POSTGRADUATE PENSION SYSTEM'S EXTENSION: SUPPORT TOOL FOR ACTIVE AGEING

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Abstract
This paper is focused on construction and significance of voluntary fully merit-based and fully closed postgraduate extension of current pay-as-you-go pension insurance. The created model shows that the resources that a man gets when extending his productive employment enable him to gradually decrease his economic activity (when combining partial pension benefit payment and income from economic activity) and at the same time utilize the resources for individual health care and other well-being services prolonging his active life. This way, economic base is created for starting the rise of market based productive services’ branches that contribute to acquisition, preservation and utilization of human abilities. Prolonging the zenith and horizon of productive employment of those people that help to increase the innovation potential of society does not limit the employment of younger generations but does the opposite – it significantly contributes to the creation of qualified jobs and teams. Socioeconomic schemes that are included in this paper support the effective use of available human resources.

Keywords: health systems, human capital, pension insurance, postgraduate extension of pension insurance.

JEL codes: H55, H75, J24.

1. Introduction

The sustainability of pension systems has been discussed frequently since the populations in developed countries started to age (OECD 2017a). Additionally,
overall demographic behaviour and job market situation has been changing rapidly. In this paper, we aim to show the postgraduate extension of pay-as-you-go pension system and its supportive role for active ageing (WHO 2002).

2. Theoretical and methodological background

The first methodological basis to our approach comprises the model of postgraduate extension of the current social pension insurance system. The term “pension insurance” is commonly used without thinking about the risk that this system insures. The fact that sometimes we cannot give a satisfactory answer to this question leads us in some cases to leave the term “insurance” and replace it with the term “security”. We shall now explain deeper how we see the problem in context of used terminology.

Let us first look at how the term “pension insurance” is defined in Czech law (Czechia 1995). Section 1 (1) states: “This Act regulates pension insurance (hereinafter referred to as “insurance”) with respect to old age, invalidity and death of a breadwinner.” When an insured event occurs (in the sense of old-age pension insurance) is regulated by Section 28: “An insured person is entitled to a retirement pension if he has acquired the necessary period of insurance and has reached the stipulated age, or possibly if he fulfils other conditions set forth in this Act.” This definition is also taken over by the 2011 “small pension reform” regulation (Czechia 2011).

Let us think about what these definitions say. According to them, the insured event is supposed to occur at a certain age. It is very similar as if the law on compulsory accident insurance stated that the insured event would occur not in the event of a crash, but after going (let’s say) 150,000 kilometers. As Goethe said, “whoever does not button up well, will not get dressed well”. This definition of an insured event in the law leads to fundamental conceptual shortcomings both in the construction of the current pension system and in discussions about its reform.

In our approach, we assume that the insured event comprises loss of ability to provide sufficient means to live in dignity through productive (gainful) activity as a result of aging. This is an equivalent of invalidity insurance, where the cause of invalidity, however, does not comprise accident or illness, but the aging process that affects an individual in a differentiated way (like injury or illness mentioned above). This means, among others, that the basic type of solidarity is the one between those, with respect to whom the insured event occurs (i.e., those who lose their full or partial ability to earn a living in job markets) and those who are also able to participate in job markets at a higher age.

