inequality changes similar to those for non-retired citizens. Concerning sources of their income, state retirement pensions are distributed much more evenly and stable over time in compare to occupational pensions and investment income. MacDonald et al. (2016) question the metric for evaluating adequacy of conventional final earnings replacement rate. Missing effects of consumption and family size also appear to be crucial in their estimation.

Polivka (2011) brings a wider perspective to this discussion, setting ideological foundation in neoliberal postmodernism. His work is criticizing neoliberal vision of the postmodern aging experience, as one undermining conditions for social solidarity. Gilleard and Higgs (2009) oppose mass nature of old age in policy-making. They describe a reality, in which retirement has become increasingly differentiated. Price and Nesteruk (2010) also consider the variety in retirement as a patchwork of different pathways dependent on the changes in the health status, family circumstances, financial security, and inter-personal relationships. They observe very little concrete information about diversity. As a result, they recommend more attention to experiences in environments that offer social engagement. Commercial way of dealing with economic insecurity might have a serious complementary element in simple and traditionally well-known creation of social safety network around elderly.

Specific demographic groups of which populations consist are vulnerable to economic insecurity at different level. During the latest decades normative marital and family situation of people changed dramatically. A lifelong marriage to a single partner has become less common for all income groups. These changes have potentially profound implications for economic insecurity in later life phases.

Women are generally considered to be more vulnerable due to economic insecurity in retirement (Lee and Shaw, 2003). Gender-related parenting roles lower incomes of women during their active career and retirement. National retirement income programs contribute to this gender-based difference in retirement income due to consideration of lifetime earnings in calculating of benefits. Butrica and Smith (2012) remind that divorced women have historically highest poverty rates. Their results show that future labor force participation and earnings will increase future incomes. Gender-specific economic insecurity is both biologically and socially predestined. The lower economic security of women appears due to two factors: different family roles, and longer life expectancies (Spratlin and Holden, 2000).

Regardless of gender, one of the key social factors is marital status. Married people tend to be healthier and live longer than those who are not (Roberts and Fawcett, 1998). Current research also points to food security (Chung et al., 2012), which is closely related to disease, not only for the elderly. The study on a sample of seniors in New York examines the relationship between travel, security and social cohesion on one side and food insecurity in the elderly on the other side. Results suggest that the care for environment is an important correlate of food-related mobility. Prokos and Keene (2012) investigate how age and family type affect family economic resources. Their major concern relates the unpaid work of care for children. As mothers increase their participation in labor force, families having more people to do this work have an advantage on labor market.

Since the total share of population dependent on government funds remains relatively stable, it seemingly leads to sustainability of social security (Brown, 2011). Opposite is however true, because transfers to the young and elderly are not equal. Hammer et al. (2015) relate to the same problem and bring an additional insight in distribution of unpaid work. They find women contributing significantly more. Household members in working age carry large part of unpaid work mainly for children. In the same time, unpaid work tends to be consumed by older members by themselves.

Rohde et al. (2015) suggest a basic set of fundamental expectations related to measurement of disposable income and how household budget difficulties translate into various aspects of psychological insecurity, quantified in different demographic groups. Age significantly reduces subjective financial dissatisfaction and expenditure distress, but increases insecurity from income drop. Education appears to be an insignificant predictor except income drop, which is same as with age increased by higher education. Geographical remoteness reduces financial dissatisfaction, and expenditure distress. Marriage reduces all considered insecurities. On contrary, separation does the opposite and surviving a partner seems to be insignificant, at least concerning insecurity.

Finally, an important geographical variation is pointed in the research of Mutchler et al. (2015). The well-being is not only generated by resources but also by expenses, which vary across localities. They account for a larger share of expenditures going toward basic needs, including housing, food, health care and transportation. Relatively lower costs in one expense category may offset high costs in others.

