

## **Population ageing and labour income in Poland: can extended working lives help to prevent the decline of the aggregate labour income in Poland?**

### **Extended abstract:**

The aim of the paper is to quantify the impact of population ageing on the level of aggregate labour income in Poland. The main research questions covered in the paper are as follows:

- To what extent changes in the size and the age structure of the Polish population can affect the size of the labour income, assuming current per-capita age profile of labour income relative to wages?
- How changing age profile by extending working lives and increasing intensity of employment can improve the aggregate labour income level?

In order to investigate these research questions, we use the national transfer accounts (NTA) approach. This method was developed by Lee and Mason (see for example Lee and Mason, 2011) and currently is applied in over 60 countries worldwide, including 26 EU member states<sup>1</sup>. The NTA is designed to provide a systematic and comprehensive approach to measuring and analysing economic flows from a generational perspective. The National Transfer Accounts profiles for Poland were estimated for 2012 (see: Chłoń-Domińczak and Łątkowski, 2017).

In the NTA framework, the labour income includes all compensation that is a return to work effort, including labour earnings, employer-provided benefits, taxes paid to the government on behalf of employees, and the portion of entrepreneurial income which is a return to labour. The age profile of employee compensation is estimated the EU SILC data.

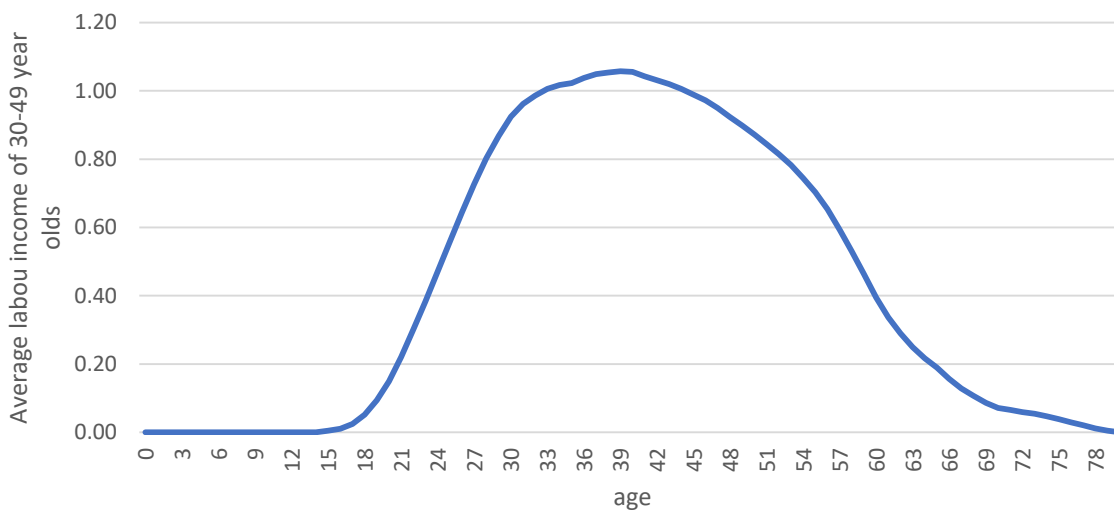
### **Labour income in Poland**

The age profile of the labour income in Poland, estimated according to the NTA method shows that the highest income in Poland is observed for 40-year-olds and is smaller for older cohorts, which can indicate a gradual withdrawal from the economic activity, most notably due to retirement or other pension arrangements, particularly for people in cohorts 55 and over.

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<sup>1</sup> Harmonised NTA dataset for EU countries was developed under the AGENTA project, financed from 7th Framework Programme ([www.agenta-project.eu](http://www.agenta-project.eu)).