In recent theoretical literature, Vostatek (2016) gives a clear overview of all approaches to pension insurance, or more precisely social security and based on their comparison presents the NDC system (gradual, the so-called contributory-defined, i.e., highly merit based) as the most suitable. In defining the concept of postgraduate extension of pension system and the creation of its model, which demonstrates the real nature of complex reforms of the social investment and social insurance system, we follow up on his work on pension systems’ typology.
We also consider those works that in various aspects emphasize the importance and the possibility of selectively extending the horizons of the productive employment of human being beneficial. Vavřejnová et al. (2004) state that the issue of pension reform is not limited only to aging and financial issues. According to them, it is a combination of different types of pension benefits and other types of savings together, which is particularly important, with an extended economic activity. In this respect, Fiala and Langhamrová (2014) perform model calculations of income and expenditure developments of the pension system in Czechia based on the latest demographic projection and taking into account the projected sustained increase of the retirement age, i.e., the period of productive employment of a person, and they logically conclude that the growth in share of persons with higher age will not result in such a large increase in the share of pensioners, i.e., increase in life expectancy will not automatically mean an increase in time of taking pension (Fiala and Langhamrová 2014, p. 233). Janičko and Tsharaykan (2013) through a model show a key importance of prolonging the period of productive employment and, on the basis of this, formulate economic and political recommendations directed at different groups of people - especially women, people in higher productive age (55-64 years). According to them, the suitable measures should comprise retraining programmes, training programmes, active job search support, or efforts to reconcile family and work life, suitable incentive structure to extend periods of productive employment (Janičko and Tsharaykan 2013, pp. 335-336). They conclude that using these options we can maintain stability of the on-going pension system. Loužek (2014) views the problem as “security for retirement” where it considers three ways: savings, children, participation in the social pension insurance scheme (Loužek 2014, p. 26). He concludes that older people need to be persuaded to continue in economic activity at a later age because they are worth it. His list of professions that are performed at an older age or possibly forever is interesting (Loužek 2014, pp. 94-95). It is worth mentioning one of the few works that deal with internal motivations to prolong the productive employment period and their effect from the point of view of lifelong costs of “impatience”, giving preference to current consumption before investing in human capital (Cadena and Kays 2015).

Based on the discussions concerning the reform of the pension insurance system, that we have participated in, we have come up with the idea of full-closed and fully merit based postgraduate extension of the current ongoing pension insurance system that can be easily and gradually implemented without significant problems and side effects and is based on voluntary participation. This can result in a gradual and smooth transformation of the entire pension insurance system. From a practical point of view (which is important when considering the applicability of research results and public choice behaviour), this path is more suitable than achieving a social consensus and ensuring sufficient political will to fundamentally reform the entire pay-as-you-go pension insurance system into the fully merit-based system of NDC type with a single basic pension benefit. In addition, our approach is compatible with NDC system in compulsory pension pillar if it is introduced in the future.
The second methodological approach is to demonstrate conditionality of the so-called Industry 4.0 by a transition to an economy based on productive services, i.e., services that enable the acquisition, preservation, and employment of human capital. One of the main theorists of Industry 4.0, or more precisely the 4th industrial revolution is Mason (2015). He devotes extensive attention to Marx’s “Grundrisse” manuscripts, noticing how Marx predicted the process of automation and computerization of the economy, but misses, like other contemporary theorists, what Marx considered to be the most important and what was understood and interpreted by Richta (1966) more than fifty years ago in a team work titled “Civilization at the Crossroads”. Marx puts emphasis on expressing the form of real human abilities and what the development of human abilities means; person’s ability to perform “general work”, i.e. to mutually intermediate and to bring to one another the processes in the field of his or her activity. This specific human ability can develop in an unlimited way because it is directly linked to the development of scientific knowledge. That is why Marx emphasizes that saving of working time means increasing the “time for the full development of an individual, which in turn reverses the productive power of labour as the greatest productive force (Marx 1974, p. 343). It is about how to imagine this transformation of free time to the full development of an individual who is retrospectively the most important economic source.

Absence of this idea then often leads to catastrophic reflections on the “uselessness” of the majority of population. In fact, it can be the complete opposite. The so-called Industry 4.0 (as a major technological change) will release a large number of people from the industrial production process, but the demand will grow for people in the field of productive services for the acquisition, preservation and employment of human capital, and so will in the field of personal care services to save time in personal life (in order to meet every day needs and in the area of care-taking in order to prolong the time for creative professional activity). This absence is also reflected in the fact that those who speak about the problem of employing people released by so-called Industry 4.0 also point out that there are few people who would be able to perform the professional tasks required by Industry 4.0. This schism is clearly reflected in documents, in which the state authorities devote attention to the so-called Industry 4.0 issue (MPO 2015; OECD 2017a).

The fact is that the process of transforming the development of human capacities into a factor of economic growth and a change in the nature of economic growth implies expansion of the productive services sector (education, health care, wellness etc.) and the transformation of this sector into the most important sector in the economy. We will try to show that it implies significant increase in the importance of teamwork and the formation of intergenerational and cross-generational teams aimed, among others, at mastering projects in the so-called Industry 4.0 field.