Income decline experienced during retirement is a process dependent upon individual life-course trajectory, as well as other trajectories in the surrounding social web. Moreover, our inquiry must acknowledge the existence of unknown interactions among individual and social categories, interplay of which may contribute to the economic insecurity in old age in a positive or negative way. There are several fundamental variables, which seem to be systematically linked with the variation in declining income among elderly.

Decline of income with age is naturally anticipated with slowing intensity of economic activity, experienced due to biological changes in aging organism, statistically lower level of physical and mental performance. Gender gap between income of women and men is a widely addressed economic problem, subject of frequent research in various contexts. In case of gender gap related to declining income in senior age, the effect remains still even more influential because of time lag, bringing income disparities between women and men from decades ago, experienced during the years of economic activity of current retired citizens. Even if declining gender gap might be anticipated in effect of actively equalizing employment policies and changing social expectations concerning gender roles and balance between paid and unpaid work within households, some statistical difference will probably remain.

The complexity of expected effects related to family status is high. The synergy within married couples, as well as presence of children in family, represent a clearly stabilizing set of categories, which are expected to reduce income insecurity more than it can be expected for the single individuals and the couples with no children in full economic activity during their retirement. Separation, divorce, and survival of a partner, are expected to withdraw the advantage of synergy offered by living in a couple: reduced costs for a whole spectrum of shared budget, including basic services related to housing, and significant reduction of social networks and opportunities to profit from direct and indirect contacts leading to income generation.

Among the single most significant categories useful in predicting income within a vertically differentiated community is human capital, frequently approximated by the level of completed education. Despite career opportunities may differ, dependent upon the specific and temporary condition in regional or local economy, there is statistically proven general advantage of higher levels of education. Moreover, advanced skills appear to bring more advantage with automation increasingly lowering demand for routine work during the past decades, which is not slowing currently and will continue to spread upward the seeming hierarchy of professions. Education seems to represent a useful income stabilizing category.

Resulting set of variables will also need to include a measure of a dynamic and regionally varying performance of economy. Having all relevant individual categories controlled, still much of the insecurity comes from surrounding environment, even more in conditions of a post-communist society switching between two completely different socio-economic regimes. Because communism was actively seeking lowering of regional disparities by focused investment into an artificially selected industries, the sector composition of regional economies was biased, which also translated into artificial income distribution unrelated to any market competition.

Because industrialization was linked with managed concentration of population into a hierarchy of regional urban centers, we may also expect differences between residents of more and less densely populated parts of country. With the exception of metropolitan area, internal migration is low. Mobility is not expected to diminish probable differences arising between concentrations of human capital in cities in the past.

Research question addressed in the empirical part of this study is how gender and education contribute to relative depth of income decline in retirement, depending on residence in a specific type of economic environment. Interaction between categories considered may be resulting in both predictable and surprising patterns, knowledge of which certainly has a value for applied practice. Citizens in senior age represent a large and growing pool of customers for silver economy, developing side by side with public infrastructure, which needs to adapt as population enters more intensive aging trajectory. Knowing specific structure behind differentiated income decline may provide useful information for sophisticated institutional setting, balancing public and private service correctly, and also reacting to changing population composition in coming years, when vertically more differentiated generations will retire from the economic activity in now a fully market-driven economy.

2 DATA AND METHODS

Testing of hypotheses related to how gender and education contribute to relative depth of income decline in retirement, depending on local economic context, requires a rich data source, especially in cross-sectional dimension. Main source of data used in this paper is derived from the EU statistics on income and living conditions (EU-SILC) survey at household level. The survey is conducted annually since 2005 in Slovakia. Available time series includes nine observations until 2013, capturing two phases of the latest business cycle, which is a useful additional dimension enabling us to evaluate immediate impact of a slowing economy, since many retired citizens continue in some form of economic participation or benefit from higher intensity of economic performance in surrounding society by taking part-time positions. These jobs can be sensitive to slowing business in private sector, placing higher priority to retaining human capital allocated in permanent employment positions.