**Figure 1. Per capital normalised labour income in Poland, 2012**

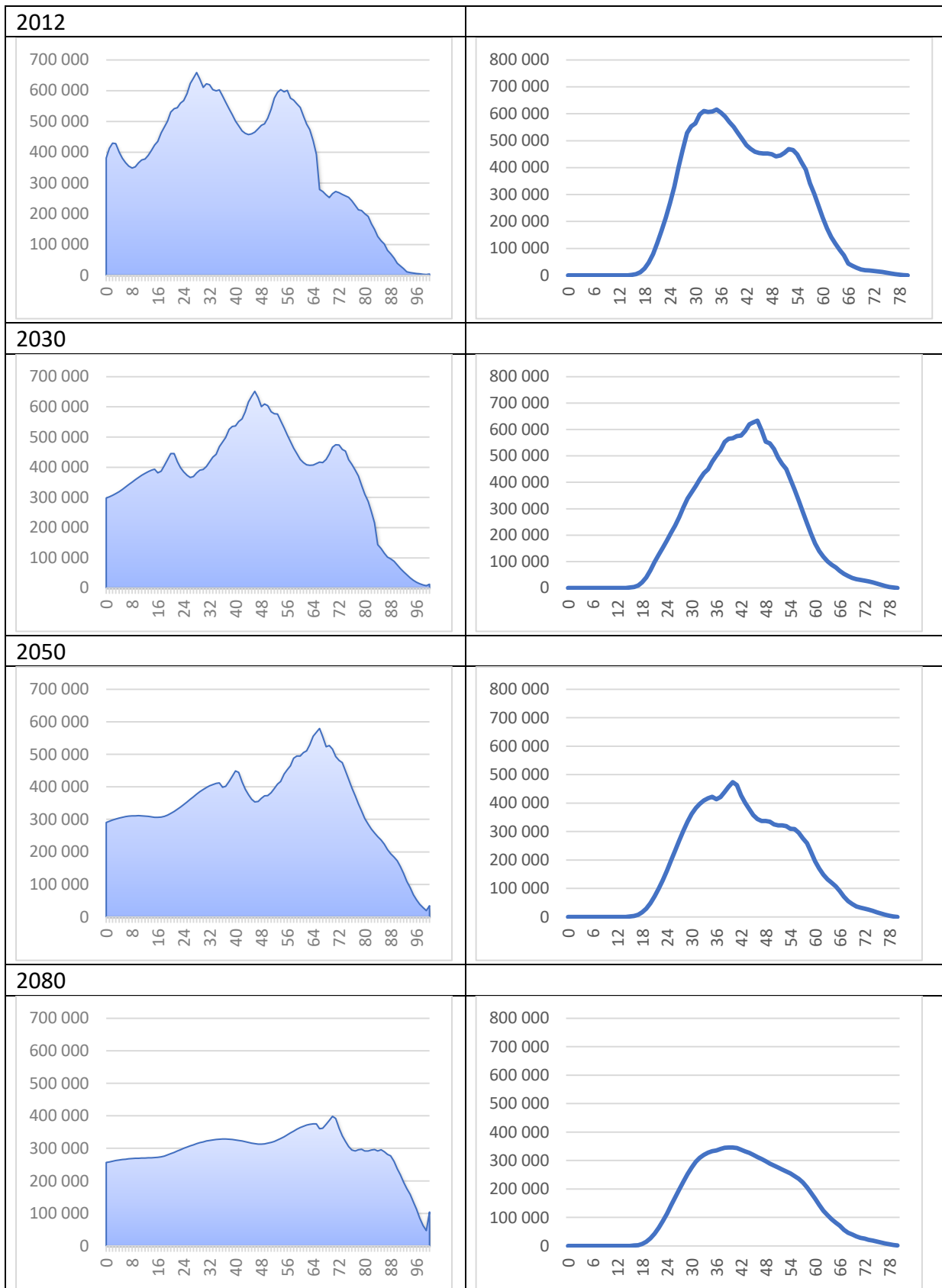


Source: Authors estimates, POLNTA project

Population projections for Poland indicate pronounced changes both in the size and the age structure of the population, caused by the population ageing. These changes will have an impact on the aggregate labour income. Assuming that the current age profile of the labour income is maintained, the level of aggregate income will evolve, which is shown in Figure 2. As a result, the aggregate labour income (measured in relation average annual labour income of 30-49 years) will gradually decline. In effect, by 2080 the estimated aggregate labour income could reach as low as 60% of the level observed in 2012.

Such a sharp decline of the aggregate labour income will have many implications. First, the overall level of consumption will be difficult to maintain and the resulting aggregate lifecycle deficit will increase (see: Chłoń-Domińczak and Łątkowski 2017).

**Figure 2. Projected population and aggregate labour income (measured as the number of annual labour income of 30-49 year olds), between 2012 and 2080.**



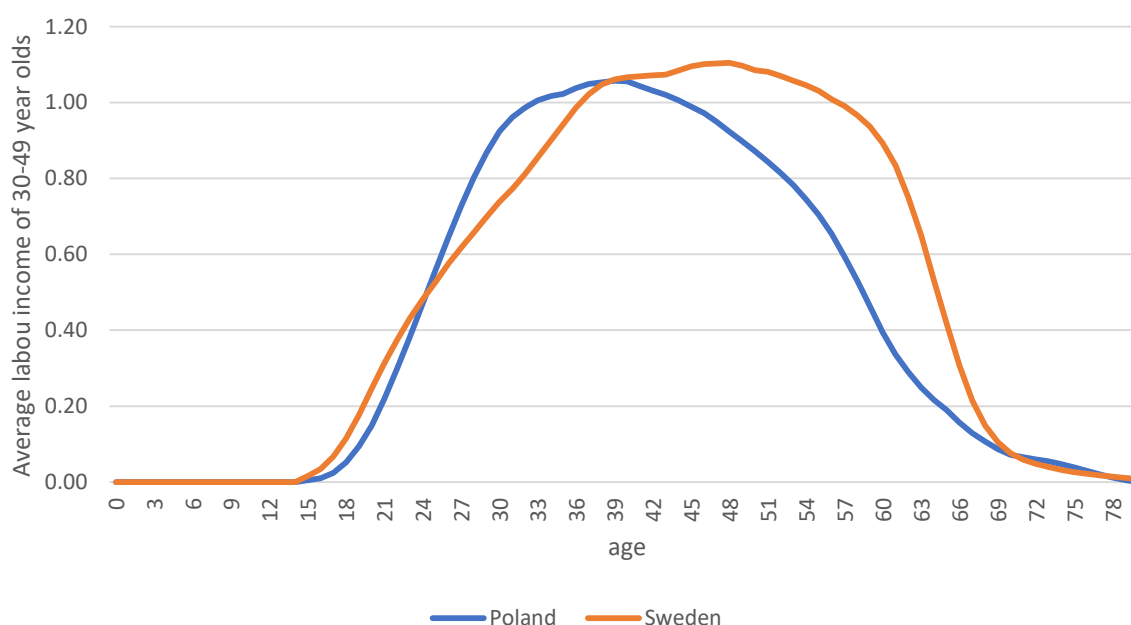
Source: Eurostat (population data) and own estimates (aggregate labour income).