Firstly, we are going to define the basic concept of the fully-closed and fully merit based postgraduate extension of the current ongoing pension insurance system.

- The fully-closed nature of the system means that all the resources that will come to this system will be distributed by this system (there needn’t be any money revenues or subsidies from outside investments, and no money will leave the system).

- The fully merit-based nature of the system means that pension benefits are based equivalently on what a person has paid into the system according to the rules we specify.

- We call the system a postgraduate extension because it is only for those who have reached the statutory retirement age.

- This is a voluntary extension of the primary pay-as-you-go pension insurance system. As such, this extension does not utilize capital or fully-funded approach.

- A certain taxation of pension benefits is expected, from which a single basic benefit can be paid to all participants in the whole pension insurance system.

- It is also assumed that the system will be voluntary (everyone can decide whether he will participate or not) and that the system is individually adjustable in the sense that it can be used by a participant of the system at any given time and by any percentage he may draw the relevant pension benefit, whereas the undrawn amount enters back into system as its deposit.

Based on this notion, a mathematical model has been created (Mertl et al. 2016; Mertl and Valenčík 2017). Because of limited space in paper, we can briefly describe the results of maximum model calculation as follows.

- We assume a person with constant gross wage (e.g. 40 000 CZK – approximately 1,3 times the average wage in Czechia).

- We assume a social insurance contribution rate at 20% of the gross wage (e.g. \( p_m = 8 000 \) CZK for wage 40 000 CZK).

- We assume expected length of life as an average of men and women (unisex approach) and the mortality tables as published by Czech Statistical Office in 2016 (CZSO, 2016).

- We assume that a person is entitled to a pension 15 000 CZK from the pay-as-you-go social insurance since the social insurance statutory retirement age (65 years now, can be gradually decreased to e.g. 60). He pays both this whole amount and his social insurance contribution to the postgraduate extension and he does not receive any benefit during this payment phase.

- We assume the possibility of extension benefits’ taxation (e.g. 15%).

- When retiring at the statutory retirement age (65 years) a person gets just old-age pension benefit from pay-as-you go system \( d_s = 15 000 \) CZK.

- Stimulating increase with retiring at age 65 and 1 month (\( T = 65 + 1, n + 1 \)) we can compute as the sum of those values divided by life expectancy \( t(n) \), e.g. \( d_s(65 + 1) = d_s + p_m \).
\[ d_m(65 + 1m) = d_n(65 + 1m) / (12 \times t(n)). \]
\[ d_d(65 + 1m) = d_n + d_m(65 + 1m). \]
- Taxed pension is \( dd(n) = 0.15 \times d(n) \).
- If he retires at age 65 and 2 months his increase will be computed similarly but higher by the increase from previous period, e.g.
\[ d_k(65 + 2m) = d_n + d_m(65 + 1m) + d_m(65 + 1m) \]
\[ d_m(65 + 2m) = d_n(65 + 2m) / (12 \times t(n)). \]
\[ d_d(65 + 2m) = d_n + d_m(65 + 2m). \]
where \( n = 65, 66 \ldots \) years and \( T = n+1m, n+2m, \ldots \) months.