Households included in source survey are selected by proportional simple random sampling will serve as a reference unit for us. Persons who live together and jointly provide the essentials of living, household expenditure (food, reimbursement for housing, energies) will be considered sharing the same level of material provision, and economic security. Reference period for income in this survey is the calendar year preceding survey. Change in methodology since 2009, inclusion of individual private pension plans, has also been implemented as revised indicators for earlier data, which is an important detail for our statistical testing.

The variable of central importance is the equivalised disposable income. According to Eurostat (2015), it is constructed as the total income of a household available for spending or saving divided by the number of household members. Household members are equivalised according to the OECD equivalence scale and attributed to each. This methodological choice is a choice which comes with the cost of loosing detail of a truly individual income. In the same time, placing individuals in their immediate social context, which also means the context of shared everyday household economy, should actually be considered more a valuable methodological gain. As explained in Western et al. (2012), stratification research often focuses on individuals, while question of security should better focus on households.

Twofold categorization of observations is available for controlling of specific local economic conditions. Temporal dimension offers capturing the variation of income along business cycle. Considering spatial stratification, eight categories are available recognizing one of the eight regions and sub-regions, according to population density.

Our approach also follows an inspiration in dynamic micro-simulation models of dynamic social reality. A good example of the concept can be found in Spielauer (2013). His detailed overview introduces a model designed to simulate individual life courses based on real world dimensions, structured as: basic demographics: birth, mortality, migration; family demographics: partnerships, childbirth, leaving home; education; health; employment, including retirement; income and earnings; and housing economics. Our concept is prepared to include most of these categories except health and housing variables.

Resulting from a given set of assumptions concerning influence of discussed individual and social categories on income decline in retired population, an econometric model for equivalised disposable income seems to be sufficiently focused and flexible statistical tool, which will be designed and its parameters estimated in possibly few alternative versions. Regression model will be built along the schematic set of three groups of hypothetic income drivers: individual effects (age, gender and education), close social context (children and family status), and wide social and economic context (population density, specific regional economy, stage of business cycle). We will consider few alternative versions sub-setting of the original sample by individual categories of our key interest: a specific regression model for female and male cases, and for those who obtain their highest level of education in primary, secondary or higher education institutions. This design will allow a direct comparison between the effects of control variables on different demographic and social groups. Log transformed equivalised disposable income will be estimated by OLS.

3 RESULTS

Descriptive analysis is mostly showing expected contrasts between different sample subsets. Income is rising over time for citizens in active career and after retirement when income tends to decline, depending on all discussed categories. The major differentiating dimension for varying income is human capital. Also, we have found gender gap, not only in the level of income between male and female observations, but also in the direction and speed of change of their income over time. Spatial differentiation of regional markets also adds more complication. In general, higher income categories or regions tend to grow slower than lower income categories or regions. Income situation seems to be advancing towards more equality.

Set of regression models measure and separate individual factors contributing to observed variation in equivalised disposable income.

We estimate a general model for full sample, two gender-specific models and three education-specific models in addition. All explanatory variables used further are categorical, allocating observations between different dimensions. The reference observation category is a male, higher education graduate at age 62, single and living in a household without children in high-density part of Bratislava region in 2005. Parameter estimates in tables 1 and 2 are exponentially transformed for multiplicative interpretation of categories linked to them. The first column shows practically every considered difference useful in predicting of disposable income. We will discuss these effects in a direct comparison between the pre-senior and the senior sample, documented in two corresponding tables structured in the same way, with the only difference of observations separated by retirement age of 62.

Education remains the strongest dimension among those considered, a cause of largest part of variation among the individual citizens. In compare with higher education graduates, secondary education graduates income is 18% lower, and primary education leads to 39% decrease. In retirement these gaps partially disappear, secondary education is responsible for 15% reduction, and primary for 20% reduction. Education differences are slightly bigger for women during active career and slightly bigger for men in retirement, but gender is not responsible for more than 2% difference. Education gap tends to diminish in retirement.