## How extending working lives can affect the aggregate labour income?

One of the possible pathways to increase the aggregate labour income in the context of population ageing is the extension of working lives. In order to assess to what extent such change could contribute to compensate for the projected decline, we prepare a projection of the aggregate labour income assuming that the per-capita labour income will shift towards the level currently observed in Sweden.

Comparison of the per-capita normalised labour income for Poland and Sweden for latest available year is shown in Figure 3. Compared to the Polish profile, we can observe relatively lower level of labour income in age groups 24-38, which can be explained by higher share of part-time work, particularly among Swedish women. Between ages 39 and 70, the relative labour income in Sweden is higher, which is linked to longer working lives and later retirement in Sweden, compared to Poland.

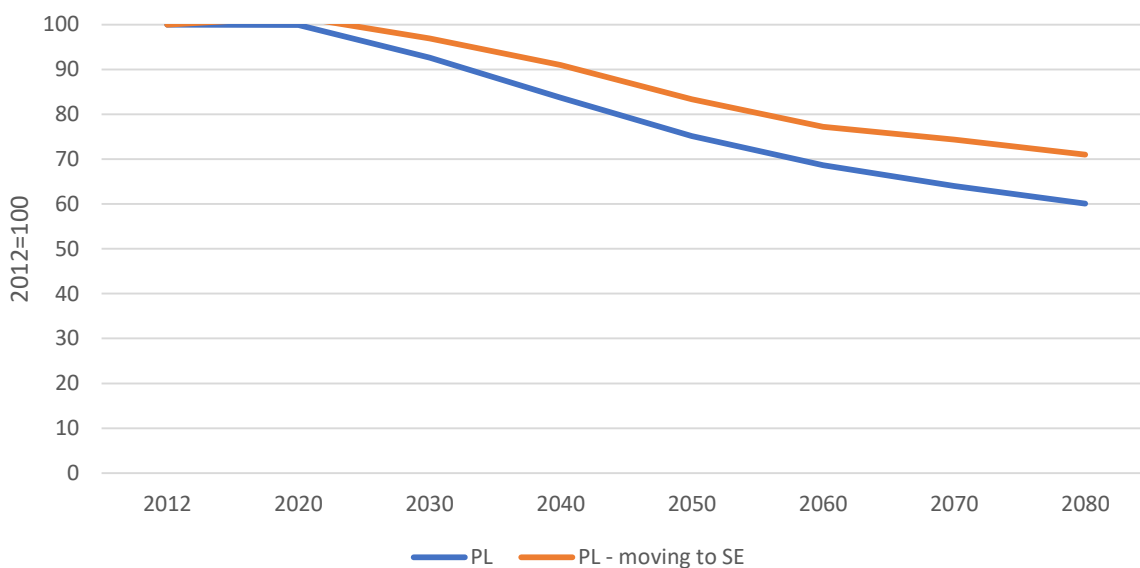
**Figure 3. Per capital normalised labour income in Poland 2012 and in Sweden (2010)**



Source: Poland: Authors estimates, POLNTA project, Sweden: AGENTA project (Istemic & Sambt, 2016).

In order to quantify the potential role of longer work in Poland, we projected the level of aggregate income, assuming that the per-capita labour income would shift gradually (assuming linear change) from the current level to the Swedish one between 2012 and 2080. Results of this projection is shown in Figure 4. Shift of the labour income profile can compensate partly for the projected working-age population decline.

**Figure 4. Projected level of aggregate labour income assuming constant and changing per-capita labour income profiles.**



Source: Authors' estimates

### Summary and conclusions

Population ageing will have pronounced impact on the expected level of the aggregate labour income in Poland. Decline in the number of people in working age will inevitably lead to the decline of the total income from work. Prolonging working lives is one of the potential measures to reduce the scale of this decline, but it is not sufficient to compensate for the total change.

### References:

- Chłoń-Domińczak, Agnieszka and Wojciech Łątkowski (2017). Generational distribution of consumption and income in Poland in the context of population ageing. Paper presented at CMR conference.
- Istemic, T., & Sambt, J. (2016). NTA age profiles in the EU countries results of the WP 1. *AGENTA Project Results*.
- Lee, R., & Mason, A. (2011). *Population Aging and the Generational Economy. A Global Perspective*. Edward Elgar Publishing Limited.