**Table 1. Resources’ accumulation, 65-80 years, full participation, thou. CZK**

<table>
<thead>
<tr>
<th>Age</th>
<th>life exp.</th>
<th>Amount paid ( d_n(n) )</th>
<th>Supp. pension ( d_m(n) )</th>
<th>Paygo Pension ( d_s )</th>
<th>Total pension ( d(n) )</th>
<th>Taxed pension ( dd(n) )</th>
</tr>
</thead>
<tbody>
<tr>
<td>65</td>
<td>18,12</td>
<td>23</td>
<td>0,11</td>
<td>15</td>
<td>15,11</td>
<td>12,84</td>
</tr>
<tr>
<td>66</td>
<td>17,40</td>
<td>307,39</td>
<td>1,47</td>
<td>15</td>
<td>16,47</td>
<td>14,00</td>
</tr>
<tr>
<td>67</td>
<td>16,67</td>
<td>608,92</td>
<td>3,04</td>
<td>15</td>
<td>18,04</td>
<td>15,34</td>
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<tr>
<td>68</td>
<td>15,95</td>
<td>930,19</td>
<td>4,86</td>
<td>15</td>
<td>19,86</td>
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</tr>
<tr>
<td>69</td>
<td>15,22</td>
<td>1274,30</td>
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<td>21,98</td>
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</tr>
<tr>
<td>70</td>
<td>14,50</td>
<td>1645,04</td>
<td>9,46</td>
<td>15</td>
<td>24,46</td>
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<tr>
<td>71</td>
<td>13,84</td>
<td>2047,07</td>
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<td>15</td>
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<td>15</td>
<td>30,71</td>
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<td>19,73</td>
<td>15</td>
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<tr>
<td>74</td>
<td>11,87</td>
<td>3498,17</td>
<td>24,55</td>
<td>15</td>
<td>39,55</td>
<td>33,62</td>
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<tr>
<td>75</td>
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<td>4091,34</td>
<td>30,39</td>
<td>15</td>
<td>45,39</td>
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<tr>
<td>76</td>
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<td>77</td>
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<td>60,66</td>
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<td>15</td>
<td>83,95</td>
<td>71,36</td>
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<tr>
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<td>85,35</td>
<td>15</td>
<td>100,35</td>
<td>85,30</td>
</tr>
</tbody>
</table>

Source: own calculations.
The primary objective of model testing has not been to show that if a person works as long as possible on the job market, his pension could reach very high amounts — that was just a demonstration of what the model is capable of. The aim was to show that with a suitably chosen lifelong career strategy one can gradually (e.g. after five years of full engagement in a postgraduate extension) loosen his workload, i.e., reduce his workload without lowering his income and reducing the entitlement to payments from postgraduate system after completing full employment. It is even possible to achieve a concurrent loosening of workload and income increases in the form of post-graduate extension payments from the pension system, which can be used by persons of higher and senior age for both above-standard productive services, which allow the consumption of required services, which will allow substantial time savings for creative activity.

The model and its testing show that the introduction of the postgraduate extension of the current pension insurance system is, among others, capable of:
- Ensuring uninterrupted sustainability of the on-going pension insurance system with sufficiently high retirement benefits.
- Creating conditions for active aging and quality fulfilment of life even in higher and senior age, both by source and by creating suitable motivations.
- Enabling gradual painless, risk-averse, and smooth reform of the entire current pension insurance system by shifting the threshold of 65 gradually lower according to current (or appropriately modified) early retirement rules. How the calculations change in this case is shown on the figure lower.
However, the main purpose of the model is that it shows the real possibility of creating an economic base for the expansion of productive services enabling the acquisition, preservation, and employment of human capital. Therefore, it is not only about how to ensure a decent standard of living and quality realization for people in older age, but primarily that a very strong and big demand for productive services and, at the same time, sources for their financing, which are created on a purely economic basis, is created by employing these people (to which the postgraduate extension motivates). This is not the only one, but significant and easily achievable, and concrete form of transforming the development of human abilities into the most dynamic factor of economic growth and the change in the character of this growth.

At this point, it is important to indicate for what the benefits from the postgraduate extension can serve. In various life situations, the following usage may become essential:

1) Above-standard forms of health insurance and schemes of their financing, which will be oriented to prolonging the productive time and quality of life. From the pure point of view of financial flows, we consider this area to be the most important. As a possible alternative to private health insurance, which has strong limitations caused especially by the necessity of individual health risk evaluation (medical underwriting) and related information asymmetry, prepaid schemes for individually adjusted health packages can be considered. Systemically in the form of health savings accounts, they also have disadvantages that become highly prominent if they are not supported by good universal health system (they quickly fail in poorer, older or sicker population with no or weak universal coverage). Therefore, we designed the prepaid schemes as an extension of well-covering universal health care system and
without special incentives to save money there, overcoming those
disadvantages largely (Mertl 2017).
2) Providing at older age social and support services that can enable the relevant
productive person to spare time and energy in order to perform the relevant
work activities. Nowadays, this is underdeveloped sector of economy, which,
of course, for many older experts’ case, means a waste of resources.
3) Educational activities in the context of lifelong learning. There is currently not
a sufficiently sophisticated "upgrade" system that would be functional. It is an
opportunity for universities to expand their sphere of activity at a time when
income-raising opportunities in the form of student outreach are in fact already
exhausted, and when due to a one-sided focus on mass tourism, some hidden
demand was created for the further education of university graduates. The
future can manifest in different forms.
4) Opening professional activities to extend the (limited) productive time. In
several concrete scenarios, this can be a very important area of funds drawn
from the postgraduate pension system. It is a means of compensating income
reductions due to the restriction of earning activities while maintaining the
ability to pay for the services mentioned in the preceding points. In other
words, from a certain age (which may vary in different cases, but a period
between 70 and 75 years can be considered), it is appropriate to gradually
reduce productive and gainful activities in such a way as to create conditions
for preserving the ability of teamwork associated with the application of that
knowledge and the experience he has gained during his life.

From the point of view of preliminary considerations based on the testing of
different accumulation strategies within the postgraduate system and their
utilization, it appears that significant share of the funds can be used for prepaid
health care and related services, aiming at preserving the physical and mental
well-being of a person who, as much as possible, is interested in long-term
employment, which subordinates to his life and career strategy.

4. Intergenerational Complementarity, Teamwork, and the Innovation
Potential of Society

One of the main objections to the proposed approach to pension reform in
a direction that would motivate a person to prolong a period of voluntary
productive employment comprises the fact that extending the time of a person’s
productive application reduces opportunities for employing young people. If
we rephrase this question into economic terminology, we can ask: Is there
a substitutive or complementary relationship between the employment of people
of different generations (i.e. older and younger)?
This question needn’t have a single answer. The relationship between the
employment of older and younger persons, between the employment of members
of different generations may be both substitutive (and then a displacement effect
will apply) and complementary (and then an induction effect may apply in the
sense that the more and the longer it is possible to preserve the employability of
older people, the greater the opportunities to hire younger people). It depends on the type of productive, or more precisely gainful activities. In general, it applies that in inertial development there is a substitution relationship between the employment of older and younger people. This is mainly because job performance is more or less routine and individual. Young people are better suited to perform it.

In case of development that is characterized by a high innovation intensity that is associated with the spread of innovation waves of higher intensity and higher density, i.e., in case of development that is based on human capital there is a complementary relationship prevailing between the employment of older and younger persons and induction effect is occurring here. This is mainly due to the fact that the necessary prerequisite of the preparation, suitable targeting and realization of the innovations comprises, by nature, performances not of a routine (i.e. creative) character; especially teamwork becomes absolutely necessary, namely, such teamwork that fully reflects the complementarity of performances not only of different skills but also of different generations. The importance of intergenerational transfer of professional experience grows and so does the importance of the innovative skills that one acquires gradually in the course of his professional career, which is based on long-time systematized and in practice verified knowledge.

In terms of requirements posed by the so-called Industry 4.0 (OECD 2017b) we can say that the near future in performing economies will belong not only to teams, but teams of three to four generations, i.e., intergenerational or rather cross-generational teams; teams that will be based on effective collaboration for up to four generations. Everyone who has been involved in realizing some truly significant innovation is aware of this.

Therefore, a comprehensive solution to the question related to the prolongation of term of productive professional employability of those persons who are capable of lifelong acquisition of knowledge in relation to gradually gained experience and who behave responsibly even in terms of preservation of their human capital, is of paramount importance for the economy, which is born from the current conditions.

The reader of this paper can develop the clearest idea of what complementarity is in cross-generational teams focused on implementation of innovations of higher order, among others, in connection with the question of what a precondition for social use is, i.e., the application of findings in practice, which are published in professional periodicals registered in recognized databases. Finally, the final effect of published ideas is relatively rare, despite several intermediations, indirectly, based on circumstances. With the current way of functioning of the relationship between theory and practice, the theory presented in expert press and social practice, there is often even a substitute relationship between innovation and the applicability of knowledge. The higher the innovativeness, the more difficult is the immediate applicability. This is naturally due to the functioning of science in conditions of very little developed team spirit, or more precisely the
absence of innovation-based teams, both in the field of manufacturing and industry, as well as in services, including services provided by public institutions. In an economy that is based on the application of significant innovation in the industry related to the use of options offered by Industry 4.0, as well as innovations in the sphere of institutional support for economy, the teamwork, ensuing from the generation of innovations, will form the basis of its performance. And under such conditions of non-inertial development, the demand for trans-generational complementary teams will grow significantly.