Gender gap is statistically present in all samples under evaluation, except for citizens with primary education. While during the active years, equivalised disposable income is about 1% lower for women, it increases to 3% in retirement. Concerning differences according to the education level, biggest gap is measured for the graduates from higher education, where 3% are present during active years, and 5% gap is reached in retirement. Most equal are secondary education graduates, where we find 2% gap in retirement.

Table 1 Pre-senior sample is limited by maximum age of 61. Parameter estimates for selected regression models, unit-age, regional and time components are included but not presented. Exponential transformation of parameters allows for multiplicative interpretation.

		Gender			**Education**	
	All	**Female**	**Male**	**Primary**	**Secondary**	**Higher**
	n = 97430	**n = 50580**	**n = 46850**	**n = 13128**	**n = 67058**	**n = 17244**
Constant	474.04 ***	453.89 ***	493.09 ***	375.15 ***	379.21 ***	437.87 ***
Intermediate urban	0.93 ***	0.93 ***	0.92 ***	0.87 ***	0.93 ***	0.97 ***
Rural	0.87 ***	0.88 ***	0.87 ***	0.83 ***	0.87 ***	0.91 ***
Female	0.99 ***	-	-	1.00	0.99 ***	0.97 ***
Married	1.07 ***	1.10 ***	1.05	1.02	1.08 ***	1.07 ***
Separated	0.82 ***	0.79	0.92	0.90	0.85 ***	0.72 ***
Widowed	1.00	1.01 ***	1.00 ***	0.94 *	1.01	0.98
Divorced	0.87 ***	0.88 ***	0.88 ***	0.88 ***	0.88 ***	0.86 ***
With children	0.83 ***	0.83 ***	0.82 ***	0.80 ***	0.83 ***	0.82 ***
Primary	0.61 ***	0.62 ***	0.60 ***	-	-	-
Secondary	0.82 ***	0.82 ***	0.81 ***	-	-	-
Adjusted R^2	0.32	0.32	0.31	0.24	0.29	0.27

Signif. codes: 0 *** 0.01 ** 0.05 * 0.1

Source: research results

Table 2 Senior sample is limited by minimum age of 62. Parameter estimates for selected regression models, unit-age, regional and time components are included but not presented. Exponential transformation of parameters allows for multiplicative interpretation.

		Gender			**Education**	
	All	**Female**	**Male**	**Primary**	**Secondary**	**Higher**
	n = 22586	**n = 13861**	**n = 8725**	**n = 7835**	**n = 12484**	**n = 2267**
Constant	320.67 ***	299.24 ***	354.78 ***	223.75 ***	275.69 ***	377.97 ***
Intermediate urban	0.96 ***	0.96 ***	0.96 ***	0.97 **	0.96 ***	0.96 **
Rural	0.94 ***	0.93 ***	0.94 ***	0.95 ***	0.93 ***	0.89 ***
Female	0.97 ***	-	-	0.97 ***	0.98 ***	0.95 ***
Married	1.30 ***	1.34	1.22	1.24 ***	1.31 ***	1.36 ***
Separated	1.02	1.01 ***	1.11 ***	1.03	1.08	0.93
Widowed	1.22 ***	1.24	1.15 ***	1.17 ***	1.22 ***	1.29 ***
Divorced	1.00	0.97 ***	1.09 ***	0.91 ***	1.01	1.15 ***
With children	1.09 ***	1.12 ***	1.04 ***	1.11 ***	1.08 ***	1.04
Primary	0.80 ***	0.79 ***	0.81 ***	-	-	-
Secondary	0.85 ***	0.85 ***	0.86 ***	-	-	-
Adjusted R^2	0.46	0.47	0.44	0.45	0.43	0.44

Signif. codes: 0 *** 0.01 ** 0.05 * 0.1

Source: research results

Family situation is also expected to add a significant part of variation among individuals concerning various household compositions, in which incomes of all household members are shared for covering expenses linked to everyday life. The closest social networks between partners, parents and children, tend to be preserved during life cycle at varying degree, sometimes ending in non-existence, in social isolation. How large are the effects of entering marriage, separating from a partner, or divorce? In compare with a citizen living in a single-person household, marriage adds 7% of disposable income before and 30% after retirement. Women benefit significantly more, while for them the effect of marriage is 10% and 34% after retirement, while men only add 5% and 22% after retirement. The effect also tends to increase with education level both before and after retirement, and is lost for citizens with primary education before retirement.

Becoming married and living separate from partner reduces income significantly, by 18% before retirement. Women (21%) loose much more than men (8%), for whom the effect becomes insignificant. Divorce, as a more definitive separation takes in general 13% of income, equally for men and women. In retirement, however, effects of separation and divorce diminish to insignificance, except for men, who even earn 9% when divorced in compare with their single counterparts. Separation and divorce have different effects with education profile. Higher education level leads to worse lost during active years in both cases, plus separation in retirement. However, divorce is profiled with opposite gradient in retirement. While divorced seniors with primary education loose 9%, those with higher education even earn 15%.

Surviving a marriage partner is a personal tragedy with undoubtedly strong influence on life of a family and its members. Statistical effect on income appears to be, on contrary, totally insignificant during active years, but becomes strongly positive in retirement. Surviving male is 15% higher in income terms and female senior 24% higher. The effect also grows with higher education level. These results suggest that social compensation for lost partners is efficient, increasing income to the known levels in practice very close to the former married status.

Multi-generation living, in part living in a household with children is a typical traditional strategy, which was abandoned only recently. Children take in general 17% of income during active career years. This effect is relatively equal between men and women. On contrary, in retirement seniors earn 9% on the same situation, while the effect becomes very unequal between women (12%) and men (4%). The effect also tends to diminish with higher education level of elderly.

Difference between living in urban and rural location is also found statistically significant. Small town environment relates to 7% reduction and rural environment even to 13% reduction during active career. In retirement, this gap narrows to 4% difference in small town, and 6% difference in rural environment. While gender structure in this effect appears insignificant, we can observe a clear structure in uneven education. While during active years the effect is worse for citizens with lower education, in retirement the effect becomes stronger for those with higher education. Diminishing effect of retirement of this urbanization gaps works much better for lower education groups.

Additionally to previous contrasts, location within varying regional conditions also significantly matters in income distribution. In compare with the Bratislava region, north-eastern edge of the country suffers the widest income gap, which is 22%. In retirement, it narrows to 14%. Geographical neighbor to Bratislava, region Trnava, has the same reduction only 7%, later even increasing to 10% after retirement thanks to easy commuting to Bratislava. All other regions reduce their geographical gap after retirement.

Figure 1 provides an effective graphical summary to effects of single-year components, which are additionally included in all of the models presented in tables. The age of 62 has been set for reference, to which all remaining variables are set in contrast. Disposable income is also cleaned from effects of all previously discussed factors. General shape (1a) of the age profile shows that income reaches first peak at late 20s (29, income 18% above the 62 level), after which the disposable income declines below starting level in early 40s (41, 4% below). Second peak is found in late 50s (56, 9% above), but the relative increase of the first peak is never reached. After 56 years a long decline appears, which stabilizes only at 72, 12% below the level at age of 62.

Figure 1b uncovers that the trajectory during life cycle is similar in shape but different in timing as well as relative position of age effects between men and women. Women live with much more variation while male income is more stable. While first peak for women is 20% (age 29) above age-62 level, for men it is only 13% (age 30). While females reach the first bottom at 41 (3% below), men follow them in 45 but 9% below. Again, the second peak is reached by women later and higher (56, 15% above) in compare to men (53, 4% higher). In senior age the decline ends at 74 (9% below), in men it continues to 82 and falls 18% below. Male life cycle is shifted below and to later ages than female life cycle.