With a little exaggeration, it can be said that the teamwork education in our education system ends at the kindergarten level and is very much disappearing from the university environment. Forms of interdisciplinary collaboration between students, also from different study years and branches, at universities are developed minimally. Especially the universities must adapt to the new approach. The transition from low-innovation economy of particular individual performances to an economy based on the systematic creation and dissemination of relevant innovation through interdisciplinary and trans-generational teams will occur while saving work (as indeed all sources), but the demand for productive activities of two kinds will also significantly increase:

- Productive services activities aimed at acquiring, preserving and employing human capital (which will become the base of the economy in a similar way as industry at the time of the industrial revolution became a dominant sector as opposed to agriculture).

- Personnel service activities (social care and assistance) that will save time in the out-of-work hours of those to whom these services will be provided, and more effective spending of leisure time (both in terms of relaxation or acquiring social contacts, etc.).

It concerns a complex transformation not only in the economic but also in the social system. Their common denominator comprises an emphasis that the fulfilment of the real wealth of human life in full use of the possibilities of development and the application of its abilities is simultaneously the most important factor determining the dynamics and quality of economic growth. Economy based on these foundations will be characterized by a high intensity and innovation breakthrough, leading to significant savings of all kinds of resources (raw materials, energy, time, labour), but will also generate demand for human abilities and their diversity, so that no one wanting to engage in economy of this type, will be unnecessary, will not be forced to live in a suffused enclave saturated from public sources. The changes in the pension system we are proposing can be one of the important stimuli that will lead to fundamental changes in the economy. This is precisely because they contribute to the creation of a real economic base, which will show the economic effect of services connected with the acquisition, preservation and utilization of human capital (Valenčík 2014).

5. Conclusion
Current Czech pay-as-you-go pension system is not prepared well for the changes that are required by the transition to economy of productive services and
prolonging active participation of citizens on labour market. The full reform into NDC system with basic pension benefit has currently not been feasible within public choice framework, and fully-funded extensions have their limitations, too. Therefore, we introduced postgraduate pension system’s extension, that can relatively quickly increase the additional resources that a person can utilize at higher age to prolong his working career as well as reduce the workload and utilize services that improve his living standard and quality of life. This extension is targeted on later period of life where it is most important, especially for some professions, to maintain productive capacity and utilize the lifelong experience. The payments to this extension are made from pay-as-you-go pension benefits and social insurance contributions that he is obliged to pay. He can either have full engagement for which we presented model calculations, or since some point he can gradually decrease the engagement and start to receive the benefits.

The benefits from postgraduate extensions can be used for financing above-standard prepaid health packages, that shall help to maintain the participants’ health at adequate level, including his well-being and management of health services that he consumes. Also, lifelong education, social care and other productive services can be financed from those benefits. It is worth noting that primary purpose of this extension is not to save money there, but rather smoothen the financial flows that help participants to maintain good life standards and empower them with buying power for productive services they need. Also, having the possibility of gradual decrease of workload and working hours, together with partial replacement of the work income from the postgraduate extension benefit, is very important for older workers.

The participation in postgraduate extension influences the job market and employment. Traditional inertia vision that older workers can occupy jobs than could be overtaken by younger ones, and on the other hand that there are many jobs that cannot be done well by older workers has some merit. But it could be resolved (at least to some extent) by creation of cross-generational teams, specific jobs that will utilize mainly the experience of older workers, and also transition to economy of productive services, which can create new working places based on demand for specific abilities and innovative concepts that require cooperation between generations rather than competition. This can help to overcome one of the issues of Industry 4.0 concept, where on one hand jobs could disappear and on the other hand new qualifications and abilities are required.

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References