Figure 1c indicates a very different life cycle shape between education level samples. Secondary sample (most frequent) is the one practically identical to general one. But both primary and higher education trajectories appear substantially different. The primary education develops no first peak in fact, the trajectory oscillates around deep negative spectrum, reaching bottom at 38, 41% below the age-62 level. Situation of these citizens improves since then, reaching maximum 7% above at the age 58. After this age their situation remains very stable, oscillating again around the same level. Higher education takes its toll in early decline during earliest 20s, later radically improving and reaching the same relative height at the age 29 (19% above) same as their secondary education counterparts. Following path is similar between them, although secondary education seems to be running earlier, reaching bottom at age 43 (3% below) and age 46 (2% below). Decline towards senior income also starts at 55 for secondary education and at 57 for higher education. Late 50s are also the age when relative income of all trajectories is practically same. It all changes in following years, because while lowest education retains its position, income of secondary education falls until 78 and 16% below, but income of higher education falls until 85 and 40% below.

Figure 1d shows how the trajectories differ between rural, small town and urban environment. Rural life cycle appears to be the one most stable, and earliest from the three, while urban life cycles experiences largest vertical variation and spans to later ages. The first peak in rural setting is at 27 and 14% above, while more dense environments peak at 29 and 19% and 23%. Time shifts are present in all significant points, including bottom of the senior cycle, which is at 72 years at 10% below for rural and 12% below for small town, but at 76 at 22% below for urban citizens. To generalize findings concerning life-course income prospects, higher income catego-

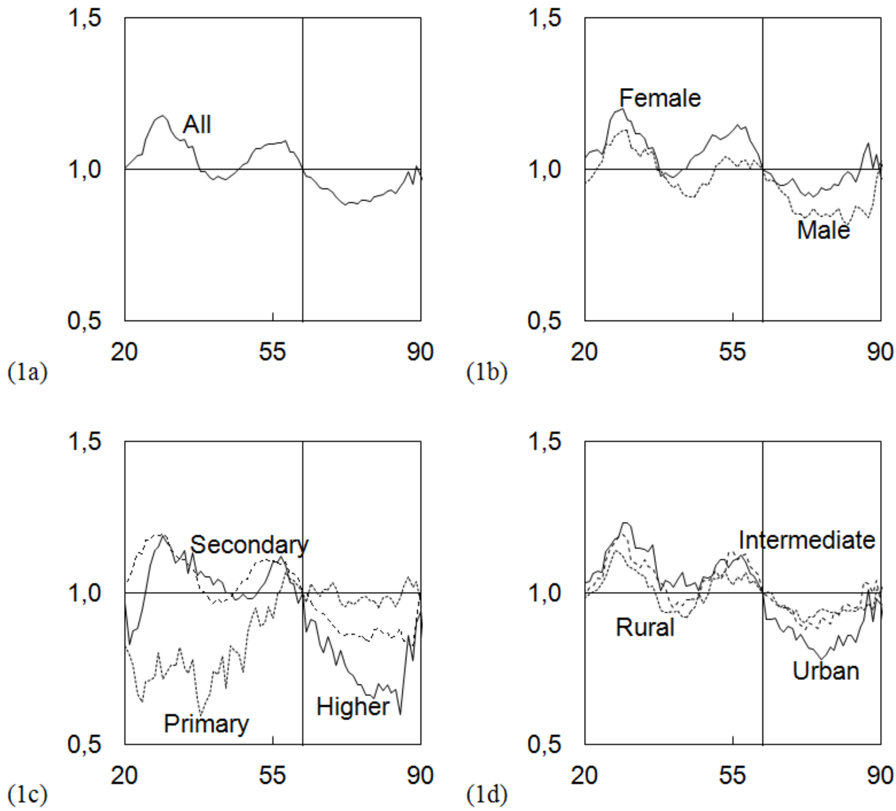

Figure 1 Unit-age component of regression model, parameter estimates for units of age in: (1a) general sample model, selected sub-sample models specified by (1b) gender, (1c) education level, and (1d) location density. Exponential transformation of parameters allows for multiplicative interpretation. Source: research results.

ries (males, higher education graduates, urban citizens) always tend to reach more extreme values and later in life in compare with their lower income counterparts. Security in relative terms is therefore higher in low-income senior population, while high-income seniors experience more dramatic and later declines. In this sense MacDonald and Osberg (2014) find also financial security of the low-income senior population less affected by financial market than the more affluent. Their analysis shows the upper-income Canadians exposed to continuing low interest rates.

4 DISCUSSION

The analysis of systematically collected sample of population reveals how disposable income varies during life-course depending on individual and social dimensions, some of which relate to individual career choices, partnership and family-life choices, but still others relate to wider circumstances of social and economic environment. Modern welfare state has reduced much of the historically present economic insecurity through providing institutional frameworks and certain elements of modular pension system tightly linked with the labor and financial markets. The links in the same time represent potential threat to future generations of seniors in conditions of multiple social and economic trends bringing increasing share of population dependent on shrinking labor. Aging population and technologically progressing economy may bring us very soon in a situation when the value of produced resources will not cover the value of consumed resources, even in conditions of continuing macro-economic growth.

Our results suggest that the major element stratifying population remains to be human capital, approximated by the level of education, similar to several recent studies elsewhere (Cheng and Loichinger, 2017; Tamborini and Kim, 2017). Education allows entering various career trajectories, which statistically increase rewards the higher we start from. More educated citizens reach higher in the hierarchy of labor market, and those earning relatively more also continue to benefit accordingly through their pension. Public compensation, however, doesn't secure similar relative reduction after retirement, therefore making those with higher income during their active careers (men, more educated, living in prosperous urban locations) falling deeper than those with moderate or lower income. We also observed a convergence tendency in distribution of income, with lower-income categories of citizens and locations growing relatively faster during the covered period.

Relying upon household size and structure entering our data through income equivalisation, the closest family and also wider social element appears to be a very powerful stabilizing concerning economic insecurity in old age. Comparison between the structure of separated influencing drivers between pre-senior and senior samples allows seeing that career choices and partnership and family choices affect prospects of elderly hand in hand. Marriage and multi-generation living still offer significant compensation for possibly a weaker position at the labor market during the active career in the past.

The implications from our study potentially relevant for creation of aging-related policies could be summarized into four dimensions. First; the formal institutional frameworks might offer a supporting hand in capital activation for high-income categories in older age. Their income declining later and deeper probably can be to some extent compensated by accumulated capital. We assume that among the two most common long-term investment options are savings and property ownership (Albertini et al., 2017; Zhao and Burge, 2017). Second; the unknown future formats arising in digital economy might offer innovative ways of lowering dependence of older generations on labor force, as understood today (Garcia et al., 2017; Heywood and Jirjahn, 2016). More educated seniors will access these services easier. Experimental models accessing human capital should therefore be tried as freely as possible, and thoroughly assessed. Third; high-density urban locations and corresponding lifestyle of urban seniors will require development of special assistance processes.

Age-specific migration may be expected due to amenity reasons (Atkins, 2017). Income decline of their citizens is late and deep because of longer participation in the labor market, creating more frequent opportunities suitable for senior employees, or also self-employment in higher age. Cities should use this tendency and actively support use of social capital throughout aging trajectory (Carbonaro et al., 2016; Gudowsky et al., 2017; McCann, 2017). Fourth; living in partnership, and in close proximity between generations, point at crucial importance of traditional family ties. Families need to be supported through formal and informal ways in order to balance insecurities of wider social and economic life.

5 CONCLUSION

Aging through insecure transition period in Eastern Europe offers an opportunity to research a unique situation, where current labor market and consumer goods and services tend to become more vertically differentiated according to market dimensions. In the same time, pensions tied to career trajectory of citizens reflect historical layers of development, when no market forces shaped personal choices and fabric of social networks around individuals. Dramatic difference between fundamentally different socio-economic periods translates into systematic contrasts, introducing disadvantage and loss of security, making certain social groups more vulnerable than others. Current pension institutions offer only limited options for replacement of higher incomes through active careers. Development and strengthening of market-linked pension modules, and support for active aging will be inevitable. Besides transitive nature of situation in Slovakia, another valuable aspect is that the economy dominated by automotive industry will be in danger of labor replacement by fast developing technologies in coming years.

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Pokles príjmov v dôchodku na Slovensku

Súhrn

Starnutie obyvateľstva vo východnej Európe ponúka príležitosť študovať jedinečnú situáciu, v ktorej narastá vertikálna diferenciácia na novom trhu práce. Dôchodky zviazané s kariérnou dráhou uplynulých desaťročí odrážajú historické vzorce rozhodovania, v ktorých trhové motívy neformovali ani osobné voľby ani štruktúru sociálneho zázemia. Rozdiely medzi zásadne odlišnými sociálno-ekonomickými podmienkami sa prejavujú v znevýhodnení niektorých sociálnych skupín, ktoré sa stávajú zraniteľné. V tejto štúdii sa zaoberáme poklesom disponibilného príjmu vo vyššom veku v závislosti od kombinácie individuálnych a sociálnych kategórií. Niektoré z nich súvisia s individuálnym výberom povolania, iné s rodinným životom a ďalšie sa týkajú okolností sociálneho prostredia a hospodárstva. Moderný sociálny štát redukuje značnú časť ekonomickej neistoty prostredníctvom inštitúcií dôchodkového systému spojeného s pracovným trhom a trhom financií. Tieto väzby predstavujú potenciálnu hrozbu pre nasledujúce generácie seniorov zabezpečené zmenšujúcou sa pracovnou silou. Starnúce obyvateľstvo a technologicky pokročilejšie hospodárstvo sa teoreticky môžu dostať do situácie, kedy hodnota produkovaných zdrojov nepokryje ich narastajúce potreby, a to ani v podmienkach priaznivého rastu. Naše výsledky naznačujú, že hlavnou príčinou stratifikácie poklesu príjmu vo vyššom veku je ľudský kapitál. Vzdelaní obyvatelia síce dosiahnu vyššiu úroveň príjmov na trhu práce, ale ich príjmy poklesnú relatívne hlbšie než u obyvateľov s nižšími príjmami. Vďaka tomu pozorujeme konvergenciu ich distribúcie. Rodinné a širšie zázemie sú stabilizačné faktory ekonomickej neistoty vo vyššom veku. Život v partnerstve a v prosperujúcom prostredí ponúkajú kompenzáciu aj osobne menej priaznivej pozície na trhu práce. Inštitúcie v budúcnosti môžu pracovať len s aktiváciou kapitálu skupín obyvateľov s vyššími príjmami. Medzi typické udržateľné možnosti patria vlastníctvo úspor a nehnuteľností. Možno predpokladať, že vzniknú aj iné alternatívne formáty na báze digitálnej ekonomiky, ktoré by mohli ponúknuť inovatívne spôsoby ako uvoľniť závislosť budúcich seniorov na pracov-

nej sile v dnešnom zmysle. Mestá s vysokou koncentráciou a pestrým životným štýlom budúcich seniorov si vyžiadajú rozvoj nových druhov služieb. Pokles príjmov obyvateľov miest v dôchodku je už dnes značne oneskorený a hlbší, pričom práve mestá dokážu vytvárať príležitosti pre prácu a podnikanie vo vyššom veku. Mestá môžu túto tendenciu využívať a podporovať aktiváciu sociálneho kapitálu seniorov. Naše výsledky naznačujú ekonomický význam medzigeneračných rodinných vzťahov. Ich historicky overená funkcia naďalej najlepšie kompenzuje nevyhnutné neistoty širšieho spoločenského a hospodárskeho života. Experimentálny rozvoj a posilňovanie trhových modulov dôchodkového zabezpečenia a podpora aktívneho starnutia sa však javia aj na Slovensku potrebné.